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Assessing the effects of food processing on $\delta^{88}Sr$ values in food resources

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Abstracts

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1 LOCAL KNOWLEDGE, RESILIENCE AND ADAPTATION IN LANDSCAPES FROM ANTIQUITY TO THE RECENT PAST

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Sam Turner (Newcastle University) – Natalia Moragas (University of Barcelona)
Keywords: climate change, societal change, agriculture, historical archaeology, Middle Ages
Format: Regular session

SESSION ABSTRACT

Social transformations have been key to archaeology since its beginnings. The interest is usually on the macro level: 'cultures', societies or early states. In this session, however, we ask how local societies reacted to large-scale changes in natural and social conditions (e.g. climate change or urbanization). For this, we suggest to understand small-scale cultural landscapes on the village-level as products of rural collective practices through time, anchored in a specific local knowledge. By this approach it should be possible to investigate a broad range of local reactions to external natural and social changes and thus to contrast with the usual, strongly unifying view on the macro level. We suggest a longue durée approach, starting in antiquity (or beyond), covering the Middle Ages and early modern times until the recent past to expand the possibilities of our societies for necessary local adaptations. Research questions of this session: 1. Did small-scale societies throughout Europe over the last two thousand years respond to changing environmental and societal conditions through landscape transformation? 2. What decision-making processes could have enabled small-scale societies to adapt and how were innovations introduced? 3. How do environmental and societal changes and responses to them manifest in the material fabric of local landscapes? 4. How effective were the adaptations made by small-scale societies in the long term? We encourage theoretical and methodological papers as much as case studies throughout Europe and the Mediterranean world.

CONTRIBUTION ABSTRACTS

1485. The Residential History of a Small Hellenistic Settlement through Accessibility Patterns: The Case of Jebel Khalid

Authors: Stefanos Karampekos (Philipps-Universität Marburg | Universität Bern)
Format: Oral

Jebel Khalid on the Euphrates is a small Hellenistic settlement of about 70 ha in present-day Syria. It was probably founded around 305 BCE, likely as a military outpost within Seleukos I Nikator's urbanisation programme and abandoned around 69 BCE following the Roman annexation of Syria. Since Roman occupation had little impact on the urban layout of the settlement, Jebel Khalid represents one of the most informative case studies for a small Seleucid foundation in northern Mesopotamia. This paper focuses on a residential block excavated since the 1980s by an Australian mission in a central part of the settlement. On the basis of a new space syntax analysis carried out as part of a binational PhD project in Classical and Near Eastern archaeology, the paper examines accessibility patterns within the houses and their development through different building phases. The analysis allows a discussion of how domestic space was organised at the household level, how movement within houses was structured, and how notions of access, privacy, and reception were negotiated within a local community. The results suggest that the organisation of residential space at Jebel Khalid was not static but adapted over time to broader social and historical conditions. Shifts in accessibility patterns point to changing household strategies during the history of the settlement, from its foundation as a thriving community in the core of the Seleucid Empire to later phases, when the settlement faced increasing insecurity during the turbulent period of imperial contraction. These spatial adaptations are interpreted as expressions of local knowledge developed within a small and probably culturally heterogeneous community, reflecting the interaction between Greek and Mesopotamian traditions in everyday domestic life. The paper contributes to broader discussions of local responses and adaptive practices in Hellenistic settlements in the eastern Mediterranean and Mesopotamia.

1502. Echinos (Phthiotis) through the Ages: Landscape, Connectivity and Community Resilience from Prehistory to Byzantium

Authors: Aristea Papastathopoulou (Ephorate of Antiquities of Pthiodida and Evrytania. Greek Ministry of Culture) – Oleh Vus (Independent Researcher)
Format: Oral

The modern village of Achinos occupies the site of ancient Echinos, a settlement strategically located on the northern shore of the Malian Gulf, at the foothills of Mount Othrys. Archaeological research of recent decades reveals a landscape of remarkable long-term continuity, with habitation attested from the Final Neolithic period through the Middle Byzantine era. This paper examines Echinos as a resilient cultural landscape, shaped by local knowledge and adaptive practices in response to environmental, political, and seismic challenges. Situated along the coastal route connecting Thessaly with southern Greece, Echinos developed in close interaction with its natural setting and regional communication networks. Drawing on approaches from landscape archaeology and resilience theory, the study focuses on how local communities repeatedly reconfigured urban space, infrastructure, and economic activities to ensure continuity rather than rupture. Fortification systems, first established in the 4th century BC and repeatedly repaired and reused in Late Antique and medieval periods, exemplify adaptive responses to military pressures and recurrent earthquakes. Local environmental knowledge played a crucial role in sustaining the settlement. Archaeological evidence for viticulture, farmsteads, wineries, and metallurgical activity points to a diversified rural economy grounded in soil fertility and access to coastal and inland routes. Funerary assemblages, coroplastic production, and epigraphic material further attest to strong local identities embedded within wider political and cultural frameworks. By integrating data from long-term and rescue excavations, this paper presents Echinos as a dynamic landscape, where resilience was achieved through the cumulative transmission of local knowledge across centuries. Ongoing research and heritage management initiatives seek to enhance the legibility of this multi-layered landscape and to support its sustainable engagement with the present.

1050. Long-term archaeobotanical perspectives on agricultural resilience under environmental and political precarity in (post)medieval Serbia

Authors: Ana Smuk (Independent researcher)
Format: Oral

Archaeobotanical evidence for medieval and post-medieval Serbia is scarce, unevenly distributed, and only partly published, yet it provides a rare material basis for examining agricultural decision-making in a highly dynamic setting shaped by shifting environments, diverse landscapes, and major political and cultural transformations. This paper investigates diachronic change in crop spectra from the medieval centuries into the Ottoman period, asking how far observed patterns can be attributed to ecological constraints, socio-political pressures, or their interaction. The analysis draws on a limited multi-site dataset from Serbia that includes settlements, fortifications, and monastic complex, integrating published and previously unpublished archaeobotanical material. Crop assemblages are compared across ecological settings and chronological phases to identify continuity and changes in cultivation strategies. The Ottoman period is approached as a context of heightened institutional constraint, in which fixed taxation and associated socio-economic precarity may have favored risk-spreading choices, including a potential intensification of short-season crops such as millets. These propositions are evaluated through joint reading of archaeobotanical evidence and written sources, especially fiscal documentation, to examine how environmental variability and institutional demands co-shaped cultivation, and how material and textual records align, diverge, and complement one another. A central component is evidential. The paper separates patterns supported by the current corpus from those that remain provisional, and uses this assessment to define priorities for future sampling and publication. By combining archaeobotanical and historical evidence while foregrounding limits of inference, it contributes a long-term perspective on agricultural resilience and precarity in (post)medieval landscapes.

2249. Impact of socio-economic and climate changes on the land use in East Crete from the Venetian Period to the Present

Authors: Rafal Bienkowski (System Research Institute Polish Academy of Science)
Format: Oral

This presentation aims to examine how socio-economic transformations and climatic factors have reshaped patterns of land-use in selected areas of Crete, leading to profound changes in the function and structure of the landscape. Particular attention is given to three key chronological moments: the Venetian period, the Ottoman period, and the modern era. The reconstruction of past land-use is based on a multidisciplinary approach that integrates historical records, archaeo-ethnographic evidence, and GIS documentation from the study area. These sources make it possible to identify former economic activities, settlement patterns, and long-term interactions between local communities and their environment during the Venetian and Ottoman periods. The assessment of contemporary land-use relies primarily on the analysis of satellite imagery and recent field photographs. Remote sensing data enable the identification of current land cover and land-use patterns, as well as the scale and dynamics of recent transformations. The results indicate that the combined influence of socio-economic change and climatic variability has significantly altered the ways in which the landscape is utilised, in some cases resulting in a complete functional redefinition of the studied areas. The study highlights the value of integrating archaeological, historical, and geospatial data in order to investigate diachronic landscape change and to better understand the processes driving long-term human–environment interactions in the Mediterranean region.

1148. Living Heritage - Agricultural Systems in Jordan. Case Study of Wadi al-Hasa

Authors: Grzegorz Sochacki (Univeristy of Warsaw)
Format: Oral

For several decades, research in the Negev Highlands has significantly advanced the reconstruction of ancient desert agriculture, particularly through the study of agricultural infrastructure associated with major centers such as Shivta and Avdat. These studies have demonstrated the development of highly adaptive runoff-based agricultural systems, originating in the Nabataean period and reaching their peak during the Byzantine era. Building on this research framework, the present study applies a comparable methodological approach to the Wadi al-Hasa region in southern Jordan, an area characterized by similar environmental constraints, geomorphology, and historical trajectories. The project focuses on the archaeological site of Khirbet edh-Dharih and its surrounding landscape, combining remote sensing analyses, GIS-based spatial observations, and systematic surface surveys within an established buffer zone. Emphasis was placed on identifying agricultural terraces and stone retention walls that rely primarily on natural runoff rather than modern irrigation infrastructure. Archaeobotanical evidence from Khirbet edh-Dharih indicates long-term continuity

in mixed agro-pastoral strategies, closely aligned with regional patterns observed across the Southern Levant. The results allowed for the reconstruction and typological classification of four principal agricultural system types in Wadi al-Hasa, reflecting both continuity and divergence from systems known in the Negev Highlands. While similarities include the optimized use of terrain morphology and stone-enclosed fields for fruit and olive cultivation, a notable regional distinction lies in the prevalence of agricultural installations developed directly within valley floors, employing characteristic U-shaped retaining walls to capture runoff and fertile alluvial sediments. Beyond reconstructing ancient agricultural practices, the study highlights the persistence of traditional land-use strategies as a form of "living heritage," demonstrating long-term human adaptation to semi-arid environments and offering valuable insights into sustainable agricultural practices in arid landscapes.

902. Harsh environment, tough people: Human Adaptation in the High-Alpine Valley of Schnals from Prehistory to Modern Times

Authors: Andreas Putzer (South Tyrol Museum of Archaeology)
Format: Oral

The Schnals Valley is located in the Bolzano province in northern Italy, and is characterised by its steep terrain. It is surrounded by high mountain ranges, with peaks reaching up to 3,600 metres. Consequently, it boasts a continental climate and is the warmest and driest valley in the eastern Alps. A key feature is the valley's isolation and challenging accessibility, which was possible only through alpine passes and a mule track before 1875. These natural conditions, coupled with the absence of raw materials, make the Schnals Valley an exemplary model for developing adaptive subsistence strategies in this inhospitable environment. Research conducted over the last 15 years has focused on the impact of human activity and/or climate change on the natural environment, including archaeological excavations and archaeobotanical analyses. Analyses of botanical macro remains as food residue served to clarify prehistoric subsistence strategies and compare the data with historical written records. The development of the natural and cultural landscape began in Schnals in the 2nd millennium BC, when social and economic exchanges increased throughout Europe, leading to social upheaval. During the Roman period, the intensive use of the high alpine valley ceased, and it was not until the 11th/12th century AD that the natural landscape was cultivated again. The dataset obtained in Schnals from archaeological and historical sources enables the cultivation processes in the Bronze Age and the Middle Ages to be compared, as well as the different motivations behind them.

767. Shaken but Unbroken: Resilience and Adaptation in Teotihuacan

Authors: Natalia Moragas (University of Barcelona) – Raul Pérez-López (IGME-CSIC Spain) – Pablo Silva (USAL Spain) – Javier Élez (USAL)
Format: Oral

This presentation examines the cultural dynamics of the Teotihuacan valley from antiquity to the present, highlighting the inhabitants' responses to natural agents inherent to the climate and hazardous geological processes of the Mexico Basin. It identifies and analyses various adaptive strategies that enabled a stable population over time. The urbanisation of the area presented numerous technical challenges, particularly in relation to intense rainfall, droughts, and seismic activity. It is not surprising that the environment of the Teotihuacan valley and its relationship with the population have been researched for several years. However, other natural phenomena, such as earthquakes, have been noted but remain relatively underexplored. Recent research by Pérez-López et al. (2024) have identified five significant earthquakes that not only impacted the buildings but also necessitated a re-evaluation of the local environment by the Teotihuacanos. These adaptations, however, transcend mere technical solutions; they are also deeply embedded in the symbolic life of the inhabitants. As occurs today, the ancient cultures of the Valley of Mexico had to face cope several strong earthquakes (and other calamities) per century, and perhaps their resilience and resistance were overwhelmed by urban growth and overpopulation. It is easy to imagine that in their religious view of nature, conventional practices against natural disasters became unsuccessful as small societies grew larger and land-use planning necessarily required the abandonment of large settlements, the reorganization of the territory and starting from scratch. From a long-term perspective, it is essential to consider the deep impact of the colonisation of Mesoamerica, which initiated a process of acculturation that affected traditional knowledge while also allowing for the persistence of these cultural practices.

1181. Global climate change, regional environmental impact, and local adaptation strategies: Challenging the "Stormy Little Ice Age" narrative

Authors: Raphael Kahlenberg (Durham University | Heidelberg University) – Karen Milek (Durham University)
Format: Oral

During the Little Ice Age (ca 1300–1850 CE), a period of increased climate instability in wide parts of Europe, coastal landscapes around the North Sea basin were exposed to enhanced storminess, resulting in sand inundations caused by transgressive dunes. While it has long been acknowledged that the impacts of large-scale atmospheric circulations varied between different regions, many geomorphologists, archaeologists and historians still tend to adopt deterministic frameworks for studying human-environment interactions during this period. This paper questions the validity of these approaches by evaluating to which degree "climate" proxies in sedimentary archives carry mixed climatic and anthropogenic signals. It argues that coastal landscape modifications and land use patterns have a significant impact on many types of deposits frequently used for reconstructing local storminess, rendering

them problematic for microclimate reconstructions. When such records are interpreted uncritically, correlations between archaeological or documentary evidence and inferred climatic events risk becoming self-reinforcing narratives. We present an alternative approach centred around a geoarchaeological case study from Holy Island (Lindisfarne), a tidal island off the coast of North-East England. By integrating sedimentological data with archaeological evidence, historic maps, and documentary sources, we demonstrate how a multi-proxy approach enables more nuanced interpretations of coastal dune destabilisation and local strategies of adaptation during the medieval and modern periods.

353. Legal and Fiscal Landscapes as Long-Term Local Adaptations in the Czech Lands

Authors: Jana Mazackova (Masaryk university) – Petr Vachůt (Brno City Museum)
Format: Oral

This paper examines how rural communities responded to major social, economic, and institutional changes through the long-term stabilisation of cultural landscapes. The case study draws on the central Bohemian–Moravian Highlands, with broader relevance for newly settled areas of the Czech Lands during the High Middle Ages. Colonisation developed as a controlled process directed by seigneurial authorities aiming to establish a stable economic base for emerging estates. It combined the agricultural transformation of sparsely settled, forested landscapes with extractive activities, including gold mining in the early phase and silver mining in the thirteenth century. A key element of this process was a structured colonisation package including systematic land measurement, regular parcel systems, and a parcel-based fiscal regime embedded in medieval land-administration frameworks. From the outset, the parcel functioned as the basic legal and fiscal unit, linked to hereditary leaseholds and obligations in labour, payments in kind, and later monetary dues. Although introduced top-down as an instrument of estate management, the system's long-term stability depended on the capacity of village communities to sustain agricultural production. The parcel framework was not spatially rigid but showed differentiated stability. Village intravilans display locational continuity combined with building dynamism, while the highest degree of structural stability is observed in the immediate agricultural hinterland, where parcel systems persisted over the long term, in some cases into the present. Towards cadastral margins, greater dynamics reflect the abandonment of settlements and central places. The agricultural land of deserted villages was remeasured and leased to peasants from neighbouring settlements as part of pragmatic estate management. Interpretation relies on integrating LiDAR analysis and systematic field survey with archival and cartographic evidence. The study demonstrates that cultural landscapes function as long-term archives of economic and legal-fiscal systems, whose continuity can significantly outlast individual settlements, centres, and institutions.

317. Adaptive Land use strategies in the ironworking landscapes of the Slovak Ore Mountains from the middle ages

Authors: Filip Vološin – Josef Petráš (Archaeology Institute of Slovak Academy of Sciences)
Format: Oral

This presentation is aimed to showcase the ironworking landscapes of the Slovak Ore Mountains as products of long-term local knowledge, collective practices, and adaptive strategies of small-scale rural societies. Focusing on a longue durée perspective from the Middle Ages to the recent past, the study examines how local communities responded to changing conditions, resource availability, and broader socio-economic transformations through repeated change of land use. Iron mining, ore processing, charcoal production, and agriculture formed an interconnected system in which activities alternated or coexisted according to local needs and external pressures. Periods of intensified mining often replaced agricultural land use, while phases of decline in iron production allowed the re-establishment of agricultural cultivation. These adaptive strategies are materially visible in the cultural landscape, where mining relics such as shafts, extraction pits, and charcoal platforms intersect with and disrupt medieval and early modern field systems. The presentation draws on archaeological surveys, analysis of landscape relics, and historical sources to investigate local decision-making processes and the transmission of technical and environmental knowledge. Particular attention is paid to how innovations in iron production and resource management. By analyzing landscape transformation at the village level, this contribution highlights the resilience and flexibility of rural communities and demonstrates how environmental and societal changes are inscribed in the material fabric of local ironworking landscapes in Central Europe.

609. Resilience and adaptation of early medieval populations: what funerary practices and complexes of Bordeaux (Fr) tell us (4th-12th centuries)

Authors: Tiphaine Joseph Balaguer (Ausonius, Bordeaux Montaigne University)
Format: Oral

The relationship between landscape and societies is a central topic for the understanding resilience and adaptation through centuries. Funeral practices and complexes are a good clue to grasp these concepts through the relation between the living and their dead. The study of early medieval funeral spaces in Bordeaux (France) and their territory has made it possible to highlight the strong resilience of these sites in both their topography (installation on pre-existing non-funerary sites, environmental determinism ?) and their function, because many funeral sites show significant continuity from the early medieval period to the contemporary period. Some poles permanently mark the landscape. We will explore the reasons for this resilience (natural topography and/or the installation of a powerful structuring entity ?). We will also see that these big poles can cause landscape changes by polarizing graves and provoking the abandonment of nearby sites which quickly lose their funerary function. The period between the end of Antiquity

and the 12th century is particularly revealing because it straddles two social and organizational logics. It will be about navigating between resilience and adaptation, two phenomena sometimes complementing each other.

1619. Between Wilderness and Community: Uncovering the Lost Cultural Landscape of Senokos Village, Serbia

Authors: Mila Mitrovic (University of Belgrade - Faculty of Architecture | Neozoik Foundation) – Jelena Mihailović (University of Belgrade - Faculty of Architecture) – Nemanja Pavlović (University of Belgrade - Faculty of Philosophy | Neozoik Foundation) – Boris Rančev (University of Niš - Faculty of Civil Engineering and Architecture | Center for Sustainable Spatial Development "BalkanARHitrav") – Vera Petronijević – Stanislav Paunović (University of Belgrade - Faculty of Architecture)
Format: Poster

This research is conducted within the interdisciplinary, NGO-led project Let's Not Grind the Past, which explores watermills as endangered elements of rural cultural landscapes and as material evidence of local knowledge, resilience, and long-term adaptation. The project is based on the premise that watermills are not isolated architectural objects, but landscape-based systems shaped through continuous interaction between communities and natural environments. The study focuses on watermill heritage through an in-depth analysis of the last surviving watermill in the village of Senokos, located along the Vodenička River in southeastern Serbia. Dating from the late nineteenth to the early twentieth century, the watermills of this area once formed a network of 23 structures, reflecting a historical landscape in which hydropotential was actively harnessed as a key resource for subsistence and local economy. Until the mid-twentieth century, Senokos had approximately 650 inhabitants whose livelihoods depended heavily on watermills as essential sources of flour and food security. Processes of urbanization and rural depopulation in the second half of the twentieth century led to a drastic demographic decline, leaving only eight residents in the village today. The relationship between people and landscape is examined through construction materials and building techniques as expressions of local knowledge and sustainability, as well as through the spatial positioning of watermills within the river system. Archaeological reconnaissance documents both standing and collapsed mills, later analyzed using QGIS software, while ethnological research collects oral histories, legends, and local perceptions of nature and heritage. Positioned between wilderness and community, the Senokos watermill landscape reveals strategies of "taming" natural forces and adapting to mountain environments. By integrating this multidisciplinary approach, the project contributes to reconstructing the cultural landscape of the area and offers insights into local practices, spatial organization, and everyday life in nineteenth-century Senokos.

1962. Living through 150 years of war – Rural communities in the Hungarian border zone between the Ottoman and Habsburg Empires

Authors: Ágnes Kolláth – Bianka Kovács – Gyöngyi Kovács (ELTE Research Centre for the Humanities, Institute of Archaeology)
Format: Poster

The 16th-17th centuries were a tumultuous time in Hungarian history, stuck between the two most significant powers of the era. The middle of the medieval kingdom came under Ottoman rule by the 1540's, while the northern and western counties belonged to the Habsburgs. County Fejér, the study area of the present poster had been a flourishing centre of the country between the Danube River and Lake Balaton, then became a border zone of the two warring empires during these 150 years. The civilian population faced constant skirmishes, not to speak of the devastation brought on by large military campaigns. They also had to live under double administration and taxation, as their former Christian and new Ottoman lords could both enforce their demands in the unstable environment. These factors took great toll on the rural settlement network. Many villages have been abandoned, other places became scarcely inhabited due to population loss, while some communities managed to get through. Thanks to numerous past and ongoing projects mapping the archaeological topography, the material culture and the historical sources of the region, we have an extensive knowledge on these processes. Our examples show the most typical tendencies. Dwindling communities that merged to be able to maintain their livelihood. People that fled to more secluded villages or established temporary refuges in the wilderness during dangerous times, then moved back near the main roads. An agriculture that shifted gradually towards animal husbandry in a region with excellent arable lands, as livestock was easier to keep, hide, transport and sell than crops. In summary, extreme mobility, efficient information exchange and code switching in communication were keys to survival, and this study shows how rural communities managed or failed this near-impossible adaptation.

2 BENEFITS AND CHALLENGES: CELEBRATING INTERDISCIPLINARY ARCHAEOLOGICAL COLLABORATION IN THE CARPATHIAN BASIN AND THE BALKANS

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Attila Gyucha (University of Georgia) – William Parkinson (Field Museum of Natural History) – Roderick Salisbury (University of Bratislava)
Keywords: Carpathian Basin, Balkans, Collaborative research
Format: Regular session

SESSION ABSTRACT

The Hungarian–American Körös Regional Archaeological Project marks its 25th anniversary of fieldwork in Hungary. To celebrate this milestone, the session's aim is made explicit: it seeks to showcase international archaeological projects operating in the Carpathian Basin and the Balkans, to highlight their principal research results and methodological or theoretical contributions, and to offer critical reflections on the advantages, challenges, and broader implications of international cooperation in these regions. Over the past decades, scholars from varied academic and cultural backgrounds have worked together to explore the complex historical trajectories of Southeast Europe, producing new insights into the social, economic, and cultural dynamics of ancient communities. Presentations in this session will not only highlight key archaeological findings but also examine innovative approaches and consider how international collaborations have informed these methods. Special emphasis will be placed on how cross-border cooperation has shaped field practices, interpretive strategies, and the development of long-term research agendas across southeastern Europe. The organizers welcome contributions on both prehistoric and historic periods, provided they engage substantively with international cooperation. Equally important, the session invites discussion of the practical, institutional, and intellectual challenges encountered throughout such collaborations, from logistical and administrative constraints to differences in academic traditions and expectations. By bringing these perspectives together, the session aims to foster a constructive dialogue about how international partnerships enhance research potential, expand interpretive possibilities, and strengthen scholarly networks, while also identifying lessons that may guide future collaborative efforts across the Carpathian Basin and the Balkans.

CONTRIBUTION ABSTRACTS

637. Advancing Archaeological Research Through International Collaboration: Reflections from the Körös Regional Archaeological Project

Authors: Attila Gyucha (University of Georgia) – William Parkinson (University of Illinois at Chicago)
Format: Oral

International collaboration constitutes a critical mechanism for the advancement of archaeological research, facilitating the development of innovative methodologies and the refinement of interpretative frameworks. The Körös Regional Archaeological Project (KRAP) offers an illustrative case study, demonstrating the transformative potential of sustained, cross-cultural partnerships. This presentation examines KRAP's collaborative trajectory over the past quarter of a century, elucidating how enduring international cooperation can generate theoretical and methodological contributions to the discipline. KRAP's multidisciplinary research design integrates geophysical prospection, systematic surface collections, targeted stratigraphic excavations, and a suite of advanced analytical methodologies. By synthesizing diverse academic traditions and methodological paradigms, the project has enhanced our understanding of the Neolithic and Copper Age in Southeastern Europe while simultaneously catalyzing the development of independent, yet highly interconnected, research programs. These scholarly collaborations have fostered an expansive academic network that transcends geopolitical boundaries. A salient insight derived from KRAP's sustained research activities is the demonstrable value of long-term, regionally focused investigations in generating nuanced reconstructions of past sociocultural dynamics. Our experiences suggest that research partnerships grounded on mutual respect, equitable intellectual exchange, and shared scholarly objectives yield outcomes that surpass those attainable through isolated investigative endeavors. Such collaborations enable archaeologists to address complex anthropological questions with a degree of analytical depth and comparative breadth that would otherwise remain elusive. This presentation emphasizes the importance of cultivating and sustaining international collaborations. By sharing resources, expertise, and diverse perspectives, international, truly collaborative projects not only advance knowledge about the ancient past but also contribute to the broader discourse on global heritage and cultural interconnectedness.

953. Neolithic Archaeology and Soilscapes in the Körös Area; you don't just step inside to 18 years

Authors: Roderick Salisbury (Comenius University Bratislava | Austrian Archaeological Institute) – Gábor Bácsmegi (Múnkácsy Mihály Museum)
Format: Oral

The Hungarian-American Körös Regional Archaeological Project (KRAP) recently marked its twenty-fifth anniversary. For two decades of that history, a second international collaboration has been active in the Körös Basin. This paper presents some results, as well as ongoing challenges, emerging from the collaborative Hungarian-American (Austrian, Slovakian) NASKA project. A child project, NASKA developed from KRAP, with shared methodological interests and common questions concerning Neolithic prehistory. These convergences have contributed to a better understanding of human–environmental interactions, cultural resilience, and changes in social organization over the course of the Neolithic. A mutual emphasis on geoarchaeological approaches and on intra- and inter-site settlement patterns has been enriched by differing intellectual backgrounds and theoretical perspectives. The productive tensions arising from these differences have shaped both the trajectory of the project and the personal friendship of the authors. Drawing on recent fieldwork, we summarize evidence bearing on the early stages of settlement nucleation during the middle-to-late Neolithic transition, with particular attention to the relationship between fluctuating groundwater levels and human

settlement decisions. The paper concludes by outlining future research directions and considering their implications for the development of new international collaborations.

137. On the Shoulders of Giants: Improvements to Archaeological Methods and Techniques in Southeastern Hungary as a Result of International Collaborations

Authors: Danielle Riebe (University of Georgia) – János Dani (University of Szeged | Déri Museum)
Format: Oral

As the result of international collaborations, archaeology in Hungary uniquely has been shaped by the blending of different traditions (Hungarian, German, Russian, British, and American). Following the symbolic commencement of collaborative archaeological research in the Körös-Berettyó region in 1927 by Cambridge professor L. C. G. Clarke and Lajos Márton, Ferenc Tompa, and Lajos Zoltai, it would be decades before other researchers pursued similar cooperative efforts. From the 1970's onwards, collaborations in southeastern Hungary between Hungarian scholars and foreign colleagues has advanced prehistoric research to make this region not only one of the best studied from the Neolithic to the Bronze Age, but also one of the most innovative regarding implemented investigatory and analytical techniques. Early remote sensing techniques were first utilized to study prehistoric settlement layouts in the Körös region by István Torma and Andrew Sherratt. In the 1980's, collaborations between Ferenc Horváth and John O'Shea carried out systematic radiocarbon analyses at Bronze Age sites to model cultural change over time. In the following 2000's, directors of the Körös Regional Archaeological Project, Attila Gyucha and William Parkinson, combined both remote sensing techniques and radiocarbon dating to model settlement developments at Early Copper Age and Late Neolithic sites. Building on and improving these methodological approaches in the 2010's was the Prehistoric Interactions on the Plain Project (PIPP) directed by János Dani and Danielle Riebe, which sought to reconstruct Late Neolithic interactions and socio-cultural boundaries at various scales. These projects and the collaborations have advanced anthropological knowledge and created a lasting legacy of transformative archaeological research in the region.

1649. Collaborative Research in Transylvania: Past and Future of BATS and MARBAL Projects

Authors: Elizabeth Arnold (University of California, Los Angeles) – Colin Quinn (University at Buffalo) – Horia Ciugudean (Muzeul National al Unirii-Alba Iulia) – Jess Beck (University College Dublin) – Sophie Chorek (University at Buffalo)
Format: Oral

2026 marks the 16th anniversary of the creation of the Bronze Age Transylvania Survey (BATS) Project, an international research project designed to better understand the Bronze Age period in the Transylvanian region of Romania. Since the first field season in 2011, BATS Project members have conducted months of fieldwork nearly every summer, identified and excavated dozens of newly discovered archaeological sites, contributed almost 100 new radiocarbon dates that have helped to rewrite the regional chronology, and analyzed tens of thousands of artifacts. In 2016, BATS expanded and initiated the Mortuary Archaeology of the Râmeț Bronze Age Landscape (MARBAL) Project, an interdisciplinary collaboration focused on the intersection of mortuary archaeology and bioarchaeology to better understand the origins of inequality and the role of human mobility in Late Prehistoric Transylvania. This presentation outlines the origins and contributions of the BATS and MARBAL Projects to our understanding of the Bronze Age in Transylvania and the surrounding regions. By incorporating GIS, geophysics, radiocarbon dating, osteological analyses, isotopic analyses of diet and mobility, ancient DNA, network analysis of ceramics, and soil chemistry into our projects, we have been part of the larger scientific transformation of Romanian Bronze Age research. Our projects have provided training opportunities for Romanian and American students at all academic stages and expanded the visibility of Transylvanian archaeology, both in Europe and internationally. We have employed community-based research approaches and engaged in activism around contemporary mining issues. In this presentation we highlight the most recent discoveries from the project, including avenues of future research as we move our collaborations in new directions.

1306. Collaborating for a CLEARer picture of the Copper Age (4500-3600 BC) in the Carpathian Basin

Authors: William Ridge (University of North Georgia) – Iride Tomažič (University of Michigan)
Format: Oral

Shortly after c. 4500 BC, there was a sweeping change in the social landscape throughout the Great Hungarian Plain as tells and other larger centers were abandoned. The following centuries were characterized by significant transformations in social organization and cultural traditions. However, despite recent research, explanations of the period remain vague. Part of the limitation stems from a comparatively sparse and sporadic archaeological record for the Copper Age, a pattern repeated throughout much of Southeastern Europe. Building on their own research examining shifting settlement patterns in southeastern Hungary and the environmental impacts of technological intensification in Serbia and Romania, the authors developed the Copper Age Lifeways and Environmental Archaeology Research program (CLEAR). Viewing the Copper Age as potentially representing a fundamental shift in how societies interacted with both their social and physical landscapes, CLEAR incorporates archaeological and paleoenvironmental data to illuminate regionally diverse patterns in mobility, economic strategies, and landscape use. By examining these processes with a rigorous sampling strategy and methodology, patterns will emerge from the noise at the local and regional scales. It is also a primary goal of CLEAR to cross-cut historical barriers among the region's research traditions (i.e., Hungary, Serbia, and

Romania) and to generate collaborative efforts to produce meaningful interpretations of the Copper Age.

1253. From Mokrin to Crna Bara: 60 years of International Archaeological Collaborations in Serbia's North Banat

Authors: Miroslav Maric (Institute of Balkan Studies Serbian Academy of Sciences and Arts) – Neda Mirković Marić (Intermunicipal Institute for the heritage protection Subotica) – Lidija Milašinović (Narodni Muzej Kikinda) – Barry Molloy (University College Dublin, School of Archaeology) – Amy Nicodemus (University of Wisconsin, La Crosse)
Format: Oral

International cooperation has played an important role in advancing archaeological research in Serbia's North Banat region. The earliest collaborative effort began in 1969 with investigations at the Mokrin necropolis, establishing a foundation for cross-border partnerships in the study of prehistoric communities. Building on this legacy, renewed cooperation in 2015 brought together Serbian researchers from the Subotica Heritage Protection Institute, National Museum in Kikinda and Balkan Institute of SASA toogether with University College Dublin to examine Late Neolithic and Late Bronze Age settlement of Gradište Idjoš. This project emphasized the questions of first settlers, emerging complexity of Neolithic settlements and Late Bronze Age megaforts, offering new perspectives on social organization and community development during these transformative periods. Further collaboration followed in 2018 at Anka Siget, where teams from the University of Wisconsin and the University of Michigan joined Serbian archaeologists to explore an Early Bronze Age tell. The research focused on the site's role within broader regional network of the Maros culture, highlighting its significance in understanding intercommunity connections and exchange systems across southeastern Europe. Most recently, in 2020 and 2022, other projects with Michigan University and UCD investigated the transition from the Late Neolithic to the Early Copper Age at Crna Bara and Bronze Age settlement network in the Lower Tisza River valley. Together, these projects demonstrate how international partnerships expand interpretive possibilities, enrich methodological approaches, and strengthen scholarly networks. By integrating diverse academic traditions and expertise, cooperation has not only deepened knowledge of specific sites but also contributed to broader narratives of social, economic, and cultural change in the Carpathian Basin and the Balkans. The North Banat case illustrates how sustained collaboration - across institutions, disciplines, and generations - continues to enhance archaeological research potential and foster innovative perspectives on the prehistoric past.

2560. Interdisciplinary approaches and their integration in Late Bronze and Early Iron Age studies at the SE fringes of the Alps

Authors: Matija Crešnar – Tamara Leskovar – Petra Vojaković – Branko Mušič – Luka Gruškovnjak – Agni Prijatelj – Helena Grčman (University of Ljubljana) – Ian Armit (University of York) – Carina Gerritzen – Christophe Snoeck (Vrije Universiteit Brussel)
Format: Oral

Monumental hillforts and extensive cemeteries are among the most iconic prehistoric features well beyond the region between the Alps and the Danube. Their research has a long tradition reaching back to the antiquarians, when the foundations of prehistoric archaeology and its classical methodological toolkit were established. While these approaches continue to play an important role in our discipline, recent decades have seen the introduction of numerous innovative and adapted methods that have significantly expanded our research potential. This paper focuses on the research collaborations, which brought about substantial changes in the approaches especially to late prehistoric sites and landscapes from the late prehistoric periods at the SE fringes of the Alps and reviews major interdisciplinary advances and also their impact on existing interpretative frameworks. The extensive application of airborne laser scanning and geophysical prospection has greatly improved the understanding of archaeological landscapes, allowing archaeological sites and site complexes to be interpreted as integral elements of their wider environmental and cultural contexts rather than as isolated monuments. Further progress has been achieved through geoarchaeological approaches that enable more detailed reconstructions of site formation processes and the complex biographies of prehistoric sites and features. In addition, advances in artefact studies and bioarchaeological analyses—particularly stable isotope and genetic research—have opened new perspectives on individual life histories, social relations, and demographic patterns at unprecedented scales. There are also current research initiatives as the MATRES project and the newly established GreenHer CoE that will shape our research in the nearest future. We are also integrating our research results into heritage promotion, as for instance into the Iron Age Danube Route, a certified Cultural Route of the Council of Europe. Nevertheless, despite all the excitement about new interdisciplinary pathways, which seem more open than ever, all that glitters is not gold…

376. Unraveling Urban Change: Ten Years of the Nadin-Gradina Archaeological Project

Authors: Gregory Zaro (University of Maine) – Martina Čelhar (University of Zadar)
Format: Oral

In 2015, the Nadin-Gradina Archaeological Project (NGAP) was launched as an internationally collaborative program of research and education between the University of Zadar (Croatia) and the University of Maine (USA). From its outset, the overarching aim of the project was to investigate millennial-scale urbanization and landscape change in the eastern Adriatic. This broad scope would ensure that a variety of shared, and sometimes distinctive, interdisciplinary interests would find a place within the overall

conceptual framework. The Nadin-Gradina site is centrally located in Ravni Kotari, a heavily urbanized region of Dalmatia in Antiquity. Archaeological excavation has documented well-preserved, albeit palimpsestic, architecture and cultural deposits dating to at least the Late Bronze or Early Iron Age, with continuous occupation lasting approximately 1,500 years into Late Antiquity. The fortified settlement was abandoned during the Early Middle Ages but witnessed revitalization by the Late Middle Ages and Early Modern Era. The integrity of the archaeological record, which spans nearly 3,000 years, has afforded the opportunity to explore architectural continuity and change, domestic spaces, long-distance exchange, changes in wider geopolitics, faunal assemblages, and the botanical record as a reflection of landscape and environment. Here, we elaborate on some of these key findings while also reflecting upon methodological strategies and innovations, interdisciplinarity, and the value of cultural exchange in such programs.

757. Loving the Alien: the international cooperation in the research of local prehistories

Authors: Goce Naumov (Center for Prehistoric Research)
Format: Oral

Since its inception as a discipline, archaeology was both international and national. From the very beginnings the European monarchies engaged archaeologists for research in their colonies, so in a way a notion of internationalism could be traced since the inception of archaeology. On the other hand, with the development of archaeology and the integration of identity concept, the governments employed this discipline as a tool for emphasizing the relationship of the nation with the past communities, sometimes going back to classical and even prehistoric times. Fortunately, since the aftermath of the World War II the archaeology is far from these gloomy periods and the international cooperations witness mutual benefits while the nationalistic perceptions are set aside…although some ghosts of the past are still lurking, and particularly in the Balkans. The last few decades evidence an intensified scientific cooperation between institutions and specialists from the Balkans, European Union and United States of America which substantially advanced and expanded the knowledge on prehistory. As result to the foreign collaborations the groundbreaking multidisciplinary methodology was applied and the awareness of prehistoric cultural heritage was much better promoted. Therefore, this paper will sum up the international cooperation in prehistoric archaeology of North Macedonia with particular focus on decadal anniversary of the Center for Prehistoric Research and the implemented projects in the regions of Pelagonia, Lake Ohrid and Lake Prespa.

1582. Between Steppe and Carpathians: Yamna and Corded Ware Barrows in the East Slovakian Lowland

Authors: Pawel Jarosz (Institute of Archaeology an Ethnology Polish Academy of Sciences) – Anita Szczepanek (Institute of Archaeology an Ethnology Polish Academy of Sciences | Department of Anatomy Collegium Medicum Jagiellonian University) – Eva Horváthová (Archeologický ústav SAV)
Format: Oral

Since 2021, a Polish-Slovak expedition carried out field research of barrows in Východoslovenská nížina (East-Slovakian Lowland). The research was made possible by a grant from the National Science Centre in Poland, awarded to a project entitled "Transmission of steppe influences in the Carpathian zone in the 3rd millennium BC" (NCN 2020/37/B/HS3/03816). At that time, an agreement was concluded between the Institute of Archaeology and Ethnology of the Polish Academy of Sciences and the Institute of Archaeology of the Slovak Academy of Sciences. The project had two main objectives: (1) organising archival data and performing specialist analyses of various kinds, and (2) conducting excavations of burial mounds dated to the 4th/3rd millennia BC. Considering the importance of the analysed region for studies on steppe communities, the sources previously available from Východoslovenská nížina barrows were very modest, both in terms of their amount and the quality of the finds. By 2026, seven barrows have been investigated with interdisciplinary analyses of human remains. According to radiocarbon signatures the investigated barrows are dated to the Late Eneolithic and Early Bronze Age. In the region of southeastern Slovakia, they can be associated with impact of the Yamna culture communities from the south (3100–2600 BC) as well as the Corded Ware culture from the north (approx. 2800–2400 BP). Barrows of both cultures are situated at the same sites. Their nearest surroundings were used as necropolises in chronologically younger periods as well: Early Bronze Age, Košťany culture (2000–1700 BC) and Early Middle Ages (10th century).

858. Foodways and Landscapes of the Middle Danube in the Early Iron Age: A Multinational PhD

Authors: Caleb Ranum (University of Alabama | Univerzita Konštantína Filozofa v Nitre) – Maria Hajnalova (Univerzita Konštantína Filozofa v Nitre)
Format: Oral

Archaeobotanical studies from the Early Iron Age in the Middle Danube Region are limited. My dissertation research seeks to address this lacuna by examining archaeobotanical remains from seven previously excavated archaeological sites across Central Europe in order to better understand how human plant relationships structured daily life and interaction with the landscape. This research is only possible thanks to the cooperation of multiple institutions across 5 countries: The United States, Slovakia, Hungary, Austria, and the Czech Republic. The highlight of this international cooperation was the development of a cotutelle agreement between the University of Alabama and Constantine the Philosopher University in Nitra. This paper will focus on four aspects of the project: archaeobotanical results, cross-pollination of research agendas, extent and benefits of international collaborations, and institutional and academic challenges of developing a cotutelle. A particular focus will be on research in the Carpathian Basin, including partnerships with the Institute of Archaeology of the Slovak Academy of Sciences, Fulbright Slovakia, and the Hungarian National Museum (alongside the Institute for Archaeological Heritage in Brno (Czechia), the State Collections of Lower Austria and the University of

Innsbruck (Austria)). These collaborations have been instrumental in the development of my research agenda and demonstrate the value of smaller scale collaborations in creating international networks and opportunities for research.

3 PHALERON DELTA BIOARCHAEOLOGICAL WORKSHOP

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Claire Zikidi – Paraskevi Tritsaroli (American School of Classical Studies at Athens | National and Kapodistrian University of Athens) – Jane Buikstra (School of Human Evolution and Social Change, Arizona State University | American School of Classical Studies at Athens)
Keywords: Bioarchaeology, Mortuary Practices, Archaeological Science, Archaic Greece
Format: Other

SESSION ABSTRACT

This full-day workshop presents the Phaleron Bioarchaeological Project, showcasing an integrative bioarchaeological study of one of the largest and most complex burial grounds from Archaic Greece. The workshop is organised into four thematic sessions reflecting the project's multi-disciplinary approach: a. Context and Overview, which introduces the archaeological setting, site significance, and conservation challenges; b. Burial Practices and Social Structure, exploring mortuary variability across age, sex, and social identity; c. Bioarchaeological Analysis, focusing on trauma, pathology, and dental evidence; and d. Specialised Studies, which applies advanced isotopic, genetic, and morphological analyses to reconstruct mobility, diet, and behavior. Each session features collaborative presentations by archaeologists, osteologists, conservators, and scientists, fostering dialogue through dedicated Q&A periods. The workshop format emphasises integration across disciplines, promoting holistic interpretations of social organisation, identity, and ideological transformation at Phaleron. By highlighting methodological innovations and the interplay of archaeological and bioarchaeological data, this workshop offers new insights into early Attica's complex social dynamics and serves as a model for collaborative research on large mortuary assemblages.

CONTRIBUTION ABSTRACTS

1190. The Phaleron Bioarchaeological Project: Archaeological Questions and Bioarchaeological Answers

Authors: Jane Buikstra (Center for Bioarchaeological Research, Arizona State University | Center for American Archeology)
Format: Oral

This presentation will introduce the symposium, beginning with a brief history of the Phaleron site excavations as background to the Phaleron Bioarchaeological Project (PBP). We then define site structure relevant for bioarchaeologial analyses. Human remains recovery and conservation of the more than one thousand individuals, has been designed for current and future research needs has anchored the project, as discussed in this morning's session. Others in this session will detail further background information, including the mortuary landscape of Attica, the site's setting from a geoarchaeologial perspective, and the significance of ceramic associations. The following sessions consider the archaeological questions that have driven bioarchaeological methods choice and analyses for the PBP. These include defining burial practices in relationship to social structure, including comparing those interred in individual pit grave with less common interment forms. An important part of our research has focused on describing patterns of injury and the empirical bases for identifying peri-mortem trauma. In addition, explorations of health for adults and children have considered both biochemical and grossly visible indicators of diet and evidence of metabolic diseases, such as scurvy. We also combine dental, ancient DNA, long bone shape, and isotopic signatures of heritage and mobility in characterizing the people of Phaleron, who are the centerpiece of our project.

2806. Attica's Mortuary Landscape in the Eighth and Seventh Centuries BCE

Authors: Annarita Doronzio (Humboldt-Universität zu Berlin) – Anna Maria D'Onofrio (Università di Napoli "L'Orientale")
Format: Oral

This paper offers a comprehensive reassessment of funerary practices in Attica during the eighth and seventh centuries BCE, challenging traditional models that posit a sudden eighth-century "renaissance" followed by a seventh-century decline. We argue that the eighth century represents primarily a shift in archaeological visibility rather than a simple demographic explosion, marked by the expansion of age groups represented in formal cemeteries. In particular, the increasing presence of infant and child burials—often through specialized practices such as pot burials—points to fundamental changes in the organization of burial grounds and to shifting practices of social affiliation and identity formation at the level of domestic and community units. Special attention is devoted to the seventh century BCE, a phase frequently described as a "nadir" or a "notoriously ill-documented period," yet one that reveals a coherent and dynamic funerary logic. The paper examines emerging spatial arrangements and ritual expressions, bridging the gap between well-published contexts, such as the Athenian Agora, and more fragmentary evidence from rescue excavations. By integrating demographic observations with site-based spatial analysis, this contribution provides essential archaeological and topographical context for mortuary behaviour in Attica. We demonstrate that funerary practices reflect a long-term process of social

transformation that laid the foundations for the early Greek polis.

2804. Depositional history and landscape evolution of the Phaleron Burial Ground

Authors: Panagiotis Karkanas (American School of Classical Studies at Athens)
Format: Oral

The Phaleron Burial Ground, located near the coast of Phaleron Bay in Athens, offers a rare glimpse into how an ancient community adapted to a constantly changing shoreline. By studying the soils and sedimentary deposits uncovered during excavation, we reconstructed how this landscape evolved over time. The lowest layers show that the area was once a quiet coastal lagoon. Gradually, shifting courses of Ilissos and Kifissos rivers and local alluviation transformed the lagoon into dry land. It was on this newly formed, firm ground that people began burying their dead around 700 BCE. Most burials were placed in areas where the soil substrate had become increasingly dry and clay-rich, creating stable surfaces for graves and cremation pyres. Around 550–520 BCE, a hard crust formed in the soil, signaling a pause in the use of the cemetery. Later burials cut through this crust or were placed in overlying coastal sandy deposits. By about 450 BCE, the area was abandoned as a burial ground, likely because the sea was encroaching and the water table was rising, turning the land into the marshy area known in antiquity as the Alipedon. The story preserved in the soil and sediment layers shows how natural forces—rising seas, shifting rivers, and changing coastlines—shaped not only the environment but also where and how ancient Athenians buried their dead.

2805. Integrated Analysis of Laboratory Challenges, Limitations, and Methodological Approaches in Conservation

Authors: Zoi Chalatsi (American School of Classical Studies at Athens)
Format: Oral

The presentation sheds light onto the large-scale Conservation project for the treatment of more than 1000 human burials of various burial types from the Phaleron Delta Burial Ground in Phaleron, Attica. It outlines the process of planning for and equipping a conservation laboratory to cater the needs of this undertaking, the challenges faced during the arrival and storage of the material, as well as the development of protocols and methodologies to allow for their secure handling while not compromising their future study by bioarchaeological researchers. The scale and complexity of this project surfaced the necessity for training of students, interns and professional conservators for an adequate approach of the material since it involved the presence of blocks of soil, loose bones and jar burials. That said, microexcavations needed to be applied and the preservation of these blocks varied, challenging the decision for the best approach. Additionally, there was the preparation of selected material for further analyses such as isotopic, bone tissue, aDNa, C-14 and X-ray analysis. After the completion of the conservation of the material each burial had an overall conservation report and was stored in a secure way to make the future handle of the material safe for the material itself and the users. To conclude, this presentation aims to be useful as a general guide for the Conservation of future Bioarchaeological assemblages.

399. Demographic and Structural Dimensions of Burials in the Phaleron Burial Ground

Authors: Claire Zikidi (Malcolm H. Wiener Laboratory for Archaeological Science, ASCSA | National and Kapodistrian University of Athens) – Julianne Stamer – Elizabeth Hannigan – Jessica Rothwell (School of Human Evolution and Social Change, Arizona State University) – Aviva Cormier (Department of Anthropology, Vassar College) – Jessica Cerezo-Román (Department of Anthropology, University of Oklahoma) – Bronté Cunningham (School of Human Evolution and Social Change, Arizona State University)
Format: Oral

The Phaleron Burial Ground (PBG) provides a robust long-term record of patterns in burial and demographic variation. This study focuses on two central questions: How can the organisation of the PBG be meaningfully approached? And how is the site structured according to burial type, body orientation, body position, biological sex, and age? By analysing these patterns in relation to chronological phases, spatial distribution, and other observable characteristics, we investigate the temporal and demographic dimensions of this complex site. Exploring spatial and categorical variation reveals the reasoning behind specific burial choices, the potential social or symbolic significance of these arrangements, and the ways in which broader cultural practices are reflected in the organisation of the burial ground. Attention to patterns of clustering, positioning, and variation highlights consistent practices as well as shifts over time, offering insights into how different individuals or groups were treated. This approach demonstrates how the careful study of burial structure in relation to demography can illuminate aspects of past lives and deaths that would otherwise remain unseen, providing a detailed understanding of the complexity and variation present across the site.

488. Cremation Rituals and the Deceased of Phaleron, Attica, Greece

Authors: Jessica Cerezo-Román (University of Oklahoma) – Jane Buikstra (Arizona State University) – Anna Alexandropoulou (National Archaeological Museum of Athens) – Paraskevi Tritsaroli (Malcolm H. Wiener Laboratory for Archaeological Science) – Thomas Fenn (Acacia Heritage Consulting) – Stella Chryssoulaki (Ephorate of Antiquities of East Attica) – Claire Zikidi (Malcom H. Wiener Laboratory for Archaeological Science)
Format: Oral

In this research, we explore the performative aspects of cremation rituals from the archaeological site of Phaleron (ca. 750-480 BCE), located in the Phaleron Delta, Attica, Greece. On this site, cremation was found at a lower frequency than inhumation. We will investigate the two following overarching research questions: 1) who were the cremated individuals found at Phaleron; and 2) how were cremation rituals performed? The research explores these questions while also considering the agency of the mourners and the deceased, as well as performative aspects of cremation rituals. Using the archaeological contexts and bioarchaeological analyses of the human remains, we reconstruct the chaînes opératoires from details associated with creation of the context, thermal alterations, and the biological profiles of the individuals recovered at the site. Preliminary analyses suggest that cremation rituals varied more often between individuals than previously thought, possibly related to the identities of the individuals and their families.

607. Population dynamics of 1st millennium BCE Attica through the archaeogenetic evidence of Phaleron burial ground

Authors: Eirini Skourtanioti (Max Planck Institute for Evolutionary Anthropology | Ludwig Maximilians University of Munich | The Francis Crick Institute) – Philipp Stockhammer (Ludwig Maximilians University of Munich | Max Planck Institute for Evolutionary Anthropology)
Format: Oral

The analysis of 107 genomes from the Archaic and Classical cemetery of Phaleron (7th–4th c. BCE) provides the first extensive genetic insights into the population of Attica during the formative period of the Athenian polis. Combined with newly generated archaeogenetic data from Athens and other Attic cemeteries during the late 2nd and 1st millennium BCE, our results reconstruct a process of demographic expansion and repopulation of Attica through networks of mobility with neighboring areas in the Greek mainland. Furthermore, the data shed light on the social dynamics of the communities that used the Phaleron burial ground throughout the centuries. Approximately 15% of the sampled individuals display genetic origins spanning North Africa, the Mediterranean, the Balkans, Iran and Central Europe. Based on the available dating information, this genetic diversity is not associated with the earliest phase of the burial ground, when the port of Athens was in the same area. Additionally, there is no correlation between ancestry and the so-called deviant burials. Notably, comparable levels of genetic diversity are observed in other Attic sites, although genomic data from Athens remain limited. Alongside inter-site genetic links among individuals with varying degrees of mixed Aegean and non-local ancestry, these results underscore an ongoing interplay between long-distance mobility and emerging concepts of social identity and belonging during a period of profound political and cultural transformation.

425. Genetic and Population Relationships from Biodistance Studies and a-DNA

Authors: Christopher Stojanowski (School of Human Evolution and Social Change, Arizona State University) – Eirini Skourtanioti (Max Planck Institute for Evolutionary Anthropology)
Format: Oral

The size and preservation of the Phaleron burial ground allows researchers with different areas of expertise to address key questions of archaeological interest from multiple perspectives. In this paper we consider the insights provided about Phaleron's peoples from two complementary perspectives – 1) biodistance analysis of a large sample of individuals based on cranial nonmetric and dental morphological data, and 2) genetic analysis of a smaller subset of individuals based on ancient DNA. Genomic data offer finely-resolved assessments of ancestry and affinity at the individual level of variation, offering unparalleled insights into patterns of migration into the Attic peninsula during the Archaic period. Phenotypic data lack the resolution of genomic data at the individual level, but instead offer larger sample sizes due to ease of data collection. The former is a much more nuanced and powerful tool for ancestry assessment; the latter is more comprehensive by virtue of its inclusion of many more individuals from the site. For example, ancient DNA has been able to identify a number of individuals with ancestry outside of the Attica peninsula, providing critical insights into patterns of migration at the time. To the contrary, phenotypic analysis of the spatial structure of the Phaleron burial ground has identified specific areas of the burial ground that were phenotypically distinct from others, including the Esplanada burial group. Here, we explore the correspondence between results obtained from these two approaches and discuss how the scalability of biodistance analysis can inform and optimize ancient DNA sampling strategies.

482. Demography and Paleopathology of the D-Group: Contemplating the Distinctive Burials at Phaleron

Authors: Aviva Cormier (Vassar College) – Jane Buikstra (Arizona State University) – Stella Chryssoulaki (Archaeological Museum of Heraklion)
Format: Oral

During the excavations of the Phaleron Burial Ground (PBG), many mortuary contexts were identified beyond the expected burial forms and consequently were designated as a part of the "D-Group." In addition to the well-known Archaic Period "Esplanada" mass burials of 79 shackled young adult men, the D-Group includes 84 individuals who also experienced distinctive deaths and burials, many of whom were interred in a prone position, in mass graves, and/or were restrained by metal shackles or perishable restraints (referred to as "desmotes"). In this paper, we consider the variation within the D-Group, exploring the diversity of lived experiences in the mass burials and single interments. In particular, we query the eight mass burial contexts, assessing the differences and similarities in burial treatment, demographic profile, and paleopathology. While nearly all those in mass burials were bound or

shackled in death ("desmotes"), 23 individuals were also restrained but interred alone. We question the possible identities of these desmotes and what led them to have been restrained in death. Finally, we turn to the 14 individuals in the D-Group estimated to be likely females and explore the possible connections between their lived experiences and their distinctive burial treatment. Through the contextualized exploration of those buried in distinctive graves, we can understand the diversity of life histories among those who experienced marginalization and violence during life and death in the Archaic Period.

661. The Women of Archaic Greece: Perspectives from the Phaleron Burial Ground

Authors: Paige Schmitt (Great Basin Institute) – Elizabeth Hannigan (Arizona State University) – Kerri Widrick (Smithsonian Institution, Museum of Natural History)
Format: Oral

While there have been significant contributions since the late 20th century to the study of women in ancient Greece, scholars infrequently study Archaic women distinctly from the Classical period, and even less so non-elite women. The Phaleron Burial Ground offers a unique opportunity to analyze Archaic period (700-480 BCE) women of varied social statuses. We use an intersectional framework from Black feminist theory to emphasize how interconnected social identities generate different life and death experiences for ancient Greek women. Using osteological data, historical contextual information, and statistical analyses we aim to answer the following questions about Phaleron: 1) Are there differences in burial practices along the axis of sex? 2) Are there differences in skeletal stress indicators according to sex? 3) What do these patterns reveal about the identities, roles, and experiences of women in Archaic Attica? 4) How do these patterns at Phaleron compare to the Early Iron Age and Classical period? Through these research questions, we seek to shed light on the understudied and overlooked experiences of Archaic period women and examine the influence of Archaic sociopolitical change on life and death experiences for past marginalized peoples.

739. The Children

Authors: Paraskevi Tritsaroli (American School of Classical Studies at Athens | National and Kapodistrian University of Athens) – Jessica Rothwell (Arizona State University)
Format: Oral

Non-adult inhumation burials (n = 405) make up almost 30% of the overall assemblage studied within the framework of the PBP. These burials span the period from the second half of the 8th c. to the first half of the 5th c., thus representing all phases of use of the burial ground. The majority were inhumations in jars, followed by inhumations in pits, and a small number of deposits in cists and larnakes. Most of these burials contained individuals younger than three years old. Considering the chronological, taphonomic, and other challenges arising from the excavation and analysis of these non-adult funerary contexts, our contribution has three aims: to explore temporal changes in the representation of juveniles in the burial ground; to examine age-related variations in burial modes for juveniles over time; and to investigate the involvement of juveniles in the formation of wider groups over time and across space (sector 5 vs. sector VI; the core area and beyond).

421. Punished in Death or Different in Life? Oral Health Evidence of Social Identity at Phaleron, Greece

Authors: Julianne Stamer – Christopher Stojanowski – Jane Buikstra (Arizona State University)
Format: Oral

The Phaleron Burial Ground (PBG) is unique in Archaic Athens (c 700-480 BCE) for both its scale and diversity of burial treatments. Most adult inhumations are interred in simple pit graves. Other treatments include multiple interments of restrained individuals and prone individuals, among others. Many explanations of the social meaning of these burial positions focus on events occurring at the end of life— punishment for a crime or the acknowledgement of an inauspicious death. However, it is equally important to explore who these individuals were throughout their life course. This study assessed carious lesions, antemortem tooth loss (AMTL), dental wear, periodontal disease, calculus, and abscesses for 197 individuals from multiple burial contexts at PBG. 159 individuals came from pit grave contexts. These are compared to 22 individuals buried in multiple interments, often positioned casually and with perishable restraints, as well as 16 individuals buried prone. We found that those buried in central sector mass burials had significantly less tooth wear and AMTL than their counterparts interred in simple pit graves, a relationship independent of age. Male individuals who were interred prone had significantly greater tooth wear than those buried in central sector mass burials, but not significantly more than those in pit grave contexts. Female individuals overall had greater rates of carious lesions and AMTL but neither were significant. Female individuals who were buried prone had significantly fewer carious lesions as compared to female individuals buried in simple pit graves. Together, these results suggest that burial treatment at Phaleron reflects patterned differences over the life course. Central sector mass burials appear to represent a distinct group whose daily activities differed materially from those interred in pit graves or prone positions.

509. A Bioarchaeological Analysis of Injury Patterning in the Phaleron Burial Ground

Authors: Leigh Hayes (University of Wisconsin Oshkosh) – Jane Buikstra (School of Human Evolution and Social Change, Arizona State University) – Hannah Liedl (Novetus GmbH) – Voula Tritsaroli (Phaleron Bioarcheological Project)
Format: Oral

This study examines the prevalence and demographic patterning of observable injury within the Phaleron Burial Ground (PBG), one of the largest Archaic burial grounds in Attica (700-480 BCE).The PBG contains a wide range of burial types and treatments, including jar burials, pit graves, and biaiothanatoi, those suspected of dying a violent death. Previous research on injury at the PBG indicates that individuals interred in normative burials exhibit injury patterns more consistent with accidental and/or occupational causes and exhibit less evidence of punitive or targeted violence compared to the biaiothanatoi. Expanding on prior work, the present study further investigates injury patterning within the PBG to better understand the activities and lived experiences that may have contributed to these injuries. Additionally, this project compares these observed patterns of injury to several contemporary Archaic burial grounds across Attica. These comparisons serve to contextualize the trends observed in the PBG within broader regional patterns.

659. Distinguishing Perimortem Trauma from Postmortem Damage: Experimental Data Sheds Light on Interpretations of Execution at the Phaleron Delta Esplanada

Authors: Dawnie Steadman (University of Tennessee)
Format: Oral

The burial context of individuals in the Phaleron Delta Esplanada of the Phaleron Cemetery have evoked images of political violence, torture and mass execution, and theories abound concerning how these men were killed. Many of the crania exhibit fragmentation of the lateral vault, suggesting that death was largely due to systematic bludgeoning to the side of the head. This interpretation is troubled, however, by a lack of biomechanical literature documenting how the lateral cranium responds to blunt force trauma. Moreover, centuries of taphonomic changes of the burials could replicate or obscure any evidence of trauma endured by these individuals at the hands of others. The purpose of this study is to apply experimental data derived from blunt force trauma to the lateral cranial vault of contemporary human donors as well as the taphonomic and historic literature to address three questions: 1) How do the fracture dynamics of blunt force trauma applied to the side of the skull differ from trauma of the superior and posterior cranium and how does it compare to lateral cranial defects observed in the Esplanada remains? 2) What role could taphonomic factors, such as salt water and sand compaction, potentially play in producing postmortem damage that may be confused with trauma? 3) How were mass executions structured in the ancient Eastern Mediterranean and how does this compare with other times and places? Thus, this study combines experimental data with biomechanical, archaeological and historical literature that may help establish a theoretical framework to interpret mass death at Phaleron.

756. Cranial Trauma: Insights into Violence and Life

Authors: Ioanna Anastopoulou – Konstantinos Moraitis (School of Medicine, National and Kapodistrian University of Athens) – Dawnie Steadman (Anthropology, University of Tennessee) – Fotios Alexandros Karakostis (Paleoanthropology, University of Tübingen)
Format: Oral

The Phaleron cemetery includes a subset of individuals exhibiting cranial trauma, often interpreted as executed captives. Previous bioarchaeological analyses suggested widespread perimortem cranial trauma among these burials, implying violent deaths linked to political conflict. This study critically reassesses those interpretations through a forensic-informed approach that integrates documented modern trauma cases, standardized diagnostic criteria, and multivariate statistical analyses. Nineteen crania from Phaleron were evaluated using seven established indicators for assessing trauma timing, including fracture patterning, edge morphology, and coloration. These were compared with a reference sample of confirmed perimortem and postmortem forensic cases, including remains from water-rich environments. Independent assessments by two experienced forensic practitioners demonstrated high inter-observer reliability. Statistical testing identified four traits with significant discriminatory power, which were further evaluated using multiple correspondence analysis. Results indicate that clear evidence of perimortem cranial trauma is limited. Only two crania from the restrained burial group exhibited strong perimortem traits, and even these cases show fracture distributions consistent with taphonomic processes related to soil pressure and prolonged moisture exposure. Several fractures previously interpreted as violent injuries are more parsimoniously explained as postmortem damage occurring under water-rich burial conditions. These findings underscore the critical role of environmental context in trauma interpretation and caution against direct associations between skeletal fractures and cause of death in archaeological settings. More broadly, the study highlights the value of comparative forensic datasets and multivariate approaches for refining interpretations of violence in the past.

657. Investigating Diet and Mobility at the Phaleron Burial Ground, Greece

Authors: Elizabeth Hannigan – Julianne Stamer – Kelly Knudson – Jane Buikstra (Arizona State University)
Format: Oral

The social identity of past peoples, especially those whose remains have been discovered in remarkable burial contexts, is enhanced by biogeochemical analyses, including dietary and mobility reconstructions. Thus archaeologists can interpret the life histories and identities of these individuals, as well as those from within more common burial forms. Such methods have proved valuable in studies of the archaic period Phaleron Burial Ground, widely known for the presence of mass graves with bound individuals. In this investigation, we employ both δ13C apatite and radiogenic strontium stable isotope techniques to answer the following questions:

1) Do the dietary patterns of the Phaleron individuals from mass graves vary by geographic origin? 2) Does diet vary according to sex? 3) Does diet vary according to burial form? Through this study, we seek to reconstruct dietary and mobility patterns at Phaleron and highlight potential social identities of those buried between the asty and the sea.

2012. Reconstructing Malaria Risk in Ancient Athens Using Paleoclimate-Driven Mosquito-Month Models

Authors: Jordan Wilson (Georgetown University) – Johnny Uelmen – Julia Horn – Feng He (University of Wisconsin) – Judith Littleton (University of Auckland)
Format: Oral

Prior to its eradication in the mid-twentieth century, Greece was considered the most malarious country in Europe; however, characterizing the burden of the disease in the ancient past remains complex. We present an interdisciplinary framework that couples paleoclimate reconstructions with archaeological and paleopathological evidence to quantify when and where malaria transmission could have been seasonally feasible in the Athenian basin and comparable Mediterranean settings. Referencing historical data, we consider how in environments of high human density, altered mobility, and other stressors, even seasonal malaria could have materially increased morbidity and mortality, particularly among children and nutritionally stressed groups. Using gridded paleoclimate outputs, we operationalize a "mosquito month" index based on conservative thermal–hydrologic thresholds (minimum temperature ≥50°F, maximum temperature ≤95°F, and relative humidity ≥42%). Monthly suitability is summarized to annual months per year and mapped across Europe and the eastern Mediterranean, with targeted 50 km buffers around key urban centers. Preliminary results indicate widespread seasonal suitability across the Mediterranean during the period spanning 1000 BCE to 1000 CE, with, in a targeted example, Athens showing approximately 3–4 suitable months per year on average in the 450–400 BCE window. This is comparable to other coastal cities in southern Europe, and a northward envelope of ≥1 month suitability extending into parts of central Europe. Highly persistent suitability (≥6 months/year) is limited in this time window, emphasizing seasonality rather than year round transmission. We outline next steps integrating landscape reconstruction (wetlands, drainage, land use), paleopathological indicators of anemia at the macro and micro-structural levels referencing new advanced scientific imaging of children from Phaleron cemetery, and targeted biomolecular screening (aDNA/proteomics) to test and refine this ecological plausibility model. This cross-disciplinary methodology translates paleoclimate data into interpretable transmission windows, providing a reproducible bridge between climate history and archaeological inference about ancient disease burden.

649. A view from the terrace: femoral diaphyseal morphology reflects complexity in mobility and labor at the Phaleron cemetery, Attica, Greece

Authors: Daniel Temple (Department of Sociology and Anthropology, George Mason University) – Claire Zikidi (Phaleron Bioarchaeological Project, Athens School of Classical Studies) – Jane Buikstra (School of Human Evolution and Social Change, Arizona State University)
Format: Oral

This work uses femoral cross-sectional geometry to reconstruct habitual activity at the Phaleron Cemetery, Attica, Greece (ca. 700-400 BCE). Remains included in this study date to a relatively narrow timeframe of site occupation (ca. 650-550 BCE). Cross-sectional geometric measurements were estimated using PQCT scanning, collected at the femoral midshaft, and standardized according to body size. Cross-sectional measurements include Ix (anteroposterior strength/rigidity), Iy (mediolateral strength/rigidity), J (overall strength/rigidity), and Ix/Iy (femoral strength ratios). Femoral strength ratios were compared to a database of European communities spanning the Upper Paleolithic to mechanized/industrial groups and within/between groups from Phaleron. Comparisons were performed using violin plots and randomized permutation tests (9,999 permutations) of mean differences. Male femoral strength indices were bimodally distributed: one group had elevated femoral strength indices and were comparable to Mesolithic European hunter-gatherers, while a second group had reduced femoral strength indices and were comparable to Neolithic and mechanized/industrial European communities. Elevated femoral strength indices were associated with accentuated anteroposterior strength/rigidity, slightly reduced mediolateral strength/rigidity, and comparable overall femoral strength/rigidity across burial clusters. This variation is associated with a division of labor that produced interaction with diverse landscapes (complex versus flat terrain), possibly among individuals working locally versus those engaged in terrace agriculture or shipping. Female mobility indices were normally distributed, reduced, and comparable to mechanized/industrial European communities. This morphology likely reflects interaction with comparatively flat terrain and limited mobility, possibly in relation to household production, kinship labor, and funerary ritual. These findings illustrate the complex network of mobility within the Phaleron community and diversity of labor patterns across cemetery clusters.

467. "Shackled individuals with a hard life?" Virtual anthropological evidence of strenuous labor in hand and foot remains from Archaic Phaleron

Authors: Fotios Alexandros Karakostis (University of Tübingen | Senckenberg Research Institute | University of Basel) – Manolis Papadakis (University of Tübingen)
Format: Oral

Until the early 5th century BC, Phaleron Bay was the main port of ancient Athens (Greece) and hosted one of the largest Archaic cemeteries discovered in the region. Within the framework of the interdisciplinary Phaleron Bioarchaeological Project, this paper

synthesizes previous and ongoing research aimed at reconstructing habitual physical activity patterns using novel virtual 3D anthropological approaches, whose reliability has been demonstrated through experimental laboratory studies and analyses of human skeletal samples with extensively documented life histories. These approaches primarily include the Validated Entheses-based Reconstruction of Activity (VERA) method and its recent semi-automated variation, "VERA 2.0." To date, in this project, the VERA and VERA 2.0 methods have been used to infer differences in manual (Karakostis et al., 2021) and pedal activities (Papadakis et al., in prep.) among individuals from normative and non-normative ("D-group") burials, across different age-at-death groups, estimated statures, excavated sectors, and varying states of entheseal preservation. Overall, the results have revealed significant differences in entheseal patterns between burial groups, with D-group individuals displaying indications of more physically demanding activities involving both the upper (manipulation) and lower (locomotion) limbs, even after accounting for systemic factors such as biological age and body size. These findings provide valuable insights into the everyday activities of the Phaleron population, enabling improved intrasite comparisons and forming a basis for integration with other lines of evidence concerning their origins and behaviors. More broadly, they contribute to a more holistic bioarchaeological understanding of daily life in the Greek Archaic Period, which remains largely elusive in the current literature.

469. Health, Trauma, and Lived Experience in Phaleron Burial Ground in the Early Archaic Period

Authors: Paraskevi Takorou (University of Groningen)
Format: Poster

The Phaleron Burial Ground (PBG) is considered to be one of the most significant ancient burial sites in Attica (Buikstra et al., Hesperia, n.d.), as it provides insights into the Archaic period (700-500 BC), and the political and social transformations that led to the emergence of the city-state and the establishment of democracy. This poster presents a selection of the earliest burials unearthed at Phaleron (700–650 BC; 650–600 BC), focusing on lived experiences within the broader socioeconomic context of the Early Archaic period, marked by demographic growth, unequal access to resources, and political instability. The Early Archaic period is characterized by population growth, as evidenced by the concept of "στενοχωρία", which signifies the scarcity of land and food resources (Parker 2014, Ραμού-Χαψιάδη 1982). This phenomenon gave rise to a considerable number of survival challenges. Moreover, the shifting power dynamics among the aristocrats and the rising class tensions led to various conflicts and upheavals throughout the period (Hall 2014; Parker 2014). Within this frame, this study applies a bioarchaeological approach by considering the manifestation of structural and interpersonal violence on the human body and skeleton (e.g., skeletal trauma, nutritional deficiencies, infectious diseases, funerary marginalisation, food inequality etc.) to be an expression of state force, social stress, power hierarchies, and social inequality. The results suggest that the political shifts and social transformations of the Early Archaic period profoundly influenced the lived realities and funerary treatment of the individuals interred at Phaleron.

4 RESONANT ELEMENTS OF CULTURAL ASTRONOMY

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Jose Balbi (Colchester Archaeological Group UK) – Javier Gonzalez Fras (Universidad Nacional Autonoma de Honduras) – Stanislaw Iwaniszewski (National School of Anthropology and History, Mexico.) – A. César González García (Incipit - CSIC)
Keywords: Astronomy, Cultural Astronomy, Archaeoastronomy, Landscape, Skyscape, interdiscipline
Format: Regular session
Affiliation: Archaeology & Astronomy in Culture - SEAC

SESSION ABSTRACT

The enduring elements of Cultural Astronomy Current research projects in archaeology and Cultural Astronomy are interdisciplinary, combining different research traditions, questions, perspectives, and data types. We at the Archaeology and Cultural Astronomy Community have applied these approaches, which we consider essential for answering complex questions; however, they also require a demanding practice. Combining and correlating the results of various disciplines, as well as adequately representing them, can be particularly difficult. During the session, our aim will be to examine how to address the challenges of combining different scales and data types, as well as analyze how they culturally impact both archaeological and astronomical research. These ways of combining disciplines for research are necessary, but are our studies truly complete? Do our astronomical observations, combined with archaeology and landscape, contribute new elements to what we call Cultural Astronomy? In general terms, we will also explore how data obtained at the microscale can be transposed to the mesoscale or macroscale, and how results from different disciplines can be correlated. It is also conceived as a forum for archaeologists, astronomers, and landscape researchers, focusing on how to approach our own results and how to relate them to other scales and disciplines. Over the past seven years, we have sought to answer these questions and have succeeded in enabling our Community to present its unique vision of archaeology, making our past more resonant.

18. Alexandria in Egypt. The ancient city and the stars

Authors: Jose Balbi (Colchester Archaeological Group UK)
Format: Oral

The city of Alexandria is linked to that of its Library, which served for centuries as the heart of the city. Created in the Hellenistic Period around the 3rd century BCE, it was the fundamental element with which the satrap Ptolemy I Soter continued the diffusion of Hellenism as it was conceived by Alexander. Possibly the Library was finished later, but the idea of cultural expansion was in place since the arrival of the Hellenes in Egypt. There are no great certainties as to the place of its foundation, but it is determined by various authors and chroniclers of the time that there was a main one and a smaller one next to the Serapeum. This indicates to us from the beginning not only the cultural but also the religious relationship of the Library. Some authors understand the issue in such a magnitude that they think that the Library had the objective of making Alexandria the successor of Athens in the cultural aspect of the future Hellenistic World. We will study the current city of Alexandria and the plan of what was presumably the ancient city. We have to highlight the most emblematic places and the possibility of locating them in the current city. Our research takes us to places in the city that are mostly not advertised for tourists, where archaeological remains from different periods can be found today and which allow us to reconstruct the experiences of ancient culture as recounted by both Historians and Historical Figures who lived in this city.

337. Star-Story Almanacs beneath Gilgamesh and Beowulf: Sahelian Skies, Precession, and Epic Structure

Authors: Marilyn Gottlieb-Roberts (Independent researcher)
Format: Oral

This paper proposes that the epic structures of Gilgamesh and Beowulf preserve fragments of much older oral star-story almanacs originally tuned to the seasons and skies of the Inland Niger Delta in present-day Mali. Drawing on cultural astronomy, archaeo-astronomy, comparative literature, and climate history, I reconstruct a sequence of eleven northern-hemisphere constellations that metaphorically illustrate Tablets I–IX of the Standard Babylonian Gilgamesh when mapped onto the annual cycle of the Sahelian floodplain. A parallel mapping shows that Beowulf reuses nine of these same constellations as seasonal place-markers for its feasts, labors, and heroic confrontations. In both epics, the narrative ring structure, the ordering of key episodes, and selected sky images match a coherent seasonal cycle that fits today's Inland Niger Delta with striking precision but does not match northern European or Mesopotamian climates as closely. Because axial precession slowly shifts the relationship between stars and seasons, this fit implies that the underlying stellar template was first calibrated in the Delta during an earlier precessional phase, plausibly as far back as c. 52,000 years ago, when regional hydrology already resembled the modern flood–retreat–Harmattan sequence. While the conjectural nature of the transmission chain is explicit, the convergence of star-maps, seasonal patterns, and poetic structure suggests that both epics adopted, reshaped, and localized a shared, much older Sahelian story-almanac. The study illustrates how interdisciplinary methods can recover deep-time environmental knowledge and migratory memories embedded in canonical texts.

1581. Pecked cross figures from the Floor of Markers and the materialization of time in Teotihuacan

Authors: Stanislaw Iwaniszewski (no hay) – Jesús Galindo Trejo (Institutu de Investigaciones Estéticas, Universidad Nacional Autónoma de México)
Format: Oral

In September 1994, at the excavations directed by Eduardo Matos Moctezuma, new pecked cross figures were unearthed on a stuccoed floor at the foot of the southern wall of the "U-shaped-Platform" surrounding the Pyramid of the Sun at Teotihuacán. These findings received attention from Rubén Morante López (1996, 1997), Anthony F. Aveni (2005), and Stanislaw Iwaniszewski (2006), who discussed possible meanings of these figures. In the present paper, we will attempt to provide a more comprehensive understanding of the functioning of cross-circle figures. Our task is to demonstrate a meaningful link between a horizon calendar at Teotihuacan, numerology encoded in its layout, and the numerical structure of cross-circle figures. We develop our interpretations as follows: first we review the meaning of concept of the solar calendar horizon as it has been developed in the recent work on Mesoamerica, then we briefly present the basic data on cross-circle figures from the Floor of Markers and compare them with the intervallic calendrical computations in some of the prehispanic codices, we apply the concepts of time indication, synchronicity and schemata to shed more light on means by which Teotihuacan sunwatchers could render their particular understanding of the world.

1672. Interdisciplinary practice in Cultural Astronomy: Lessons learned and perspectives

Authors: Javier Mejuto (Universidad Nacional Autónoma de Honduras)
Format: Oral

Since its creation more than 16 years ago, the Department of Archaeoastronomy and Cultural Astronomy at the Faculty of Space Sciences at Universidad Nacional Autónoma de Honduras has accumulated extensive experience in research, teaching, outreach and engagement with diverse social actors. As is common in the discipline, professionals dedicated to the various subdisciplines of cultural astronomy come to the field from diverse backgrounds. In the case of this department, these include Engineering, Architecture, Astronomy, Biology, and Geographic Information Science and Technology. Some of these backgrounds are typical among professionals in the field and contribute an interdisciplinary perspective when addressing disciplinary development, both in terms of approach and methodology. This has been both a motivation and a challenge in the development of the Bachelor's Degree in Cultural Astronomy, representing a truly innovative advancement in academic training. Ultimately, professionals in the discipline will help establish educational and methodological standards within the field. This paper explores the opportunities, challenges, and lessons learned that this interdisciplinary practice has brought to professional performance over more than a decade of scientific research, outreach, and teaching. It also concludes by discussing the perspectives that this new training approach opens up for the field.

2655. New Lunar Light on Stonehenge from Ancient Greeks & Modern Computers

Authors: Vance Tiede (Astro-Archaeology Surveys)
Format: Oral

Two British astro-physicists proposed that Stonehenge was designed as a lunar-solar observatory capable of predicting danger periods when eclipses were possible (Hawkins 1964, Hoyle 1966), an interpretation rejected by a prominent British archaeologist (Atkinson 1966). This study analyzes the eclipse prediction hypothesis by comparing Stonehenge's architecture with ancient Greek references and modern computer simulations. Stonehenge's architectural elements correlate with six "numerical artifacts" found in ancient Greek calendars, viz.: 19 Dolerite Bluestones Horseshoe: Meton of Athens' Lunar Phase Cycle of 19 years and Diodorus of Sicily's spherical temple of Apollo on the Beyond North Wind (Hyperborea) island about the size of Sicily, and visited by the Moon Goddess (Selene) every 19 years; 29 Z Holes + 30 Y Holes: Solon, Archon of Athens, Double Month of 59=29+30 days; 29.5 Sarsen Uprights (Sarsen #11=0.5 Length/Width/Height): 29.53 Lunar Synodic Period days; 30 Unit Perimeter and 30 Unit sq. Area of Station Stones: Pythagorean 5:12:13 Triangle ≈ Lunar Synodic Period integer days; 56 Aubrey Holes: Eudoxus of Cnidus, Lunar Eclipse (Typhon) 56-sided polygon, where 56/3=18.6 years (Regression of the Lunar Nodes); 59 Bluestone Circle Stones: Solon, Archon of Athens, Double Month of 59=29+30 days; Modern computer programs provide new evidence with Lunar and Solar Eclipse Calendars (Espenak, www.EclipseWise.com) which confirm that Stonehenge could have predicted both the majority of all (Total/Partial/Penumbral) locally observable lunar eclipses and 100% of lunar and solar eclipse-free days. For example, there were 11 Midwinter and Midsummer Total Lunar Eclipse Tetrads (four consecutive eclipses each separated 6 synodic months apart) 3000-1500 BCE. Of these 44 eclipses, 29 (66%) were visible at Stonehenge as modeled in a digital planetarium (Starry Night Pro+6). Moreover, Midwinter Total Lunar eclipses occur whenever the Full Moon rises over the Heel stone every 18+19+19=56 years before going out of phase every 336 (=6 x 56) years.

20. Mr. Nail, or Why Nail Typology Matters in an Archaeological Excavation

Authors: Jose Balbi (Colchester Archaeological Group UK)
Format: Poster

There are many typologies for classifying ancient nails found in excavations. In my case, as a specialist in the history of the Roman occupations of Palestine and Britannia in the 1st and 2nd centuries CE, the most common classification table is the one designed by archaeologist W.H. Manning and published in 1976 in the Journal of the British Museum. This poster will show how the discovery of nails in an excavation and their arrangement can indicate very important things, such as the existence of a roof, the alignment of a building, and many other elements. I will present images of iron nails and the process by which they are revealed to the archaeologist, from their electronic detection to their development for measurement, photography, and weighing, which will determine their classification. And an additional case study: Can the type of nails determine the possibility of finding the site of a crucifixion? The work will be based on my excavations since 2015 to the present at the Roman Villa at Fordham, 6 km from Colchester, the ancient Roman capital of Britannia, in what is today the United Kingdom. The Mr. Nail thing is a joke. I've been excavating Roman sites for over a decade, teaching about nails and instructing on the importance of these small finds, that's my nickname, and I wear it with pride.

1529. History, Calendar and Skylore of the Incas at the Time of the Spanish Conquest: an overview

Authors: Mariusz Ziólkowski (Centre for Andean Studies, University of Warsaw)
Format: Poster

This poster summarizes a book by the author, currently in print, entitled „History, Calendar and Skylore of the Incas at the Time of the Spanish Conquest" (Springer 2026). It presents a reconstruction of the state calendar used in the Inca Empire for programming, coordinating, and controlling various social activities at the imperial scale. The work also discusses the techniques of astronomical observations during the Inca period and Andean specialists' predictions based on the interpretation of extraordinary phenomena, such as the appearance of comets or eclipses. The historical section presents the European and Inca calendar systems in parallel, focusing on the main events of the Conquest and the subsequent existence of the state of Vilcabamba until 1572. Although the correlation between Mesoamerican calendars and the Julian calendar has long been used to interpret events in Mesoamerica, this work is the first of its kind for the Andean region. This work presents a reconstruction that is diametrically opposed to the late Professor Thomas Zuidema's "khipu calendar" (Zuidema, 1995), the model most widely used in Andean studies to date. Online supplementary resources convert dates between Julian and Inca calendars for the period from 1500 to 1572.

5 HOUSING THE COURT – INFRASTRUCTURES, COMMUNITIES, AND POWER IN PALATIAL ENVIRONMENTS

Theme: 1. Widening perspectives in material culture studies
Organisers: Thea Ravasi (Newcastle University) – Sofia Vagnuzzi (University of Caen) – Laura Bottiglieri (Sovrintendenza Capitolina di Roma)
Keywords: Imperial Residences and Court society, Non-elite communities in Roman imperial residences, Working communities and labour organisation in Roman imperial residences, Imperial residences as laboratories of urban and social planning
Format: Regular session

SESSION ABSTRACT

This session investigates the residential and infrastructural dimensions of imperial residences, redirecting attention from ceremonial spaces to the largely overlooked architecture of housing and service infrastructure. Beyond rulers, their families, and the immediate courtly elite, such complexes were intricate environments hosting diverse populations that included high-ranking officials, administrators, and servile staff, whether permanently settled or temporarily engaged in residence and labour. Yet, the archaeological, spatial, and social dynamics of these quarters remain insufficiently explored. Central to this enquiry is the question of how imperial residences were planned to accommodate, organise, and regulate their diverse human and infrastructural needs, and how these arrangements materialised power, hierarchy, and social permeability. Addressing this question requires the integration of structural, documentary, and environmental evidence, framed within comparative perspectives across the Roman Empire and beyond. By foregrounding residential and infrastructural components, the session encourages dialogue on imperial residences from Rome to the provinces, set within the broader traditions of Byzantine, Islamic, and early modern courts in Europe and beyond. These complexes were not merely ceremonial backdrops but inhabited environments where service populations, court officials, and military units coexisted under carefully regulated conditions. Comparative perspectives underline both the specificity of Roman approaches and the wider challenges faced by monarchical powers across time: sustaining working communities, managing water and sanitation, controlling access to rulers, and integrating palaces with their productive landscapes. In doing so, the session reframes palatial environments as laboratories of urban and social planning and raises broader questions about how past societies conceived, inhabited, and controlled spaces of power. Contributions may address themes such as housing, sanitary, productive, and care and disposal practices for working communities, labour organisation, the presence of the military, patterns of access and mobility, links with production landscapes, and the wider role of palaces as laboratories of urban planning.

CONTRIBUTION ABSTRACTS

990. Housing the Court – A Methodological and Theoretical Framework for a Reconceptualization of Infrastructures, Communities, and Power in Palatial Environments

Authors: Sofia Vagnuzzi (Université de Caen Normandie, CIREVE - ERLIS, UR 4254) – Thea Ravasi (Newcastle University) – Laura Bottiglieri (Sovrintendenza Capitolina, Roma)
Format: Oral

Power is not sustained by rulers alone. It is produced, stabilised, and reproduced through systems of labour and dependency embedded within residences of power. Palaces, courts, and elite compounds were not simply ceremonial settings, but densely inhabited environments whose functioning relied on permanent and semi-permanent working populations. This paper introduces the session by reframing such complexes as architectures of authority: built systems in which social hierarchy, obligation, and control were materially organised through space and infrastructure. Drawing on perspectives from infrastructure studies and labour archaeology, the paper foregrounds the often-invisible labour that sustained court life. Residences of power concentrated diverse working populations, such as administrative personnel, soldiers, skilled and unskilled workers, carers, and servile dependants, bound into relations of obligation and dependency. Housing, circulation, water and sanitation, storage, waste management, and productive facilities formed interconnected infrastructural systems that regulated access, movement, and proximity to authority. These were not neutral technologies, but mechanisms that disciplined bodies, structured dependency, and normalised hierarchy through everyday practice. Adopting a comparative perspective beyond the Roman world, this paper highlights shared challenges faced by power-holding institutions: sustaining labour forces at scale, maintaining complex infrastructures over time, integrating residences with wider economic landscapes, and disciplining bodies through space. By foregrounding labour, maintenance and infrastructural dependency as constitutive elements of the built environment, the session reframes residences of power as laboratories of social and spatial organisation, where authority was continuously enacted through work, maintenance, care, and controlled mobility, as much as through spectacle and representation. The paper establishes a theoretical framework and methodology for exploring the various dynamics that underpin the functioning of architectures of authority across different geographical and chronological contexts, providing a broad comparative lens and a flexible approach for understanding how power systems were enacted, sustained, and organized in diverse historical and cultural settings.

2768. Officials, soldiers and courtiers in the palace: domestic spaces and imperial administration offices in the Palatine residence (Rome)

Authors: Paola Quaranta – Fulvio Coletti – Aura Picchione (Parco archeolgico del Colosseo)
Format: Oral

The large complex of the imperial residence on the Palatine, built from the Neronian age, extends on the top of the hill from the northern sector, known as Domus Tiberiana, to the southern sector, the complex known today as Domus Severiana. The central quarters - Domus Augustana/Domus Flavia - have often been interpreted as the central nucleus of the emperor's residence and his family, a place for ceremonial spaces and the exercise of power. Below the "noble" floor, the palace develops on several floors, expanding along the slopes, with a complex architectural structure intended to house offices, services and community, from the highest officials in rank to servants, necessary for the daily life and operation of the entire complex. In view of the intimate relationship between architecture and society, this paper addresses, on the one hand, the relationship between the public and private spaces frequented by the emperor and his court and the underground contexts, cryptoporticus and viae tectae (covered walkways inside the building) which on the other hand, served as a means of communication between the various pavilions of the Palace, but also as a sorting and control centre for the security of the imperial family. A second aspect that our paper intends to address is that of the activities carried out in the buildings located on the slopes of the hill, architecturally organised according to the insulae typology with the structural function of containing the steep hillsides. These complexes, which were architecturally developed on several levels and designed according to a fixed and recurring spatial organisation, were, in our interpretation, intended for domestic life and to house the economic and administrative activities of the palace chancellery offices, according to the interpretative key of the social and organisational structure of the imperial court.

2803. "Even in a palace, a right life is possible..." – Rhythms and Realities in the Great Palace in Constantinople

Authors: Christian Rollinger (Trier University)
Format: Oral

The late antique Great Palace in Constantinople accommodated not only the imperial family, but also the court as a social, political, and administrative institution, as well as working communities (soldiers, servants), whose presence shaped its organization and whose comings and goings shaped the rhythms of palace life. This paper attempts – and given the considerable challenges of the evidence, it can be no more than an attempt - to consider the Great Palace as an inhabited microcosm (in addition to a ceremonial complex). Drawing on archaeological evidence, topography, and late antique literary sources, it will examine how the palace was spatially integrated with, yet selectively separated from, both the surrounding city and other administrative centres within the city, and how this ambivalent relationship structured life and work within the imperial residence, and the performance of administration. Particular attention is paid to mechanisms of access control, including the deployment of military guards, gates, and thresholds.

362. Beyond Ceremony: Peopling Roman Palaces and the Infrastructural Design of Hadrian's Villa (Tivoli, Rome)

Authors: Thea Ravasi (Newcastle University)
Format: Oral

This paper examines innovation in the architectural and infrastructural design of Roman imperial residences, shifting attention away from ceremonial and representational spaces to focus on the residential, productive, sanitary and leisure environments intended for low- and mid-ranking members of the imperial court. It argues for a fundamental reorientation in how architectural innovation in imperial contexts is understood. Rather than equating innovation solely with novel forms, striking volumes or exceptional technical solutions, the paper proposes that innovation also lay in the creation of articulated and adaptive systems capable of accommodating and sustaining large, heterogeneous communities of permanent, visiting and seasonal workers, whether free or enslaved. Such systems were designed to respond to fluctuating court demographics and changing logistical requirements, and this adaptability, it is argued, underpinned the long-term resilience of many imperial residences. Innovation, therefore, is approached not as an aesthetic or technical endpoint, but as a dynamic process embedded in planning strategies, spatial organisation and infrastructural connectivity. Hadrian's Villa provides an ideal context in which to explore these issues. Although brick stamps attest to multiple construction phases, the villa was conceived as a unified project under Hadrian and preserves staff accommodation and service spaces on a scale unparalleled in the Roman world. These spaces, together with dense networks of roads, corridors, water-supply systems, latrines and thermal installations, formed the connective tissue that allowed the villa's architecturally diverse complexes to function as a single operational organism. Despite the abundance of archaeological and epigraphic evidence relating to the villa's working population, no systematic study has yet examined how these working spaces were planned, used and transformed over time, or how they articulated with ceremonial quarters and the surrounding productive hinterland. This paper addresses that gap, situating service infrastructures at the centre of debates on imperial architecture, labour and long-term resilience.

1673. Behind the Scenes at Hadrian's Villa: The Macchiozzo Buildings and Their Inhabitants

Authors: Francesco De Angelis (Columbia University)
Format: Oral

Since 2014, Columbia University's Advanced Program of Ancient History and Art (APAHA Tibur) has uncovered three previously unknown residential edifices at Hadrian's Villa: a medianum building and two courtyard buildings. Located in the so-called Macchiozzo, in close proximity to some of the site's main reception and dining spaces—from the Piazza d'Oro to the Winter Palace—these buildings were not meant for imperial frequentation, as evidenced by their architectural typologies and their floor, wall, and ceiling decoration, among other things. This talk addresses the question of the identity of the inhabitants and users of these buildings. In particular, it attempts to determine their sociocultural level by comparing the buildings' layout and decoration to those of similar structures at Hadrian's Villa and elsewhere, especially at Ostia. Spatial and access analysis is employed to investigate the nature of the routes that connected the Macchiozzo to other sectors of the villa, as well as to the outside. The possible statuses and specific roles of the people who lived in these buildings are examined with the help of epigraphic evidence from other imperial residences.

1404. From the Horti Spei Veteris to the Palatium Sessorianum: a picture of the residential housing of the palace

Authors: Laura Bottiglieri (Sovrintendenza Capitolina)
Format: Oral

The Horti Spei Veteris, which became imperial property under Septimius Severus, hosted an extensive architectural complex, of which imposing agonistic structures and a monumental atrium still survive, conveying the grandeur of the original ensemble. Far less visible, however, are the traces of the residential quarters—sometimes obliterated by modern urbanisation, sometimes brought to light only partially or misunderstood in interpretation. Through a re-examination of the surviving remains, the interpretation of new data, and archival analysis, an attempt has been made to reconstruct the residential occupation of the area across the historical phases of the palatial complex. Beginning with the structures traditionally identified as domus of the Constantinian period, built against the Aqua Claudia, a reassessment of their chronology has been proposed on the basis of recent excavation data. This reinterpretation places the first building phase in the Severan period and reconstructs subsequent phases of renovation up to Late Antiquity, corresponding to restoration works on the aqueduct and the castellum aquae located located in the northern part of the complex. The strip of land along the aqueduct appears to have been occupied by residential buildings since the Antonine age. High-status dwellings are attested in the north-western sector, showing continuity of use up to the post-Constantinian phase. From the Severan period onwards, further dwellings of medium and small size were built, yet showing well-crafted decorative finishes. These same houses later underwent a reorganisation process marked by the subdivision of interior spaces and the systematic installation of sanitary facilities of uniform size and type—features also found in new houses built by reusing structures from the recently abandoned Circus Varianus.

105. Toilet Placement, Sanitation, and Spatial Control in the Dunnu at Tell Sabi Abyad

Authors: Sergio Remon Alvarez (Leiden University/Utrecht University)
Format: Oral

The Dunnu complex at Tell Sabi Abyad offers a rare opportunity to explore the infrastructural and spatial organisation of an Assyrian imperial residence beyond ceremonial architecture. Positioned within the administrative and possibly palatial sphere of the Middle Assyrian state, the Dunnu functioned as a fortified estate housing not only elite occupants but also a working community tasked with sustaining the site's logistical and social operations. This study examines the spatial logic underlying toilet placement within the complex, foregrounding sanitation infrastructure as a lens for understanding access, visibility, and social regulation. Using DepthmapX and space syntax methodologies such as Visibility Graph Analysis (VGA), axial maps, justified graphs and agent based modelling, this analysis demonstrates that toilet spaces at the Dunnu occupy areas of low visual integration and restricted movement. Their secluded placement reflects a deliberate effort to manage bodily practices discreetly, while maintaining their accessibility to select occupants. These spatial arrangements suggest a built environment calibrated to uphold social hierarchies and control circulation within the estate, balancing the needs of privacy, functionality, and authority. By focusing on sanitation infrastructure, often neglected in archaeological narratives, this study contributes to a more nuanced understanding of imperial residences as lived environments. The Dunnu exemplifies how infrastructural planning extended into the regulation of non-elite activities, supporting broader systems of labour, hygiene, and spatial segregation. Situating these findings within wider imperial traditions, the paper highlights the role of infrastructural design in materialising power and organising courtly and servile coexistence in palatial settings.

1958. Architectural Experimentation and Construction Solutions for the Heating of Residential Spaces between Hadrian's Villa and the Imperial Palace of Rome

Authors: Giuseppe Restaino (University of Cassino and Southern Lazio)
Format: Oral

Recent scholarship has highlighted the innovative character of Hadrianic architecture, emphasising the experimental approaches that produced some of the most structurally ambitious and iconic buildings in Roman architecture. Among these innovations, the strategies adopted for heating residential spaces are particularly revealing. At Hadrian's Villa, the challenge of heating entire residential blocks occupied by the emperor – such as the "Winter Palace" and the "Greek Library" – led to the creation of a sophisticated network of service corridors and substructures beneath the main living areas. These spaces enabled service personnel to circulate discreetly throughout the residence, ensuring the operation of the hypocaust system while remaining largely invisible from the representative spaces above. A comparable – yet overlooked – development occurred on the Palatine Hill in the same period, within the Domus Augustiana and the so-called Domus Flavia of the Imperial Palace. Here, the installation of hypocaust systems in the great Banquet Hall (triclinium) and in other newly constructed rooms required the construction of sub-floor corridors that provided constant access to furnaces and service areas. By comparing these two complexes, this paper examines how heating infrastructure shaped the organisation of residential and service spaces and structured the circulation of servile staff. It argues that such systems were not merely technical solutions but key instruments in the management of labour, the regulation of access, and the spatial articulation of hierarchy, revealing imperial residences as carefully planned environments designed to combine comfort, efficiency, and the control of working communities.

2265. Reconstructing hydraulic systems in palatial contexts with fragmentary evidence: methodological approaches from the Sessorian Palace and the Patriarchium in Rome

Authors: Elettra Santucci (Newcastle University)
Format: Oral

Hydraulic infrastructures were a fundamental component of imperial and ecclesiastical palaces, sustaining residential quarters, service spaces, ceremonial architecture, and the daily needs of courtly and working communities. In many palatial contexts, however, especially in long-lived urban centres such as Rome, the study of water systems is severely hindered by the extreme fragmentation of the archaeological record. Systematic spoliation, repeated architectural transformations, and long-term reuse of infrastructures have erased large portions of original networks, often limiting analysis to isolated and ambiguous remains. Focusing on the case studies of the Sessorian Palace in the Santa Croce area and the Lateran Patriarchium, two key architectural and institutional complexes in the eastern sector of Rome, this paper investigates the water management infrastructures associated with these environments, with particular attention to systems of supply, distribution, storage, and wastewater disposal. Both complexes are deeply embedded in the political and ecclesiastical landscape of Rome, yet their hydraulic systems have rarely been analysed as integrated components of architectural design, daily functioning, and urban organisation. Through the combined analysis of archaeological remains, architectural evidence, topographical data, written sources, and comparative hydraulic examples, the study examines the strategies adopted in imperial and ecclesiastical palatial contexts, highlighting their role in sustaining inhabited environments and a wide range of water uses. The paper argues that hydraulic systems, even when only partially preserved, provide a powerful analytical tool for investigating the organisation, resilience, and transformation of palatial residences as complex infrastructural and social systems, with their own internal organisation yet deeply linked to the broader urban water network.

1726. The infrastructure of Romuliana-Gamzigrad

Authors: Christoph Rummel (independent) – Stefan Pop-Lazić (Archaeological Institute Belgrade)
Format: Oral

The Roman remains near the village of Gamzigrad in Eastern Serbia have long been identified as a fortified palace and memorial complex designed for the Tetrarchic Emperor Galerius and were inscribed as a UNESCO World Heritage Site as such in 2007. Whereas research traditionally focused on the ideological, ceremonial and memorial programmes of the site – indeed, the OUV of the site is based primarily on these – a joint Serbian-German research programme has researched the site's hinterland and more functional aspects. Large scale geophysical research and targeted excavation of identified structures, as well as systematic excavations, have highlighted problems of supply and storage, construction and craftsmanship but also bathing and water supply. In addition, this work has shown that the non-representative elements of the site are significantly more complex, and more extensive, than had been credited in the 20th century. This paper presents the approaches and results of this research project that identify and seek to understand the less "imperial" and more "mundane" aspects of this important site for our understanding of elite and imperial residences during the Tetrachic period.

1272. Settlement topography of Ingelheim in the Carolingian period

Authors: Matylda Gierszewska-Noszczynska (Forschungsstelle Kaiserpfalz Ingelheim)
Format: Oral

Ingelheim – now a town in southwestern Germany- was one of the most significant Frankish seats in the Early Middle Ages. The landscape featured three settlement areas, which now form part of the town. The main area of Nieder-Ingelheim comprised several distinct settlement sites with differing functions and levels of importance. The central and most representative part was the palatium, whose construction began in the late 8th century during the reign of Charlemagne. It was built about 3 km from the Rhine River, on the middle terrace near the main route between Mogontiacum and Bingium. This location had already served as a royal court of the Merovingians from the late 7th century onward. To the west of the palatium laid the sacral district, which included the

Church of St Remigius and its associated cemetery. The church was donated to the Diocese of Würzburg in 741/742; nevertheless, it continued to play an important role for secular authorities as a venue for significant events. Three further settlements were also located in the vicinity of the royal residence and the Church of St. Remigius, serving both economic and residential purposes. Two additional settlement areas existed in Ober-Ingelheim and Frei-Weinheim, the latter situated directly on the Rhine. The settlement and church in Ober-Ingelheim are documented in the Breviarium Sancti Lulli, a list of the possessions of the monastery in Bad Hersfeld, dating to the period between 802 and 815. The existence of a harbour in Frei-Weinheim is also presumed based on a poem by Ermoldus Nigellus. Ingelheim during the Early Middle Ages should therefore not be understood as an isolated area centred solely on the palace complex, but rather as a multi-part settlement landscape that developed on Merovingian foundations and gained new impetus during the Carolingian period.

1959. The Carolingian Palatium at Ingelheim Inspired by Roman Architectural Exemplars

Authors: Ramona Kaiser (Forschungsstelle Kaiserpfalz Ingelheim)
Format: Oral

Charlemagne regarded himself as the successor of the Roman emperors. This ambition was reflected in the architecture of the palatium he commissioned at Ingelheim on the Rhine, located between Frankfurt and Cologne, in the late eighth century. Several examples of Roman influence can be identified in the palatium at Ingelheim. The exceptional character of the complex is evident in its floor plan. Measuring approximately 150 × 115 metres, the palatium formed a monumental, symmetrically organised ensemble with clear axial relationships, based on simple geometric forms—a square and a semicircle. The buildings were arranged along the outer edges, enclosing spacious inner courtyards. At the western end stood the Aula Regia, a single-nave hall with an apse that functioned as the king's representative assembly hall. The influence of late antique apse halls is evident here, such as the Constantinian Aula Palatina in Trier. The eastern side was defined by a monumental semicircular structure with a diameter of 89 metres. Although unique in the Carolingian period, this design closely recalls Roman forum architecture familiar to Charlemagne and his architects. The northern side was marked by a long building connected to the semicircular structure by a transverse building. Colonnades along the inner sides of this north wing and the semicircular building transformed the courtyards into peristyles. Roman influence is also evident in the technological infrastructure, notably in an early medieval long-distance water supply system constructed according to Roman aqueduct principles, as well as in the extensive reuse of Roman spolia. The lecture examines the architectural complex of the palatium at Ingelheim with particular regard to the extent to which its distinctive architectural design was related to its function, as well as the location of the possible residential quarters of the ruler and his entourage and the management of vital resources such as water.

1085. Visualising movement in the Flavian palace: The role of domestic staff and guardsmen

Authors: Benjamin Kelly (York University, Toronto) – Dominik Lengyel (Brandenburgische Technische Universität Cottbus-Senftenberg) – Harrison Forsyth (Durham College, Oshawa, Ontario)
Format: Oral

Few sustained scholarly analyses of human movement through Roman palatial spaces exist. Those that have been attempted tend to extrapolate movement purely from the architectural layout of spaces. In this paper, we add a crucial human element to the equation. We consider the roles of servile domestic staff and guardsmen in regulating the movement of people who visited the Flavian Palace to participate in the social rituals of the court. We begin the paper by exploiting literary accounts and epigraphic sources to suggest three ideal types pertaining to how domestic staff and guardsmen could channel movement through palatial space. These are: (1) guiding – when domestic staff or guardsmen would escort visitors all the way to their destinations; (2) gatekeeping – when static staff or guardsmen would block or control access through particular entrances and doorways, thus directing movement; and (3) cordoning – when configurations of staff or guardsmen would control movement through relatively open areas, such as porticos and large ceremonial rooms. The paper then explores these ideal types in the context of the Flavian Palace in Rome, with special attention to the great ceremonial rooms and their surrounds. Our analysis employs both archaeological plans and 3D computer visualisations of the spaces, abstracted in a sophisticated and highly developed manner, in keeping with the uncertainty of knowledge. We examine how the manpower requirements would have varied depending on the desired route and the number of visitors. We also consider how the flexible deployment of domestic staff and guardsmen could generate different routes to the same destination – and hence give different visitors different impressions of the same ceremonial space.

552. Imperial residences in motion: court logistics between circulation patterns and route hierarchy

Authors: Alice Poletto (John Cabot University)
Format: Oral

Recent scholarship has highlighted the role of Roman imperial residences—both the palaces in Rome and the suburban and extra-urban villas—as centres of government where emperors could fulfil the functions that their role entailed, such as receiving embassies, listening to petitioners, adjudicating lawsuits, and holding banquets or spectacles. In their role as centres of power, imperial residences were peopled by heterogeneous communities—the imperial family, the court, the household personnel, and the external subjects with whom the emperor interacted—whose simultaneous presence required an accurate spatial design, that ensured that occupants and visitors circulated within imperial residences without interfering with each other's activities and threatening the emperor. This paper will investigate circulation patterns within imperial residences, to understand how the movement of different categories of individuals was channelled to ensure the smooth functioning of these micro-universes. Building on a comparative analysis of three case studies—villa of Livia ad Gallinas Albas, villa of the Quintilii, and Villa Magna—architecture is treated not as a static backdrop, but as a lens through which we can gain insights on the functioning of these villas and on the infrastructures that allowed the staff to operate them. Priority is given to outlining the routes reserved to different categories of individuals, which are reconstructed through the features employed to channel and enforce movement (decoration, doors, screenings, security staff). Across the villas under consideration, this paper will investigate the relationships between the staff routes and the privileged paths reserved for high-ranking users, adopting a route-based approach that shifts attention from room typologies to circulation. The management of movement and the resulting spatial design of imperial residences are so-far little employed viewpoints from which these sites can be examined under a different light, that of a "working court", a hive of activity whose functioning depended highly on the personnel who operated them.

589. Between cleanliness and power: fullonicae and Imperial Properties in Rome

Authors: Valentina Pescari (Pisa University, Florence and Siena University)
Format: Oral

Previous studies highlighted the role of fullonicae within the economic and social fabric of Roman society, emphasising their function as predominantly client-oriented establishments. While the fullonicae of Ostia and Pompeii have been examined within broader interpretative frameworks that situate them in their urban context, Rome has hitherto lacked an overarching and systematic investigation aimed at a comprehensive understanding of the fullonicae and their functioning in relation to the city. My PhD research seeks to address this lacuna. The methodological approach adopted is multidisciplinary, integrating archaeological and topographical evidence with literary, epigraphic, and iconographic sources. The initial combination of these datasets outlines an intriguing scenario, in which the presence of fullonicae is attested within imperial properties and residences. With particular regard to Rome, this evidence is further enriched by the recent archaeological discoveries brought to light through the excavations at Piazza Pia, where a fullonica belonging to Horti Agrippinae was found. This constitutes a particularly stimulating line of enquiry, as it raises a series of broader questions: first, whether and how the organisation and management of these fullonicae differed from those documented so far; secondly, the nature of their intended clientele; and finally, the role of these structures within the textile production chain, as well as the social implications of such activities within imperial residences.

491. Enforcers and Rebels: The Evolving Lives of Women in Medieval Valencia

Authors: Ella Zeiders – Laura Jakubczak (Arizona State University)
Format: Poster

This poster applies gender archaeology methods more commonly used to study medieval England as a model for a more holistic understanding of womanhood and female agency in medieval Valencia (1300-1500 CE). The study of the symbolic vs. actual use of spaces such as private households, gardens, castles, and public city domains allows for a picture of the medieval past that explores the social dynamics of all women of the city, not only those of the privileged classes that tend to be the focus of historical texts. A survey of the historical and legal documents, combined with new archaeological research, reveals that while women were prescribed to remain in privacy through the spatial division of the castle, household, and city, their lives involved enhanced agency throughout the private sphere and permeable access to the public that is often undiscussed. Looking at the moments when women of different classes and different religions crossed these spatial boundaries helps illuminate the lived experience of women during times in which the dominant historical trend seemed to be the division of the kingdom and the persecution of various religious groups.

6 REASSESSING THE ROLE OF PALAEOLITHIC ROCKSHELTERS: ARCHIVES OF HUMAN BEHAVIOUR AND ENVIRONMENTAL CHANGE

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Mariana Nabais – Luís Gomes (UNIARQ – Centre for Archaeology, University of Lisbon) – Miguel Bel – Álvaro Martínez-Alfaro (PREMEDOC-GIUV2015-213, Universitat de València)
Keywords: rockshelters, palaeolithic archaeology, palaeoenvironments, stratigraphy, site formation processes
Format: Regular session
Affiliation: Palaeolithic and Mesolithic Community - PaM

SESSION ABSTRACT

Palaeolithic rockshelters represent some of the most critical archives for reconstructing and understanding human prehistory, offering uniquely stratified records of human occupation, environmental change and cultural development across vast temporal scales. These natural formations serve as repositories of both archaeological material and palaeoenvironmental data, these sites allow for multi-disciplinary investigations spanning lithic technology, subsistence strategies, symbolic and ritual behaviour, human occupation dynamics and human responses to climatic and ecological shifts. Despite their centrality to Palaeolithic research, rockshelters

face increasing threats from natural erosion, human activity and climate-driven processes, demanding renewed methodological and theoretical approaches. This session invites contributions that highlight the analytical potential of rockshelter contexts, present novel fieldwork or excavation results, and engage with current debates on site formation processes, stratighraphic integrity, conservation and interpretative frameworks. Submissions from archaeology, lithic analysis, zooarchaeology, archaeobotany, geoarchaeology, palaeoanthropology and related disciplines are especially welcome, with the aim of promoting a robust, comparative dialogue on the continuing significance of rockshelters as windows into deep-time human history and behaviour.

CONTRIBUTION ABSTRACTS

1937. Abric de la Ratlla del Bubo (Alicante, Spain): an old (un)known site. New data on its Early Upper Palaeolithic sequence

Authors: Álvaro Martínez-Alfaro – Miguel Ángel Bel (Universitat de València) – Jaime Cuevas-González – Davinia Díez-Canseco (Universitat d'Alacant) – Carmen M. Martínez-Varea – Nahúm Méndez – Cristina Real (Universitat de València) – Ana Luisa Rodrigues (C2TN/DECN, Instituto Superior Técnico, Universidade de Lisboa) – Valentín Villaverde – Aleix Eixea (Universitat de València)
Format: Oral

The Abric de la Ratlla del Bubo is one of the key rockshelters for understanding the Early Upper Palaeolithic in the central Iberian Mediterranean basin and a potential site to unravel the Middle to Upper Palaeolithic transition in the region. The sequence has also provided evidence from Solutrean occupations, but these will not be analysed in this presentation. Despite its relevance, the site been subjected to interpretative limitations arising from its complex excavation history, encompassing early clandestine interventions and subsequent scientific excavations conducted in separate sectors. These circumstances have resulted in the partial publication of the archaeological record. The following presentation offers a renewed assessment of Abric de la Ratlla del Bubo as a complex stratified archive, integrating the revision of legacy collections with new fieldwork that was initiated in 2024. Through a preliminary geoarchaeological approach—including stratigraphic and sedimentological data—we identify and analyse the main stratigraphic units and sedimentary facies of the site. In addition, the present study incorporated analyses of lithic technology, raw material procurement strategies, archaeobotanical and faunal remains, and absolute chronology. The integration of these datasets allows a more detailed reconstruction of occupational dynamics, resource exploitation, and cultural behaviour during the Early Upper Palaeolithic. From a chrono-cultural perspective, Abric de la Ratlla del Bubo provides essential data for discussing the onset of the Upper Palaeolithic in the Valencian region. The new data contribute to the refinement of regional models of cultural dynamics and challenge earlier assumptions based on incomplete or poorly contextualised assemblages. In conclusion, this contribution points out the necessity of re-examining classic rockshelter sites such as Abric de la Ratlla del Bubo through updated methodological and theoretical frameworks. This evaluation emphasises the fact that these sites have the potential to serve as dynamic archives for the reconstruction of long-term human behaviour and cultural change.

2377. The Upper Palaeolithic occupation at Curva da Bezelga Karstic Canyon (Torres Novas, Portugal)—Preliminary data from Gruta 3

Authors: Maria Melo – Luís Gomes – Sara Martins (UNIARQ – Centre for Archaeology, University of Lisbon) – Filipa Rodrigues (UNIARQ – Centre for Archaeology, University of Lisbon | Câmara Municipal de Torres Novas)
Format: Oral

Curva da Bezelga (Assentiz, Torres Novas, Portugal) is a small karstic canyon located at the northeastern end of the Serra d'Aire, part of the Iberian Western Limestone Massif. It lies at an ecotonal boundary between the limestone uplands and the adjacent alluvial plain of the Tagus basin. This geomorphological and environmental setting likely shaped patterns of human occupation, resource exploitation, and mobility. Furthermore, the abundance of caves and rockshelters formed on the Jurassic Limestone bedrock constitutes optimal depositional environments, where archaeological records of Palaeolithic human occupations are often well preserved. Gruta 3 da Curva da Bezelga provides the first evidence of Palaeolithic occupation in the area. Identified in 1999 and subject to diagnostic test-pits in 2006, it displays two distinct geomorphological sectors: (1) a covered area with a small gallery interpreted as a remnant of a tubular fossil collector and (2) an exterior area composed by intra-karstic deposits currently exposed by escarpment retreat and roof collapse. This exterior area's topmost layer preserves a high density of lamellar blanks and retouched bladelets, with techno-typological traits characteristic of the Magdalenian, sensu lato, providing valuable data for discussions of regional site formation processes and occupation strategies. Fieldwork resumed in 2025 corroborated the predicted stratigraphic sequence: below the materially rich layer, a sterile clay level caps a horizon characterised by large boulder collapse. Such a sequence is identical to the one found at the top of the Upper Pleistocene sequence of the nearby Caldeirão Cave, strengthening the previous hypothesis on the site's chronology and archaeostratigraphic potential. This paper summarises the results of the most recent archaeological work in the Curva da Bezelga canyon, highlighting the data from Gruta 3, focusing on its regional significance for furthering our understanding of Magdalenian stone-tool management and possibly of the Solutrean-to-Magdalenian archaeological record.

2416. Abrigo da Senhora das Lapas (Tomar, Portugal): A New Upper Palaeolithic Rockshelter in Western Iberian Peninsula

Authors: Luís Gomes – Maria Melo (UNIARQ – Centre for Archaeology, University of Lisbon) – Filipa Rodrigues (UNIARQ – Centre for Archaeology, University of Lisbon | Câmara Municipal de Torres Novas) – Pedro Souto (STEA – Sociedade Torrejana de Espeleologia e Arqueologia) – Alexandre Varanda – Mariana Nabais (UNIARQ – Centre for Archaeology, University of Lisbon)
Format: Oral

Abrigo da Senhora das Lapas (ASL) is a rockshelter documenting several Upper Palaeolithic occupations. It is located in the karst canyon crossed by the Nabão river, at the eastern limit of the Estremadura Limestone Massif and a few km north of the city of Tomar. This small area is rich in prehistoric cave sites, but ASL is currently the only rockshelter found therein that preserves a multi-layered and well-preserved Upper Palaeolithic sequence. Identified in 2021 and test-excavated since 2022, the site presents several superimposed and easily discernible archaeostratigraphic units, each yielding a high density of lithic materials found alongside abundant faunal remains, colorants, and shell beads. AMS radiocarbon dating places the upper 50 cm of the sequence (Units 1-2) in the last few centuries of Greenland Stadial 1 (Dryas III), consistent with the Final Magdalenian typology of the stone tool assemblages. A major rockfall event separates these units from underlying Units 3-4, whose macrolithic points, bifacial thinning flakes and denticulated backed bladelets support attribution to the Upper Solutrean. This sequence follows the pattern observed elsewhere in Western Iberia whereby, as observed nearby at Caldeirão Cave, the intermediate chronostratigraphic phases (Solutreo-gravettian and Early Magdalenian) are missing. Unlike other contemporaneous sites currently known in the region, the stratigraphic integrity and high density of finds allow for extensive and deep inquiries concerning the techno-economic patterns prevalent during the latter stages of the Portuguese Palaeolithic. We will present the first, preliminary results of the ongoing excavation, alongside data derived from the ongoing analysis of the remains, framing them within regional chronostratigraphic and technological models. We further highlight the relevance of the ASL project for the development of new research programmes focused on the detection and study of Palaeolithic rockshelters in the region.

2732. Dynamic Contexts and Cultural Material Evidences from Late Paleolithic and Mesolithic Human Occupation in Eastern Sicily Caves and Rockshelters

Authors: Maria Rosa Iovino (Italian Institute Human Paleontology)
Format: Oral

This study concentrates on a comprehensive, challenging, re-evaluation of selected caves and rock shelters that bear witness to late Paleolithic and Mesolithic occupation across diverse geographic contexts, including mountainous location, inner plain and coastal area. Central to this research is the detailed reexam of cultural materials and fauna remains, that serve as valuable resources for shedding light on subsistence strategies and environmental conditions. By harnessing cutting-edge 3D modeling and photogrammetry reconstruction technologies, we analyze the geomorphological features of these sites, thereby enhancing our understanding of the complex issues related to geological processes. Cave and rock shelter deposits in Sicily, in the past and in recent times, have experienced alterations caused by both natural processes and biotic factors, including animal influences and human activities. For this reason this study aims to uncover also how post depositional alteration could have developed ambiguites and/ or compromised the integrity of the archaeological record, providing critical insights into the transformative dynamic processes at these sites.

435. Rockshelter Na Skalici (Bohemian Karst, Czechia): Stratified Archive of Repetitive Hunter-Gatherer Occupation across the Pleistocene–Holocene Transition

Authors: Katarína Kapustka (Institute of Archaeology, Czech Academy of Sciences, Prague | Anthropos Institute, Moravian Museum) – Olga Trojánková (Laboratory of Archaeobotany and Palaeoecology University of the Southern Bohemia) – Lenka Lisá (Institute of Geology of the Czech Academy of Sciences) – Michaela Ptáková (Laboratory of Archaeobotany and Palaeoecology University of the Southern Bohemia) – Karolína Pauknerová (Center for Theoretical Study, Charles University) – František Adámek (Institute of Archaeology, Czech Academy of Sciences, Prague) – Kristýna Budilová (Laboratory of Archaeobotany and Palaeoecology University of the Southern Bohemia) – Nikola Koštová (Institute of Archaeology, Czech Academy of Sciences, Prague) – Romana Kočárová (Department of Botany and Zoology, Faculty of Science, Masaryk University)
Format: Oral

Rockshelters are among the most informative yet taphonomically complicated archives for reconstructing long-term human behaviour and environmental change. In Central Europe, securely stratified rockshelter sequences spanning the Pleistocene–Holocene transition remain rare and methodologically underrepresented. This paper presents new and reassessed evidence from the rockshelter Na Skalici in the Bohemian Karst (Czech Republic), documenting episodic hunter-gatherer occupation from the Late Pleistocene to the Middle Holocene. The site preserves a well-defined stratigraphic sequence attributed to the Magdalenian, Late Palaeolithic and Mesolithic periods, allowing assessment of repeated short-term use within a karstic landscape highly sensitive to climatic and ecological change. The study integrates results of biostratigraphic excavations conducted between 1989 and 2016, followed by archaeological fieldwork initiated in 2025. A multi-proxy analytical framework combining detailed stratigraphic observations, lithic technological analysis, palaeoecological data (malacozoology and microfauna analysis), charcoal analysis, archaeobotanical macroremains analysis, geological sampling and radiocarbon dating is employed to evaluate site formation processes, depositional integrity and occupational dynamics. Eight radiocarbon dates obtained from small vertebrate remains identify two Late Glacial and Late Palaeolithic occupation phases (ca. 13,900–13,100 cal BC and 11,500–10,950 cal BC), followed by a Middle Holocene Mesolithic phase dated to ca. 5500–5000 cal BC. The chronological discontinuity between these phases supports intermittent site use rather

than continuous occupation. Stratigraphic integrity is corroborated by coherent palaeoecological assemblages and a hearth horizon indicating in situ human activity. Lithic assemblages dominated by local cherts reflect flexible raw-material procurement and technological continuity with adaptive change across the Pleistocene–Holocene boundary. Na Skalici demonstrates the analytical potential of rockshelters as stratified archives preserving high-resolution records of hunter-gatherer behaviour and environmental responses during major climatic transitions.

1383. The archaeological record preservation in an active karst system: the case of Coves de Sant Josep (Eastern Iberian Peninsula)

Authors: Jacopo Armellini (Departament d'Història, Geografia i Art, Universitat Jaume I | Departament d'Història i Arqueologia, Universitat de Barcelona) – M. Mercè Bergadà (Departament d'Història i Arqueologia, Universitat de Barcelona | Institut d'Arqueologia de la Universitat de Barcelona - IAUB) – Josep Casabó (Consejería de Educación, Cultura y Universidades. Generalitat Valenciana) – Maria L. Rovira (Museo Arqueológico de La Vall d'Uixó) – Dídac Roman (Departament d'Història, Geografia i Art, Universitat Jaume I)
Format: Poster

Caves are the most suitable depositional environments for studying prehistoric societies, due to their capacity to retain and preserve sediment, both geogenic, biogenic and anthropogenic. The preservation is due to the lower incidence of erosional dynamics, especially when compared to extremely dynamic environments, such as fluvial or slope environments. For this reason, archaeological material in caves is normally found in inactive karst systems, particularly in caves with absent or ephemeral hydrological activity. Here we present the Pleistocene to Holocene stratigraphic sequence of Coves de Sant Josep, a karst system characterised by high year-round hydrological activity. Despite that, a long stratigraphic sequence has been preserved within the cave, placing the human occupation between 22 ka and 6 ka cal BP. To reconstruct the site formation processes, we have applied geoarchaeological techniques, such as soil micromorphology, FTIR on bulk samples and µFTIR on uncovered soil thin sections. These analyses allowed us to reconstruct syn- and post-depositional processes that shaped the deposit and revealed how Sant Josep karst displays complex interactions between fluvial, slope and anthropic dynamics. We demonstrated that the grade of preservation in active karst can be high, allowing for the archaeological material to be preserved also in highly hydrological active environments.

7 ATHENS, ADEN, ARIKAMEDU – RESEARCH ON EUROPE-SOUTH ASIA RELATIONS 30 YEARS ON

Theme: 7. Interaction, connectivity and mobility
Organisers: Sophie Hueglin (University of Tuebingen | Newcastle University) – Sila Tripati (CSIR-National Institute of Oceanography)
Keywords: Indian Ocean, maritime trade, Maritime Silk Road, long-distance trade, cultural transfer, underwater archaeology
Format: Regular session

SESSION ABSTRACT

A famous collection of "Essays on the Interrelation between India, Arabia and the Eastern Mediterranean", published in 1994 and reprinted in 2005 (Boussac/Salles), is inspiring the title of our session. Just like Mark Horton then in his review "Mare Nostrum" in Antiquity (71, 1997, 753-755), almost 30 years later, the new evidence shall be assessed and an overview shall be given on the current state of archaeology in the Indian Ocean in relation to the Red Sea and the Mediterranean. Terminologies like that of the "(Maritime) Silk Road" serve political agendas rather than reflect the exchange across the Indian Ocean. William Dalrymple has shown this recently in his book "The Golden Road" (2024), where he tackles India's contribution to the world's transformation in Antiquity. There is new evidence that European concepts (Arora 2002, in: Proceedings of the Indian History Congress 63:29-85) and art motifs (Baumbauer et al. 2025, Nürnberg Global, online at arthistorium.net) also influenced South Asia. Diachronic perspectives as well as papers from all periods are welcome.

CONTRIBUTION ABSTRACTS

1277. Alexandria, Berenike, Socotra, Muziris – changing interpretations in the light of archaeological evidence

Authors: Sophie Hueglin (University of Tuebingen | Newcastle University)
Format: Oral

When assessing the excavation results at Arikamedu, it appears that this port did not have a permanent Roman settlement. On the other hand, Muziris, with its templum Augusti, has the look of a Roman colony. This is only one of the many aspects that have changed in our understanding of the trade relations in the Indian Ocean with the Mediterranean in the past 30 years. Similarly, Athens or Rome seems not to have played the same roles as Alexandria and later Cairo. Therefore, the title of a compilation today would not be "Athens, Aden, Arikamedu" (Boussac/Salles, reprinted in 2005) but rather, for example, "Alexandria, Berenike, Socotra, and Muziris". The Red Sea ports, with their exceptional preservation due to their dry climate, are like a magnifier for the products of trade that have decayed in the more moderate climates in the North or the tropical climate further south. Apart from the ports, underwater archaeology, namely the discovery of shipwrecks, has changed the picture significantly. This paper intends to assess the new evidence for the different time periods and, at the same time, tries to highlight the blind spots that still need to be addressed.

840. Sumhuram in the Indian Ocean trade network. Role and connectivity between the 3rd century BCE and the 5th century CE

Authors: Daniele Zampierin (Berlin Graduate School of Ancient Studies, Freie Universitat Berlin)
Format: Oral

Sumhuram (also known as Khor Rori, Oman) was founded between the late 3rd and early 2nd century BCE by the South Arabian kingdom of Hadramawt to manage the local frankincense production. However, its strategic position favoured its inclusion in the western Indian Ocean exchange system. In particular, its location guaranteed continuity of access to the commercial routes crossing the ocean to South Asia, the Persian Gulf, and the Red Sea until the site's abandonment in the 5th century CE. This paper presents results from a comparative ceramic study, conducted as a doctoral project, analysing the assemblage from Sumhuram in comparison with assemblages from Arikamedu (Tamil Nadu, India) and Tissamaharama (Sri Lanka). Through the detailed comparison of each published ceramic corpus and the identification and quantification of imported and exported ceramics, the study provides a data-driven and verifiable reconsideration of the mechanisms and intensity of maritime interaction across the western Indian Ocean from the 3rd century BCE to the 5th century CE. Rather than viewing exchange through simplified linear models, the paper highlights the complexity of multi-directional contacts and evaluates Sumhuram's role as both a regional trading centre and an active node within broader interregional trade networks. By presenting new results within a diachronic framework, the contribution refines current understandings of connectivity across the western Indian Ocean and contributes to the ongoing redefinition of long-distance exchange dynamics in the Indian Ocean.

736. Reconstructing Trade Connectivity in Early Historic South India: Ports, Rivers, and Inland Corridors (400 BCE–100 CE)

Authors: Sangeetha Raja – Gil Gambash – David Friesem (University of Haifa) – Marxia Gandhi (TN Dept. of Archaeology)
Format: Oral

Early historic South India formed a critical node within long-distance exchange systems linking the Indian Ocean world with the Mediterranean. While coastal ports such as Arikamedu, Alagankulam, Korkai, and Pattinam have long been interpreted as primary maritime interfaces, the connective infrastructures and mobility corridors that sustained these ports have received limited archaeological attention. This paper examines inland–maritime connectivity by reconstructing the land–river–sea networks that structured Indo-Mediterranean exchange between 400 BCE and 100 CE. Integrating archaeological data from coastal emporia with inland production sites including Kodumanal, Uraiyur, Kee=adi(Kīḻaṭi), and Karur. This study analyzes the spatial distribution of ceramics, beads, and craft debris to identify functional hierarchies within regional exchange networks. Methodologically, the research employs GIS-based spatial analysis and Least-Cost Pathway (LCP) modelling, factoring in seasonal hydrological fluctuations of the Vaigai, Thamiraparani, and Kaveri river systems. These digital models are cross-referenced with 'peruvali' (highways) referenced in Sangam Tamil literary traditions to map high-probability transit corridors. The results indicate that Indo-Mediterranean trade depended on a resilient, multi-scalar logistics system that integrated riverine transport with seasonal overland mobility. This study demonstrates that ports were not isolated gateways but terminal nodes within a deeply integrated hinterland. By foregrounding inland infrastructures, this paper challenges coast-centric models of the Indian Ocean trade and argues that Mediterranean-linked exchange was a primary driver for the socio-economic complexity of inland South Indian urbanism, extending the 'Mediterranean in motion' far beyond the shoreline.

1623. Maritime networks of Sri Lanka and South India between the 7th and the 12th century CE

Authors: Ariane De Saxcé (German Archaeological Institute, DAI - KAAK Bonn)
Format: Oral

From the time of the Arab conquests and the establishment of the Tang dynasty in China, Sri Lanka and South India find themselves at the center point of an extended trade network, that is accompanied by artistic and religious interactions. Particularly, Sri Lanka starts playing a pivotal role as a transshipment point for Arab and Persian ships travelling to China, as well as for the diffusion of Buddhism from India to Southeast Asia and China. After the 10th century, this direct long-distance connection is hindered by economic and political upheavals both in the East and West, so that a multi-segmented trade replaces the direct connection. The roles of Sri Lanka and South India evolve but remain a fundamental transit point in the exchanges of the Indian Ocean. This communication aims at emphasizing the evolution of trade and cultural networks in the western part of the Indian Ocean during this key period that sees the passage from 'globalized' exchanges to more regional segments. The focus will be especially on the links of Sri Lanka/South India with the Arabian Peninsula and the East African coast. It will include questions of navigation and routes as well as new discoveries concerning traceable types of products that were circulating, like glass for example.

55. From the Mediterranean to the Indian Ocean. Greek and Roman coins beyond

Authors: Philipp Schwinghammer (German Numismatic Society/Society of Thuringian Coins and Medals)
Format: Oral

This presentation deals with global economic networks in antiquity, which can be reconstructed based on finds of Roman and Greek coins, for example in Arabia, Central Asia and India. We encounter tetradrachms from Athens and coins of the time of Alexander the Great and his successors, the Diadochi, from Arabia to India, as well as Roman coins from the Mediterranean to the Indian Ocean. These coins flowed not only as foreign currency into these vast regions, but they also had an important impact on the images and nominal structure by inspiring imitations in local coinage. These imitations should be seen as a product of the cultural and economic fusion between the Mediterranean region, Arabia and India, which we encounter along the routes of the Incense Road and the Silk Road. Examples of coin circulation will be presented and local imitations of Greek and Roman coins in Arabia and India will be examined.

1442. Did the Romans maintain maritime trade contacts beyond Arikamedu, the east coast of India?

Authors: Sila Tripati (CSIR-National Institute of Oceanography)
Format: Oral

India's interactions with the Roman world during the early historical period were bidirectional. Greek contacts were mainly established with northwestern and northern India, while Roman interactions were primarily focused on South India. Maritime trade between India and the Romans began in the 3rd century BCE through ports along the Egyptian coast of the Red Sea. Egyptian ports such as Berenice, Myos Hormos, and Adulis maintained direct trade connections with Indian ports. Archaeological excavations at these Red Sea ports have uncovered Indian pottery, spices, coins, beads, sculptures, teak, textiles, and more. Conversely, Roman artefacts, including gold coins, amphorae, and Terra Sigillata (Arretine ware), are found in greater abundance in peninsular India than in other regions of the country. Evidence of marketplaces, bead and dyeing industries has also been discovered at Arikamedu. Roman ships journeyed directly to the ports of Arikamedu during sailing seasons, with their inward and outward travels relying heavily on monsoon winds. Roman goods were brought to Arikamedu and subsequently distributed throughout South Asia. Before the return journey, Roman merchants collected Indian products, undertook ship maintenance, and visited different ports and markets in India. Their return voyage typically began in November, aided by the Northeast monsoon winds. As a result, it is believed that the Romans did not venture beyond Arikamedu. However, the discovery of amphorae, Roman coins, and other artefacts beyond peninsular India suggests further investigation for confirmation. Additionally, understanding the causes behind the decline of trade warrants a more detailed examination.

2182. Managing maritime heritage: perspectives from India and Greece

Authors: Ioannis Poulios (Ionian University | Ahmedabad University)
Format: Oral

The presentation deals with the management of maritime heritage. Two ongoing grand government projects are used as case studies: the National Maritime Heritage Complex at Lothal, Gujarat, India, and the Museum of Underwater Antiquities in Athens, Greece. The following themes are discussed and reviewed: - what is the relevance and the importance of maritime heritage to the national history and identity; what is the role of the respective government in shaping this relevance and the associated policies? - what are the design ideas and how is the implementation of the two aforementioned projects in terms of the function of the two complexes; which buildings are being selected and built to accommodate the collections; which are the principles that guide the exhibitions, the associated complexities and the solutions sought? The ultimate aim is to draw good practices, as well as identify practices that could be better avoided, concerning the management of maritime heritage worldwide.

9 SHIFTING POLITICAL LANDSCAPES: ARCHAEOLOGY'S RESPONSE TO NATIONALISM, POPULISM AND IDENTITY IN EUROPE

Theme: 2. Crossing the divide. Archaeology and the open world
Organisers: Andrew Whitefield (University of Galway) – Anna-Lena Jerg (University of Tübingen)
Discussant: Bettina Arnold (University of Wisconsin-Milwaukee)
Keywords: Nationalism, Populism, Identity, Politicisation, Archaeological representation, History of archaeology
Format: Regular session

SESSION ABSTRACT

The present era of populist nationalism has clear parallels with the intense nation-building of the earlier 20th century, which saw archaeology find its place in national institutions such as universities and museums, and in national legislation. The payback for investment in archaeology by the governments of nation states came in the form of archaeological narratives that provided 'scientific' underpinnings to imagined Golden Ages and origin myths. Resurgent nationalism, ideological polarisation, and the return of war to Europe, forces archaeologists to again face the challenge of navigating between competing interests and contested narratives. What historical narratives are being amplified or silenced in this new political climate? How can archaeologists resist being drawn into divisive identity politics while engaging in open, critical, and inclusive scholarship? How can the lessons from archaeology's entanglement with nationalism in the early 20th century help us avoid repeating the same mistakes? We invite contributions that explore how archaeology responds when political and ideological agendas seek to influence research topics, archaeological interpretation, and public presentation. We particularly welcome case studies that highlight politicisation (or its resistance) in museums, archaeological sites, universities, and the media—forums where the divide between scholarship and public discourse are negotiated, contested, and sometimes manipulated. Topics of interest include: • Parallels and differences between archaeological analysis, interpretation and representation in the early 20th century and today. • Authorised narratives: how monuments and sites are presented/co-opted/appropriated for public engagement, education, tourism, and international relations. • The impact of political agendas on data collection and analyses. • Case studies examining how archaeologists and heritage practitioners navigate populist, nationalist, or illiberal contexts. Proposed outcome: An edited volume that situates archaeology's response to the present political landscapes in the context of the history of the modern discipline.

CONTRIBUTION ABSTRACTS

456. A national science for the 21st century: the archaeological validation of national and cultural identities in Europe

Authors: Andrew Whitefield (University of Galway) – Anna-Lena Jerg (University of Tübingen)
Format: Oral

This paper explores the parallels between archaeology's role in shaping identities during the early twentieth century, and the discipline's predicament in the new era of populist nationalism. Archaeology's establishment in state institutions such as national museums and universities was achieved through the development of methods for measuring and codifying ancient remains. This ostensibly scientific approach enabled archaeologists to make categorical statements about the past. However, the inherent ambiguity and incompleteness of the archaeological record meant that preconceptions played a disproportionate role in the interpretation of often-meagre evidence. Assumptions were frequently grounded in the glorified and often fictive narratives of folklore and myth. Nationalistic politicians, however, saw value in a discipline with seemingly scientific credentials that could validate stories of ancient greatness. This yielded funding for archaeology and prestige for its leading practitioners, with often limited incentive for critical reflection. As the twentieth century progressed, and the discipline matured, critical engagement with the assumptions that underpinned archaeological interpretations increased. But in the early twenty-first century, the political cycle has turned, and populist nationalism is a resurgent force in European politics. How is archaeology responding to the new political reality? Is 21st century archaeological science critically engaging with the new politics, or simply finding new ways to reify old stories? Have archaeologists learnt the lessons of the discipline's past, or are we destined to repeat the same mistakes? By examining historical and present-day uses (and misuses) of scientific data in archaeology in Ireland and Europe, this paper seeks to highlight the role of disciplinary historiography in identifying the flawed reasoning that continues to underpin many nationalistic and ethnocentric interpretations of cultural identities before modern nations existed.

1266. The politics of chronology: Museum narration and nation building in 19th century Scandinavia

Authors: Johan Hegardt (Södertörn University)
Format: Oral

When Christian Jürgensen Thomsen (1788–1865), in the early 19th century, travels through parts of Denmark, a country that recently had been bombarded by the British and had lost in The Napoleonic Wars, he focuses on archaeological monuments. His journey marks the beginning of a study that laid the foundation to the Three Age System, which was first published by Oldskriftselskabet (The Royal Society of Antiquaries) in a book with the title Ledetraad til nordisk Oldkyndighed in 1836. The book begins with an introduction, followed by a text written by the Danish historian and linguist Niels Matthias Petersen (1791–1861). Thomsen's text is the second last, and the book ends with listings and work plans for Oldskriftselskabet. In the Introduction it says that "Our time is a very important transition period for the development of humanity and works as a whole towards a new and better future". It is Thomsen's text that sets this agenda. Petersen's perspectives, on the other hand, represent the past. In this paper I will depart from Ledetraad and show how chronology, through Thomsen's Three Age System, supported this agenda and became a central part of museum narration and nation building in 19th century Scandinavia. But this is only half of the story. The other half concerns the development of the spirit in line with the German philosopher Hegel. Hence, it will be argued, museum politics in the 19th century was not a simple nationalistic discourse, but rather a complex and complicated composite of reflections on nation, identity, the past and – not at least – the future.

971. The Harvard Mission to Ireland: Archaeology, Nationalism and Identity in the Irish Free State in the

1930s

Authors: Mairead Carew (Independent Scholar)
Format: Oral

The Harvard Mission to Ireland (1932-1936) was a five-year anthropological study of Ireland which included three strands: social anthropology, physical anthropology and an archaeology programme which included the excavation of eighteen sites. The object of the project was to study the races and cultures of Ireland and to determine who the Celts were, where they originated from and to establish who were their modern descendants in Ireland. The Government of the Irish Free State, independent since 1922, welcomed this study. While eugenics underpinned the Harvard Mission project it also fitted neatly into the nationalist cultural regeneration project undertaken by the Irish Free State. This embraced history, folklore, Celtic Studies, the Irish language and archaeology. It also dovetailed with other important archaeological initiatives which included new legislation to protect National Monuments, a new cultural policy document for the National Museum and the establishment of the Unemployment Schemes for archaeological research. Archaeology was central to nation-building in Ireland and a conduit for the creation of a state identity. It paralleled similar cultural regeneration projects in other nation states in Europe. It also placed Ireland in the forefront of innovative archaeological research during the 1930s. This paper will challenge the idea that the cultural nationalist project undertaken in the Irish Free State during the 1930s was an insular one. The Harvard Mission to Ireland gave an international dimension to this process and helped consolidate the idea of a Celtic Ireland in a global context through the medium of archaeology.

2717. The Portuguese medieval battle of Aljubarrota: the making of narratives

Authors: Ana Cristina Martins (IHC-Universidade de Évora / IN2PAST)
Format: Oral

The Battle of Aljubarrota was fought between the Kingdom of Portugal and the Crown of Castile on 14 August 1385. Forces commanded by King John I of Portugal and his Constable Nuno Álvares Pereira, with the support of English allies, opposed the army of King John I of Castile with its Aragonese and French allies, as well as Genoese mercenaries at São Jorge, in central Portugal. The result was a decisive victory for the Portuguese, ruling out Castilian ambitions to the Portuguese throne, ending the 1383–85 Crisis and assuring John's position as King of Portugal. Portuguese independence was safeguarded and a new dynasty, the House of Aviz, was established. Scattered border confrontations with Castilian troops would persist until the death of John I of Castile in 1390, but these posed no real threat to the new dynasty. In 1958, archaeologist Afonso do Paço organized the first campaign of excavations, revealing the complex defensive system consisting of about 800 pits and dozens of defensive ditches and revealing one of the best-preserved battlefields of the period of the Hundred Years' War. In March 2002, under the initiative of António Champalimaud, the Battle of Aljubarrota Foundation was created. The first of its activities was to recover the battlefield. Through a protocol established by the Ministry of Defense in August 2003, the Foundation received authorization to transform the Military Museum into a modern Interpretation Center of the Battle of Aljubarrota. As a prime example of an authorised narrative of national identity supported by different and subsequent political Portuguese regimes, from Constitutional Monarchy till Democracy, with a special focus during the totalitarian 'New State' (1927-1974), we will analyse how this "National Monument" is being presented and used from the 19th century onwards, and evaluating its scientific, political, educational, touristic, literary, and artistic impacts.

141. Unearthed but Unclaimed: Polish Archaeology in the Absence of Politics

Authors: Paulina Florjanowicz (Independent researcher)
Format: Oral

Archaeology is often used as a tool to reinforce national identity, yet Poland presents a unique exception. This paper will provide a critical review of the impact of political neutrality on Polish archaeology and how this has shaped the current state of research. When archaeology was emerging as a modern scientific discipline in the 19th and early 20th centuries, Poland had only just regained independence in 1918. Unlike neighboring Germany, which heavily invested in archaeology, Poland lacked the state support necessary to integrate the field into national narratives. During World War II, both Nazi Germany and Soviet Russia occupied Poland, imposing their own ideological frameworks on academia. However, Polish archaeologists largely resisted collaboration, engaging instead in underground education and rejecting Nazi racial theories. Under Soviet rule, Marxist ideology briefly influenced archaeology, but its impact remained superficial. Postwar Poland, much like the interwar period, did not recognize archaeology's potential for state propaganda. Any state-supported archaeological projects were initiated by scholars rather than authorities. Over time, Polish archaeology became isolated from politics but also from public interest. It developed into a highly specialized, insular discipline, focused on typological analyses rather than broader cultural narratives. In contrast, Mediterranean archaeology captured public imagination, reinforcing the perception that archaeology was about ancient Egypt or Greece rather than Poland's own past. As a result, Poland's archaeological heritage remains largely unknown to the public, illustrating that while independence from political influence safeguards scientific integrity, it also risks marginalization.

4. Materializing Modern Greece: The Reconstruction of the Panathenaic Stadium for the 1896 Olympic

Games

Authors: Miltiadis Kylindreas (Emory University | American School of Classical Studies at Athens)
Format: Oral

The Panathenaic Stadium played a significant role in the collective consciousness not only of the ancient Athenians but also of modern Greeks. Founded in the Late Classical period, monumentalized in the Roman period, and reconstructed in the late 19th century, the Stadium consistently served one overarching purpose: to provide a venue for large-scale public spectacles. In this paper, I argue that the reconstruction of the Panathenaic Stadium for the first modern international Olympic Games in 1896 aimed to culturally connect antiquity with modernity, thus marking the culmination of Greece's constructed national identity in the late 19th century. To demonstrate this, I first examine the significance of the Stadium for the Great Panathenaia in antiquity; second, I consider how the urban planning of 1830s Athens, during its transformation into the new capital of Greece, was influenced by the known presence of the—still unexcavated—Stadium, which ultimately led to its excavation in the 1860s; third, I make a brief reference to the 1894 Paris Congress, which determined that Greece would host the 1896 Olympiad, and examine the main figures involved and their roles leading up to the event; fourth, I interpret the key role of the reconstructed Stadium as a key element in the cultural connection between antiquity and modernity, focusing on its benefactors, Herodes Attikos and Georgios Averoff, and the Stadium's impact on the Olympic Games. Lastly, I evaluate how the monument integrates into the contemporary architectural landscape of Athens and consider its multifunctional use and emblematic value. The reconstructed Panathenaic Stadium––rooted in the Bavarian Neoclassicism of the 1830s––thus served as an ethno-symbol, a tangible landmark embodying the national cultural landscape of contemporary Greece.

1579. Material Legacies and Political Narratives from the Spanish Civil War and Dictatorship

Authors: Amalia Perez-Juez (Boston University) – Davide Zendri (MITAG Museo Storico Italiano della Guerra) – Alicia Torija (Boston University Madrid) – Octavio Torres (University of Barcelona)
Format: Oral

This presentation examines the cultural landscape of Las Merindades (northern Burgos, Spain) through the material and immaterial legacies of the Italian Corpo di Truppe Volontarie (CTV) during the Spanish Civil War, situating this case study within broader debates on nationalism, identity, and the politicization of the past. The CTV, a fascist expeditionary force deployed by Mussolini in support of the military uprising, was stationed in northern Spain in the summer of 1937. Their tangible and intangible legacy represents how propaganda, heritage, and historical narratives were mobilized to legitimize a nationalist and authoritarian regime. Through archaeological survey and excavation, archival research, and oral testimonies, the study adopts a multiscale approach to explore how a relatively brief period of military occupation followed by a 40-year dictatorship produced long-lasting transformations in both the physical landscape and its social meanings. These remains are analyzed as material practices through which power, identity, and belonging were physically inscribed onto space, forming the basis for later processes of symbolic appropriation. The presentation further examines how these landscapes have been subsequently reconfigured through Francoist monuments and memorials, interpreted, neglected, or silenced until today. The "official" narratives are contrasted with the present-day archaeological investigation of the same spaces, which has generated new data but also sparked opposition to what is perceived as the "reopening" of the past. By analyzing the tensions between material remains, state-sponsored monumentalisation, and contemporary research following democratic laws, this case study highlights the challenges faced by researchers working in politically charged landscapes. It argues for the importance of critically engaged research to expose silenced histories, combat simplifications, and contribute to a more accurate interpretation of the past. In doing so, it contributes to current debates on how archaeology can responsibly engage with conflict-related heritage in an era of resurgent nationalism and polarized identities.

2401. Great Moravia Between Past and Present: Images, Interpretations, and Social Ambitions

Authors: Marek Hladík (Institute of Archaeology Czech Acad Sci, Brno) – Katarína Hladíková (Slovak National Museum - Archaeological Museum, Bratislava) – Martin Neumann (Institute of History of SAS, Bratislava) – Jakub Tamaškovič (Institute of Archaeology Czech Acad Sci, Brno)
Format: Oral

This paper analyses how the image of Great Moravia (a major Slavic geopolitical entity in 9th-century Central Europe) has been formed, transformed, and strategically used across different historical periods as a resource for social identity, political legitimacy, and cultural memory. It argues that what began as an archaeological and historical concept gradually became a symbolic repertoire of "spiritual" and "national" beginnings, repeatedly adapted to shifting social needs - from nineteenth-century Romanticism, through ideologically charged twentieth-century interpretations, to contemporary memory politics in an era of renewed nationalist polarisation. Drawing on key frameworks of collective and cultural memory (e.g. Wertsch 2021), the paper conceptualises the past not as a stable set of facts but as something continuously "re-performed" through rituals, symbols, and narrative templates. This perspective helps explain why certain interpretive shortcuts endure, why ambiguity is often suppressed, and how coherent "Golden Age" plots acquire authority in public arenas. The paper asks which narratives about Great Moravia are amplified or silenced in changing political climates and how authorised storylines circulate between scholarship, museums, heritage sites, education, and the media. It concludes with practical implications for sustaining open, critical, and inclusive archaeology while remaining publicly

engaged: transparent handling of uncertainty, explicit separation of evidential claims from interpretive conjecture, and multi-vocal presentation strategies that reduce the risk of instrumentalisation and polarising identity politics. Wertsch, James V., How Nations Remember: A Narrative Approach (New York, 2021; online edn, Oxford Academic, 22 Apr. 2021), https://doi.org/10.1093/oso/9780197551462.001.0001, accessed 16 Oct. 2025. The study was supported by Czech Academy of Sciences by the Strategy AV21 research programme "Anatomy of European Society".

2306. A century later: What has changed in the former province of East Prussia, and what perhaps should remain unchanged?

Authors: Magdalena Kozicka – Joanna Ciesielska (Wojewódzki Urząd Ochrony Zabytków w Olsztynie)
Format: Oral

The Warmian–Masurian Voivodeship is a region in Poland characterised by a distinctive geopolitical position and a complex historical legacy. Most of its territory did not historically belong to Poland and, until the Middle Ages, was inhabited by Baltic tribes. Through selected examples, we demonstrate the significant changes in the protection of archaeological monuments in Warmia and Masuria over the past century. We examine the history of a former churchyard cemetery in a Masurian town, the issue of archival sites excavated during the era of the German province of East Prussia, and the contemporary challenge posed by the rapid and difficult-to-control expansion of built-up areas. Although the Prussian heritage protection system was politically motivated, it resulted in a significant increase in the detection of archaeological sites in the region, a level of discovery not surpassed until the introduction of LiDAR technology. During the socialist period in Poland, archaeology benefited from its political utility. However, in the Warmian–Masurian region, evidence of Polish heritage was scarce. Heritage protection services, constrained by limited resources, operated minimally, and many sites were documented with significant negligence. Following the restoration of democracy in Poland in 1989, heritage protection services encountered new challenges resulting from economic transformation and social change. Currently, the cultural heritage of Warmia and Masuria is undergoing a revival. The region attracts individuals seeking respite from urban environments. However, increased development pressure, combined with persistent attitudes from the previous system, contributes to the destruction of archaeological sites, particularly when limited awareness of heritage value is overshadowed by the pursuit of immediate profit. We contend that raising awareness is essential for safeguarding the future of cultural heritage.

9. In the Crossfire of Identity Politics. The Museo Egizio Between Nationalism and Cultural Belonging in Italy

Authors: Costanza Paolillo (New York University | Università IULM Milano)
Format: Oral

Founded in 1824 to enhance the prestige of the ambitious ruling House of Savoy, the Museo Egizio in Turin embodies a paradox: a museum devoted to non-local antiquity, yet central to local civic identity. As the city's most visited cultural institution, the Egizio has long served as a touchstone of civic pride, woven into narratives of uniqueness and belonging despite the extraneous origins of its collection. Over the past decade, the institution has responded to the city's demographic transformation—nearly 20% of Turin's residents today hold foreign passports —by advancing inclusivity initiatives that reaffirm its relevance within the global landscape of archaeological museums. The most visible of these efforts was the 2016 campaign "Lucky Those Who Speak Arabic," which offered discounted admission to Arabic speakers as a gesture of intercultural engagement. Modest in scope, the initiative nonetheless triggered fierce political backlash and quickly became a recurring trope in nationalist rhetoric, shifting from a local controversy into national political discourse and media campaigns that framed the museum as a symbol of the erosion of "Italian identity." The episode propelled the Museo Egizio to the forefront of broader national debates over migration, heritage, and cultural identity in Italy, where archaeological heritage has increasingly been mobilized in populist narratives opposing inclusionary practices in defense of so-called "national tradition". This paper examines how the museum has navigated this terrain over the past decade. Drawing on media discourse, interviews with community stakeholders and institutional sources, it traces how inclusive programming became politicized, how these controversies shaped funding and outreach, and how the museum strategically pivoted toward initiatives less vulnerable to populist attack—such as the 2023 "Museo Egizio Accessibile" project, a comprehensive accessibility program for physical, sensory, and cognitive disabilities, funded through the EU Recovery Fund (PNRR).

1027. Out of context? Archaeology and the moral drama of tabloid storytelling

Authors: Matthias Kalisch (University of Tübingen)
Format: Oral

Despite its location in the northwestern periphery of the Roman Empire, modern-day Germany has yielded a significant number of archaeological finds from the Roman period and beyond. However, such discoveries – whether made accidentally, through rescue excavations, or as part of systematic explorations – often reach broad audiences not through academic publications or museum exhibitions, but through mass-market media shaped by simplification, emotionalization, and political polarization. In these settings, archaeological knowledge does not simply become more accessible, it is fundamentally reframed. This presentation examines the portrayal of archaeology in Germany's largest tabloid newspaper, asking what these representations reveal about the intersection of heritage, populist rhetoric, and contemporary identity politics. Based on this framework, the presentation identifies recurring narrative patterns centered around entitlement and distrust of institutions, paying particular attention to the language

used to describe archaeological actors, expertise, and legal contexts. Selected articles serve as case studies illustrating how dramatization and emotionalization structure these stories, shifting attention away from archaeological context and heritage protection. The presentation concludes with a consideration of how archaeological disciplines might respond to such media environments in Germany and throughout Europe. Understanding these narrative transformations is essential for archaeologists to communicate more effectively, challenge distorted representations, and remain critically engaged in an increasingly polarized public landscape.

1960. The Conversion of Heritage and Landscape of Archaeology in Türkiye: Nationalism, Populism, and Cultural Identities

Authors: Hüseyin Soy (Middle East Technical University / Settlement Archaeology)
Format: Oral

I examine how political landscapes influence heritage discourses and archaeological practices in Türkiye from an archaeologist's perspective. I explore whether the Turkish Republic's nationalist ideology has utilized heritage ideas and archaeological practices for propaganda purposes. Have heritage and archaeology missions in Türkiye benefited from these nationalist influences in any way? I analyze this relationship within its historical context to answer these questions and to understand Türkiye's nation-building process and policy development through heritage discourses and archaeological practices. A notable example of this influence is the transformation of the Hagia Sophia Mosque into a museum by Mustafa Kemal Atatürk, the founder of the Turkish Republic, at the beginning of the 20th century, followed by its reconversion into a mosque in the 21st century by the ruling conservative party, which has held power in Türkiye for over 20 years. Additionally, there is a noticeable shift in government-sponsored projects towards the archaeology and the conservation of Islamic cultural assets—including Ottoman monuments abroad, mainly in Balkan countries—rather than focusing on "Anatolian" cultures, which was the common practice during the secular Early Republican Era of the 1920s-50s, following the nonsecular Ottoman Empire. The rise of popular, widely exported soap-opera-style TV series in contemporary Türkiye, which supposedly depict the so-called Turkish-Islamic heritage, contrasts sharply with the appreciation of Greek and Latin texts and the appropriation of "Anatolian" cultures in the 20th century, highlighting a significant shift in popular culture.

94. The Role of Archaeological Heritage in Shaping Local Identity: The Riace Bronzes Debate

Authors: Andrea Berettera (IMT School Advanced Studies Lucca)
Format: Oral

In recent decades, archaeological heritage in Italy has become a powerful tool in shaping and affirming local identity. While this connection dates back to the fascist era, its role in post-WWII Italy remained largely overlooked—until a resurgence in the early 2000s. This period saw a rise in autonomous movements, particularly in economically struggling regions, demanding recognition of their rights and cultural identity. A striking example is the Riace Bronzes, a couple of Greek 5th-century statues discovered near Riace Marina, Calabria, in the 1970s. Initially stored in various contexts – from restoration laboratories to the Regional Council Hall – and finally displayed in the National Archaeological Museum of Reggio Calabria only in 2013, their hypothesized removal on the occasion of national or international exhibitions – such as EXPO Milan 2015 – sparked a fierce debate. Local advocates demanded their permanence to the Museum of Reggio Calabria, emphasizing the statues' cultural and historical connection to the community. This highlighted the tensions between local identity, national interests, and international recognition. This study explores the deeply rooted debate over the statues' placement, revealing their ties to identity politics. Through a critical discourse analysis of regional and national newspapers and parliamentary speeches, the research examines how politicians, archaeologists, and communities constructed diverse narratives around the artifacts. Economic, logistical, and ideological arguments clashed, with rhetorical strategies used to advance competing visions of the statues' purpose and placement. Ultimately, the Riace Bronzes are more than artistic treasures; they serve as symbols of cultural identity and instruments of political discourse. This research challenges traditional approaches to heritage, arguing for greater recognition of how archaeological artifacts transcend their material and chronological significance. This work seeks to redefine the relationship between heritage, identity, and the public sphere by fostering awareness of their broader societal roles.

1005. Reaching Out and Looking In: Lessons on heritage and democracy from the far-right in Bulgaria

Authors: Petar Parvanov (National Archaeological Institute with Museum - BAS)
Format: Oral

The presentation will tackle the challenges to archaeology imposed by the resurfacing of far-right populism and nationalism in Europe in a conversation across the ideological and generational divide. The basis for this critical inquiry is an interview conducted by the author with a prominent medieval archaeologist who also happens to be one of the intellectual proponents and a former MP from a pro-Russian far-right party in Bulgaria. The conversation reviews the subtle connections between archaeology and politics, shared research interests and differing interpretations on notable heritage sites such as Pliska (the first capital of medieval Bulgaria) etc. This approach offers a rare opportunity to learn from the practical exercise of political ideas on research agenda and vice versa. Besides getting a grip on the low-key longevity of such ideologies, another essential takeaway is the exposure of structural gaps where they can operate. Perhaps the most prominent among them is the false division between democracy and some idealized historical identity propagated by populists. In the scale of globalized large-scale political units heritage and especially local heritage is neglected due to its perceived low monetization potential, thus creating an educational and cultural vacuum readily occupied by

these ideologies. This is among a series of uncomfortable realizations but also unexplored opportunities for archaeology to contribute to a fact-based democratic narrative about the past and the future.

612. Spectres of Ronald Fisher: The renaissance of population genetics in 21st century archaeology

Authors: Anna Källén (Umeå University)
Format: Oral

In the past decade, methodological developments in ancient DNA research have been accompanied by animated stories of ancient peoples. In the history of the Americas, there have been stories of ancient populations "blasting across the continent", and in stories of the European Bronze Age, the Yamnaya have been described as "migrants from Russia" and "the most murderous people of all times". This paper will present these impactful stories as products of a revived love affair between population genetics and archaeology – an affair that goes back to the 1920s, when leading figures such as Ronald Fisher at UCL developed the statistical models that remain foundational to population genetics, while also being a global spokesperson for eugenics and arguing that "the groups of mankind differ in their innate capacity for intellectual and emotional development". The paper will show how population genetics – with its statistical models rooted in the 1920s and its privileging of the nation-like concept of population – has been highly influential in the recent shaping of our ancient past in new, or revived, images and stories of human culture and identity. What are the potential consequences of the renaissance of population genetics in archaeology, in the shifting political landscapes of our times? How shall we navigate around the spectres of Ronald Fisher in current archaeology?

2446. Beyond the "Mirror of the Present": Feminist Critique as an Essential Methodology for Countering Narrative Inertia in Archaeology

Authors: Anna Eklund (Dept. of Archaeology, Ancient History and Conservation, Uppsala university) – Cecilia Holmberg (Dept. of Archaeology, Ancient History and Conservation, Uppsala university)
Format: Oral

Archaeological discourse frequently falls victim to "narrative inertia," where sensationalist, androcentric models of the past are reproduced despite conflicting empirical evidence. By prioritizing dramatic tropes—such as systemic violence or biological determinism—over nuanced data, the discipline risks functioning as a mirror for contemporary biases rather than a window into historical reality. This paper argues for the urgent integration of feminist critique, not as a supplementary "perspective," but as a fundamental methodological rigor. A feminist analytical framework exposes the "false consensus" that allows logically incompatible theories to coexist, often marginalizing evidence of historical female agency in favour of familiar victimhood narratives. By critically deconstructing pre-determined categories and subjecting all actors to symmetrical scrutiny, we can dismantle the gendered "blind spots" embedded in high-profile syntheses. Ultimately, a feminist-informed methodology is both a scientific and ethical necessity, ensuring that archaeology reconstructs the past's complexity rather than merely legitimizing the power structures of the present.

2771. From Past to Present: How Archaeology Helps Young Citizens Understand Migration in Switzerland

Authors: Ellinor Dunning – Camille Aeschimann – Ludivine Marquis (ArchaeoConcept)
Format: Oral

Switzerland is currently re-examining its post-migration identity, shaped by successive waves of migration since the 1950s — from seasonal laborers from Italy and Spain, to refugees from the Balkan wars, and more recently, from Ukraine. According to the Federal Statistical Office (2022), 40% of the Swiss population has a migration background. Cities like Geneva and Biel, whose identities are deeply rooted in their diversity, exemplify this reality. In response, the Federal Commission on Migration launched the "New Us – culture, migration, participation" call for projects, supporting innovative initiatives that foster cultural participation, social cohesion, and a sense of belonging in a migration society. Since 2020, many civil society projects have been submitted — only one with an archaeological dimension: "Stories of Migration: From the Past to the Present," led by ArchaeoConcept. This educational project aims to explore how children aged 10 to 12 experience migration, which is considered a universal phenomenon, and to share with them the archaeological knowledge about past migrations in Switzerland. It situates migration in a long-term context while linking it to recent individual and collective experiences. The project aims to develop students' reflexivity by encouraging dialogue between past and present perspectives and giving them a voice on these issues. Classroom interventions have resulted in a podcast created with and for the students. In our presentation, we will outline the project's participatory methodology, its measurable outcomes — including increased historical awareness, critical thinking, and self-expression. We will also discuss future perspectives, such as expanding the project to other regions or school levels. This initiative demonstrates how archaeology — often perceived as distant — can become a living educational tool to address contemporary societal issues, directly involving young people in building a shared, inclusive memory.

11 REDISCOVERING NEGLECTED VOICES IN THE MAKING OF ARCHAEOLOGY

Theme: 2. Crossing the divide. Archaeology and the open world
Organisers: Janitha Kakulandala Vithanage (University of Kelaniya | University of Otago) – Chandima Bogahawatta (University of Kelaniya) – Vysakh Santhosh (University of Kerala) – Wang Tongling (Art Institute of Maijishan)
Keywords: Historiography of Archaeology, Colonialism, Decolonisation, Local Knowledge, Antiquarianism
Format: Regular session

SESSION ABSTRACT

Modern archaeology has developed through the efforts of numerous local pioneers—antiquarians, scholars, collectors, explorers, enthusiasts, and archaeologists—who sought to uncover and interpret the past of their own regions long before the discipline was formalised. Their work often reflected deep local engagement, intellectual curiosity, and cultural commitment, paving the way for the establishment of modern archaeology or offering alternative ways of imagining the past. Yet many of these individuals and their contributions have been neglected or erased from mainstream archaeological narratives due to colonial hierarchies and social or political marginalisation. This session seeks to recover and reassess the lives and legacies of those forgotten or overlooked figures whose work laid important foundations for regional and global archaeological knowledge. By revisiting their contributions, we can gain a deeper understanding of how knowledge was produced, appropriated, or silenced within different historical and political contexts. We invite papers that examine individual biographies, local traditions of antiquarianism, and the broader processes through which recognition and authority in archaeology were constructed. Through this collective effort, the session aims to restore visibility to neglected actors, highlight the diversity of intellectual traditions that shaped archaeology, and encourage critical reflection on how historical exclusions continue to influence the discipline today.

CONTRIBUTION ABSTRACTS

271. Reconstructing Herstories: The 'Liu Hulan Team' and Women Archaeologists of Xia-Shang Henan through Oral History

Authors: Shiyu Tian – Guoding Song (Beijing Union University) – Suting Li (Henan Provincial Institute of Cultural Heritage and Archaeology)
Format: Oral

Drawing on 27 oral-history interviews, private field diaries and previously uncatalogued institutional archives, this paper places gendered labour at the centre of the formation of Xia and Shang archaeology in Henan Province. It reconstructs the intellectual biographies of members of the PRC's first all-female excavation team—the "Liu Hulan Team"—and of succeeding scholars such as Zheng Zhenxiang, Liu Yiman, Chen Xu, Li Suting, Chen Chaoyun, Guo Yanli and Wu Qian. By triangulating life-narratives with excavation logs, site reports and policy documents, the study interrogates how revolutionary iconography, socialist state feminism and post-reform marketisation successively mediated access to trench, laboratory and publication podium. Their systematic regional surveys and large-scale excavations at Erlitou, Yinxu, Zhengzhou Shangcheng, Wangjinglou, Guandimiao and Xiaoshuangqiao provided the empirical backbone for dynastic chronology debates, while their concurrent work in museums, journals and education quietly expanded feminist praxis within Chinese archaeology. The findings reveal tacit strategies for negotiating fieldwork motherhood, institutional marginality and intellectual recognition, offering a gendered lens on the discipline's evolution from Mao-era inception to global engagement.The findings reveal tacit strategies through which scholars negotiate fieldwork motherhood, institutional marginality, and intellectual recognition, and offer a gendered perspective on the evolution of Xia–Shang archaeology from the founding of the PRC to the era of global engagement.

521. Labour, Language, and Power: Sharat Wattala in Sri Lankan Archaeological History

Authors: Chaamindri Fernando (University of Ruhuna) – Janitha Kakulandala Vithanage (University of Kelaniya | University of Otago) – Chandima Bogahawatta (University of Kelaniya) – Tharindu Pieris (Archaeo Boffins Consultants Services)
Format: Oral

At a time when archaeological work in Sri Lanka was controlled by colonial administrative systems and therefore carried out mainly in English, local participation in archaeology was largely limited to field labour and technical support. Although this work was essential to excavation and conservation, it was rarely acknowledged in official reports or academic writing. This paper focuses on Sharat Wattala, a Sri Lankan field archaeologist whose long-term involvement in excavation, verification, and chemical conservation work shaped key archaeological discoveries. However, his contributions remain underrepresented in archaeological historiography. Although Wattala worked closely with leading figures of the Department of Archaeology, such as Senarath Paranavitana, and played a central role in major discoveries and conservation efforts, including the discovery of the Panakaduwa copper plate of King Maha Vijayabahu, the scientific verification of the deteriorating wall paintings at Sigiriya and Hidagala, and leadership in excavations at key sites such as Mihintale, Anuradhapura, and Jetavana, his contributions were not popularised. This paper argues that this marginalisation is not incidental but reflects broader disciplinary hierarchies that honour English theoretical authorship and colonial-era scholarly frameworks over field-based and technical expertise. Even though Wattala attempted to record and explain

archaeology, his work often remained outside dominant scholarly narratives due to language barriers. He authored four publications in Sinhala, including the first attempt to explain archaeology to a Sinhala-reading audience: Puravidyawa Hadarima (පුරාවිද්‌‍යාව හැඳෑරීම). However, these writings did not circulate within English-dominated academic spaces. Featuring Wattala's work, the paper challenges dominant narratives of archaeological history and contributes to ongoing discussions on neglected voices, knowledge production, and power within the making of archaeology in postcolonial contexts.

776. Ven. Kamburupitiye Vanaratana: A Monk Archaeologist and the Vernacular Foundations of Sri Lankan Archaeology

Authors: Janani Merinnage – Chandima Bogahawatta (University of Kelaniya) – Janitha Kakulandala Vithanage (University of Kelaniya | University of Otago) – Tharindu Pieris (Archaeo Boffins Consultants Services)
Format: Oral

The historiography of Sri Lankan archaeology has been shaped predominantly by colonial administrators and English language scholars, resulting in the marginalisation of local intellectuals who contributed outside imperial academic structures. This paper addresses this historiographical gap by re-examining the life and work of Ven. Kamburupitiye Vanaratana Thero, the first Buddhist monk to systematically engage in archaeological research in Sri Lanka, was a pioneer of vernacular archaeological scholarship. The study aims to reassess Vanaratana Thero's contributions to the development of archaeology during the late colonial and early postcolonial periods, with particular attention to his role in knowledge production, institutional formation, and public engagement. Methodologically, the paper employs a critical historiographical approach, drawing on published Sinhala-language works, academic records, and institutional histories to analyse how authority and recognition were constructed within the discipline. Beginning with his 1940 Sinhala thesis on the ethnographic and archaeological history of Matara, Vanaratana Thero articulated an alternative archaeological practice rooted in local history and accessibility. His subsequent role as a founding lecturer of Sri Lanka's first four-year Honours Degree Programme in Archaeology (1963), alongside his scholarly works on Anuradhapura, Polonnaruwa, Buddha iconography, and the Panakaduwa Copper Plates, underscores his foundational impact. Despite these contributions, his absence from canonical narratives reflects enduring colonial, linguistic, and epistemic exclusions. Re-centring his legacy offers a critical intervention into the decolonisation of archaeological historiography in Sri Lanka.

597. Challenging Narratives, Revealing Truths: The Unacknowledged Archaeological Odyssey of P. Rajendran in South India

Authors: Vysakh Santhosh (University of Kerala)
Format: Oral

The paper aims to illuminate the scholarly legacy of Dr. P. Rajendran, a pioneering yet often neglected figure in the historiography of Indian archaeology, particularly in South India. Renowned for his ground-breaking research, Rajendran challenged prevailing myths that portrayed Kerala and the surrounding regions as inhospitable to early human habitation. Through meticulous fieldwork, he unearthed compelling evidence establishing Kerala's deep prehistoric roots, including Mesolithic implements, Palaeolithic tools, and unique fossilised hominid remains such as the Laterite Baby skull dating back approximately 1.66 lakh years. His discoveries of submerged artefacts, including Chinese coins, Roman pottery, and Lower Palaeolithic tools, beneath the seabed redefined notions of maritime trade and prehistoric connectivity in the region. Furthermore, Dr. Rajendran's identification of Brahmi inscriptions on Neolithic axes, petroglyphs at rock shelters, and palaeoart (Lion figurine) represented crucial breakthroughs in understanding early literacy and symbolic expression in South Indian prehistory, thereby dismantling myths of cultural stagnation. As a scientist and visionary, he helped develop the Department of Archaeology at the University of Kerala, fostering institutional growth and advancing interdisciplinary geoarchaeological methodologies. Despite his prolific academic contributions in journals and books, and numerous first-time discoveries his work remains underappreciated in mainstream archaeological discourse. This paper examines how Rajendran's scientific approach critically interrogated myths surrounding South Indian archaeology, revealing a vibrant, continuous human presence dating back to the Stone Age. It underscores the importance of recognising his efforts to rewrite Kerala's prehistoric narrative and emphasises the need to include his pioneering insights in broader historiographical debates. What does the neglect of Dr. Rajendran's contributions signify for the recognition of regional archaeological histories, and how can his scientific disproof of myths transform future research? Through this inquiry, the paper advocates for a re-evaluation of South Indian archaeological significance, positioning Dr. Rajendran as a crucial voice in Indian prehistory.

342. A Silenced Pioneer: Simon Casie Chetty and Early Sri Lankan Archaeology and Anthropology

Authors: Chandima Bogahawatta (University of Kelaniya) – Janitha Kakulandala Vithanage (University of Kelaniya | University of Otago) – Tharindu Pieris (Archaeo Boffins Consultants Services) – Chaamindri Fernando (University of Ruhuna)
Format: Oral

Modern historiographies of Sri Lankan archaeology and anthropology often locate the origins of these disciplines within British colonial institutions of the late nineteenth century, marginalising the intellectual contributions of indigenous scholars. This paper repositions Simon Casie Chetty (1807–1860) as the earliest Ceylonese intellectual to undertake systematic antiquarian, numismatic, epigraphical, and anthropological inquiry, challenging Eurocentric narratives that portray colonial civil servants as the sole pioneers

of archaeological knowledge in Sri Lanka. The study addresses the persistence of colonial silence within disciplinary histories. While British administrators are celebrated for institutionalising archaeology, Chetty's scholarly interventions, produced several decades earlier, remain largely absent from contemporary academic accounts. His work on inscriptions, coinage, historical geography, and the ethnography of communities such as the Veddas, Mukkuvars, Moors, and Tamils represents an early indigenous engagement with Sri Lanka's past, predating formal colonial archaeology. This marginalisation reveals a significant historiographical gap in the recognition of how local intellectuals negotiated colonial power structures to articulate autonomous interpretations of heritage and identity. Methodologically, the paper adopts a historiographical and archival approach, drawing on primary sources including The Ceylon Gazetteer (1834), Chetty's articles in the Journal of the Royal Asiatic Society (Ceylon Branch), and his editorial writings in the Morning Star. A comparative analysis examines Chetty's interpretations, such as his early reading of the Paramakanda Brahmi inscription and his analysis of the 1839 Calpentyn (Kalpitiya) coin hoard, in relation to later colonial scholarship. The findings demonstrate that Chetty functioned not as a subordinate informant but as an independent producer of knowledge. By restoring his scholarly visibility, this paper argues for a decolonised historiography of Sri Lankan archaeology and anthropology that foregrounds indigenous intellectual agency in shaping the discipline.

341. Colonial Science vs. Living Heritage: Walisinha Harischandra's Critique of Colonial Archaeology in Anuradhapura

Authors: Janitha Kakulandala Vithanage (University of Kelaniya | University of Otago) – Chandima Bogahawatta (University of Kelaniya) – Tharindu Pieris (Archaeo Boffins Consultants Services) – Chaamindri Fernando (University of Ruhuna)
Format: Oral

This paper examines Walisinha Harischandra's perspectives on the archaeology of Anuradhapura in Sri Lanka, articulated in the late nineteenth and early twentieth centuries. Although Harischandra (1876-1913) was neither formally trained nor officially recognised as an archaeologist, he played a significant role in shaping local responses to colonial archaeological practice. As a prominent nationalist figure opposing British colonial rule, he consistently criticised archaeological interventions carried out by colonial officers, while advocating the reclamation of historical narratives and the reinforcement of national and religious identity, particularly in relation to Anuradhapura. In the context of colonial interventions and perceived threats to sacred Buddhist sites, Harischandra argued that Anuradhapura should be understood as a living sacred city that requires a special methodology. He emphasised its cultural and religious significance to the Buddhist community and challenged approaches that prioritised monumentality and scientific excavation over religious sensibilities and local traditions. His activism extended beyond concerns for Buddhist heritage under colonial rule. It contributed to the formation of heritage politics in Sri Lanka, particularly in efforts to protect and restore Buddhist monuments in Anuradhapura. Despite these contributions, Harischandra's role has been marginalised in modern archaeological historiography, mainly because of the dominance of Eurocentric frameworks in interpreting the discipline's development. Through an analysis of his writings and publications, this study explores his perceptions of archaeology within the broader colonial context, foregrounding a neglected local voice and repositioning Harischandra within the historiography of archaeology in Sri Lanka.

844. Neglected Precious Legacy: Reassessing the Value of the 1958 Foreign Expedition's Findings at Maijishan Grottoes

Authors: Wang Ling (Art Institute of Maijishan Cave-Temple Complex)
Format: Oral

In the historiography of research on the Maijishan Grottoes, the achievements of domestic northwestern and central Chinese expeditions of the 1940s and 1950s have long dominated narratives of art history and conservation. In contrast, the 1958 expedition led by Sri Lankan art historian Anil de Silva—with the participation of French photographer Dominique Darbois and Indian scholar Romila Thapar—has remained largely neglected in Chinese academic discourse, despite its findings being specially approved by Premier Zhou Enlai. As the first foreign-led expedition to Maijishan Grottoes in the early years of the People's Republic of China, it represents a unique moment of Sino-foreign scholarly exchange under exceptional historical circumstances. The results of this expedition were later compiled by British sinologist and art historian Michael Sullivan and published in 1969 as The Cave Temples of Maichishan. This work integrates historical research, artistic analysis, cave documentation, expedition records, and rare photographic plates, offering both scholarly and historical value. Unlike domestic expeditions, this research introduced a multi-civilisational perspective shaped by scholars from Sri Lanka, France, India, and the United Kingdom. It occupies an "intermediate perspective" between early Chinese scholarship and later large-scale scientific investigations, providing an alternative framework for interpreting stylistic development and Silk Road cultural interactions at Maijishan. Darbois's photographic documentation preserves early visual records of cliff faces, murals, and sculptures—some of which have since deteriorated or disappeared—making it a vital resource for conservation history. Moreover, the expedition reflects the PRC's early diplomatic and academic cooperation policies, offering important insights into the origins of international collaboration in Chinese heritage research. The systematic translation, archival study, and reassessment of these materials not only recover a neglected scholarly legacy but also enrich global dialogue on grotto art, cultural exchange, and the interpretation of world heritage.

2268. Learned societies in the development of national archaeology from 16th to 19th century – the case

of Slovenia

Authors: Crtomir Lorber (Independent researcher)
Format: Oral

As modern European archaeological community considers its beginnings, we usually discuss the work of prominent individuals, development of national archaeological communities and their major institutions and historical development of major archaeological paradigms. In such a view it is natural that we often lose sight of the development on a local or regional level. This is true in Europe as well as in the development of a wider global archaeology, which leads us to neglect several important aspects of the development of our discipline, one of them being the development of local, regional, national and supranational semi-professional and professional scholarly networks as incarnated in different forms of learned societies from 16th to 20th centuries. These seem unglamorous, but they are a skeleton that historically allowed different scholarly disciplines to both form and spread in different environments, as their membership hailed both from actual scholarly disciplines as well as the general public. They played a major role in the processes of the popularisation of archaeological discipline and integrating the knowledge provided by archaeology into different popular movements and ideologies (including nationalism). In this paper we propose to examine a case study of modern-day Slovenia in the period between 16th and 20th centuries, which was historically a part of several multinational empires and states, such as Austria-Hungary and Yugoslavia. We intend to discuss how different learned societies helped form Slovenian national archaeology and how they helped situate archaeology in the public conscience as one of the national scientific disciplines. We will discuss how these processes correlate to the models of development of modern nations as discussed by Miroslav Hroch and Ernest Gellner as well as highlight how the legacy of said organisations still shapes modern Slovene archaeology today, even as their work is often overlooked by different scholars.

12 "LIVING ON THE EDGE": INVESTIGATING SUBSISTENCE STRATEGIES IN REMOTE REGIONS

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Kyriaki Karanikola (Vilnius University) – Ruta Karaliute (Lithuanian Institute of History) – Evanthia-Stefania Kourti (Université Paris 1 Panthéon-Sorbonne) – Giedre Motuzaite-Matuzeviciute (Vilnius University)
Keywords: palaeoenvironment, marginal regions, subsistence strategies, climate change
Format: Regular session

SESSION ABSTRACT

Humans are among the few species capable of inhabiting extremely diverse environments worldwide. As the population grows and the climate changes, more of us will be pushed to live "on the edge," or our current location will become less favourable for human habitation. By the edge, we mean arctic regions, hot and dry zones, islands, floodplains, mountain highlands, or other challenging ecological conditions. These marginal regions require greater adaptive strategies to inhabit and subsist. Yet, they hold a key to understanding human resilience and can serve as valuable guides for understanding humanity's enduring relationship with nature. In the face of climate change, these populations are particularly vulnerable. Understanding the adaptive successes or failures in marginal communities offers crucial insights into contemporary and future challenges. This session calls for multi-proxy approaches to the study of past subsistence strategies of human communities that inhabited environments "on the edge". The session aims to explore how and to what extent climatic fluctuations affected marginal and vulnerable populations, as well as their subsequent adaptation strategies. By addressing these questions, this session seeks to foster an interregional and intertemporal open dialogue on resilience, vulnerability, and the long-term entanglements of humans and their environments.

CONTRIBUTION ABSTRACTS

221. At Santa's dinner table? The past and the future of millet cultivation in northern latitudes

Authors: Giedre Motuzaite Matuzeviciut Keen (Vilnius University)
Format: Oral

Since domestication, plant and animal species have spread across a wide range of altitudes and latitudes, requiring continuous adaptation to changing climatic and environmental conditions. One of the earliest crops involved in the globalisation of food systems, broomcorn millet (Panicum miliaceum), possesses remarkable adaptive properties. Domesticated in northern China at approximately 42° N, millet was subsequently cultivated in high-altitude Alpine valleys as well as at northern latitudes across Europe. Archaeobotanical evidence indicates that broomcorn millet was cultivated at the southern shore of Lake Ladoga (60° N) during the 11th–12th centuries AD, likely introduced by Slavic settlers. However, during the initial phase of millet dispersal in the Bronze Age, its cultivation extended northwards only to approximately 56° N, where it appears to have halted at the cultural and linguistic boundary between Indo-European–speaking Baltic populations and Finno-Ugric groups. In this presentation, I will explore bioarchaeological evidence for past millet use, combined with experimental research on millet landraces, to examine the physiological limits of this crop's adaptation in the north. I will provide new insights into the environmental constraints shaping millet dispersal and highlight its potential for future cultivation in northern Europe.

2177. Back to Podgorie: New Results from a Prehistoric Lakeside Site in Albania

Authors: Patrick Willett (Vrije Universiteit Brussel) – Edlira Andoni (Albanian Institute of Archaeology) – Jana Anvari (Flinders University)
Format: Oral

Podgorie is an important Neolithic site in southeast Albania, probably spanning the Early Neolithic into the Bronze Age. Following excavations in 1982, much of the site was damaged by modern development. Our new research project at the site combines surface collection and geomagnetic survey (2022) with targeted excavations and coring to reconstruct the chronostratigraphy of the site (since 2025). This paper presents our preliminary results on the stratigraphy, chronology and material culture of the site. Our work at Podgorie forms part of our overall research program in the Korça Regional Neolithic Project on the cultural landscape of early farming sites in the Korça plain and adjacent mountains. Podgorie forms part of a small cluster of Neolithic to Bronze Age sites at the northern end of Lake Maliq, a lake with surrounding marshlands that existed in the northern/central part of the Korça plain during prehistory and into modern times until drainage works in the 1940s. Our project researches several of these sites—including Luadisht, only 2.5 km from Podgorie, which was excavated by us between 2023 and 2024—to understand the chronological relationship and interaction between these settlements, and their relationship to Lake Maliq through time.

2163. Millet agriculture, land-use intensity, and hydroclimate variability in Late Bronze Age lake basins of north-eastern Europe

Authors: Meiirzhan Abdrakhmanov (Department of Archaeology, Faculty of History, Vilnius University) – Jeremy Jacob (Laboratoire des Sciences du Climat et de l'Environnement, UMR CEA-CNRS-UVSQ 8212) – Piotr Kołaczek (Climate Change Ecological Research Unit, Adam Mickiewicz University in Poznań) – Jakub Niebieszczański (Faculty of Archeology, Adam Mickiewicz University in Poznań) – Monika Karpińska-Kołaczek (Climate Change Ecological Research Unit, Adam Mickiewicz University in Poznań) – Joanna Święta-Musznicka (Faculty of Biology, University of Gdańsk) – Kamil Niedziółka (Faculty of History, University of Gdańsk) – Miglė Stančikaitė – Neringa GastevičIenė (State Scientific Research Institute, Nature Research Centre) – Giedre Motuzaite Matuzeviciute (Department of Archaeology, Faculty of History, Vilnius University)
Format: Oral

Understanding how past communities structured subsistence in environmentally sensitive landscapes at northern latitudes is key to evaluating long-term human resilience. We investigate millet-related land use and hydrological and climatic dynamics in lake catchments of present-day Poland and Lithuania – areas where hydrology, soils, and climate variability strongly constrained human activity since the Early Bronze Age. In this study, we focus on the occurrence and relative abundance of miliacin, a pentacyclic triterpene methyl ether diagnostic of Panicum miliaceum (broomcorn millet), in sediment cores from Bruszczewo and Wierzchowo (Poland) and Bėlio, Želva, and Luokesa (Lithuania). The records are supported by absolute chronologies based on AMS ^{14}C dates and supplemented with pollen analysis. Moreover, to estimate hydrological and/or climatic variability, the hydrogen isotope compositions (δ^2H) of plant-derived fatty acid methyl esters (FAMEs) were analyzed. Sporadic low miliacin occurrences in several sequences during the early–mid 2nd millennium BCE predate most regional archaeobotanical evidence and are interpreted cautiously; similar signals in other European lakes suggest possible contributions from wild C_4 grasses. Continuous miliacin presence begins between ca. 1300–1100 BCE, with major peaks around 1000–900 BCE. These phases are associated with anthropogenic deforestations indicated by pollen data and profile lithologies. The evolution of δ^2H values allows discussion of changing environmental and hydrological conditions before, during, and after major miliacin phases. However, elevated inputs of millet- and other anthropogenic plant-derived fatty acids during peak miliacin intervals could have affected FAME δ^2H values, requiring cautious climatic interpretation. Miliacin concentrations decline after ca. 800–700 BCE but remain present at low levels, suggesting reduced importance of millet. This decline broadly coincides with regional cultural transitions and shifts in settlement organization. Together, the records demonstrate how biomarker and isotope tracers can help disentangle the evolution of human–environment interactions and subsistence intensity in climatically dynamic marginal landscapes at northern latitudes.

2371. Who would want to live on a floodplain? A pre-Roman Iron Age settlement in Brodno, Lower Silesia (SW Poland)

Authors: Joanna Markiewicz (Charles University Prague) – Przemysław Dulęba (The Godfryd Ossowski Foundation for Interdisciplinary Research)
Format: Oral

The paper examines the spatial setting and significance of a large pre-Roman Iron Age settlement (2nd–1st century BC) located on a sandy elevation overlooking the branching riverbeds and floodplains of the Oder River. In contrast to most contemporaneous communities in Silesia, the choice of this location does not appear to have been driven primarily by access to fertile soils or optimal agricultural conditions. Despite its considerable spatial extent, the settlement at Brodno seems to have been short-lived, functioning for only a few decades before being abandoned. Notably, the area attracted renewed habitation only in the Early Middle Ages,

a period when wetland and riverine environments were increasingly favoured for settlement. Although peripheral to the region's most intensively occupied settlement and farming zones, the site occupied a position along a major river corridor that facilitated the movement of people and goods. This setting endowed the settlement with a liminal character, mediating between local landscapes and supra-regional networks. The surrounding waterlogged micro-region also contained several smaller pre-Roman Iron Age sites, as well as a Celtic coin hoard discovered nearly two centuries ago, pointing to a broader pattern of activity in this marginal yet connective environment. The paper integrates spatial analysis with archaeobotanical and archaeozoological data, shedding new light on the role of riverine landscapes in pre-Roman Iron Age settlement strategies.

1768. Crop flexibility and adaptation in marginal environments: Late Bronze Age millet from Skala Sotiros, Thasos (northern Greece) in its regional context

Authors: Kyriaki Karanikola (Vilnius University, Faculty of History, Department of Archaeology) – Soultana-Maria Valamoti (Aristotle University of Thessaloniki) – Giedre Motuzaite Matuzeviciute (Vilnius University, Faculty of History, Department of Archaeology)
Format: Oral

Understanding subsistence strategies in environmentally variable and marginal ecological settings is central to the study of human adaptation. This paper examines archaeobotanical evidence from the site of Skala Sotiros (Thasos Island) and other sites in northern Greece during the Late Bronze Age (15th–11th centuries BCE), aiming to investigate agricultural strategies under conditions of environmental variability. Special emphasis is placed on millet as a resilient, low-risk crop that appears to have been adopted at several sites in northern Greece during this period. The data indicate a shift towards more diversified and flexible cropping systems, which seem to have strengthened agricultural risk management and the adaptive capacity of local communities. In contrast, contemporary sites in southern Greece display different agricultural choices, suggesting alternative socio-economic and environmental dynamics. The results highlight the role of crop flexibility as a key mechanism of resilience in marginal environments and under conditions of ecological stress, contributing to broader discussions on human–environment relationships in contexts of uncertainty.

1917. Making a Living on the Edge: Animal-Based Subsistence Strategies on Early Modern Madeira (17th-19th centuries)

Authors: Camille Lacorne – Ben Gruwier – Patxi Pérez Ramallo (Vrije Universiteit Brussel) – Jean-François Mousson – Alexandre Brazão (Centro de Estudos de Arqueologia Moderna e Contemporânea) – Manuel Biscoito (Museu de História Natural do Funchal | Agência Regional para o Desenvolvimento da Investigação, Tecnologia e Inovação | Oceanic Observatory of Madeira) – Bart Lambert (Vrije Universiteit Brussel) – Philippe Claeys (Vrije Universiteit Brussel | University of British Columbia) – Christophe Snoeck (Vrije Universiteit Brussel)
Format: Oral

Before the 15th century, the Macaronesian island of Madeira was characterized by geographical isolation, a limited land area and ecosystems lacking endemic terrestrial mammals. European colonization later triggered the rapid occupation of this marginal, previously uninhabited environment. Portuguese settlers had to develop adaptive subsistence strategies to ensure their long-term viability. The introduction of domestic animals from continental Europe was central to these adaptations. Animals contributed to food security and to the island's economic development. However, how these taxa were managed, exploited, and integrated into this fragile insular environment remains poorly documented. In particular, interactions between introduced species and local resources, and human responses to environmental constraints, are still little understood. This study uses a multiproxy bioarchaeological approach to explore early settler subsistence strategies in the early modern period in Madeira. Carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) isotope analyses were conducted on domestic fauna (cattle, sheep/goat, pig, and poultry) and wild fauna (birds and fish) from the 17th-19th-century archaeological site of Rua da Conceição in Funchal, Madeira. The results provide insights into subsistence strategies in this marginal context. They reveal animal feeding practices, degrees of confinement, and the spatial organisation of husbandry. They also shed light on the flexibility and resilience of colonial subsistence systems. This includes the differentiated use of local resources, which included marine inputs. Overall, this study contributes to the understanding of human-animal-environment interactions and adaptive strategies in peripheral, previously unexplored environments during the early modern period.

1312. To Remain Despite Everything: The Populations of Calabria After 1783

Authors: Carlo Citter – Assunta Campi (University of Siena)
Format: Oral

The 1783 earthquake had devastating effects, not only in physical terms but also in collective memory, though the 1905 one was even more dramatic. Entire cities were abandoned. Yet, as demonstrated by the case of certain sites in southwestern Calabria, populations remained within the same areas, relocating only slightly from the destroyed settlements. This raises a significant questions for archaeological research. The main one being why? Some of these sites were small castles, while others were actual cities, covering over 30 hectares, with complex urban and social structures. This contribution aims to present preliminary data from an ongoing study that seeks to explore the long transition from the medieval to the modern period, with a particular focus on this aspect that characterizes many of the historical sites in Calabria. In particular, we will focus on the sites of Castelmonardo, Briatico, and Mileto—three central places within a relatively small region when compared to Vibo Valentia, which was not abandoned at all.

1569. Per aspera ad astra? Difficulties in Colonizing of the edge of loess uplands by the first agricultural communities (S Poland)

Authors: Marcin Szeliga – Joanna Pyzel (Institute of Archaeology, Maria Curie-Skłodowska University in Lublin) – Katarzyna Gawryjołek-Szeliga (National Museum in Lublin) – Jarosław Wilczyński (Institute of Systematics and Evolution of Animals PAS, Kraków)
Format: Poster

The colonization of the edge of the loess uplands and the neighbouring non-loess areas by early farming communities of the Linear Pottery culture (LBK) is a very important, as well as extremely intriguing and still enigmatic episode in the overall process of Neolithisation of the upland areas on the northern side of the Carpathians at the end of the 6th millennium BC. The analysed area is located on the border between two regions that are drastically different in terms of ecology and landscape (i.e. the loess Sandomierz Upland and the sandy-clay areas of the Iłża Foothills). This location completely deviates from the basic settlement preferences of the LBK communities documented in other upland areas of central and western Europe, including the upper Vistula river basin. Despite this, archaeological data to date indicate that the settlement processes initiated by the communities of this culture were intense and lasting in nature, and at the same time spread out over time, consisting of a series of smaller, short-lived settlement episodes within selected locations. An example of this is the short-lived, small settlement of the late (Želiezovce) phase of the LBK discovered in Wólka Wojnowska (Ćmielów municipality, Świętokrzyskie Province). The latest research at this site shows how complex and multi-stage the process of early agricultural colonization of these areas was. Their results confirm not only the extraordinary determination of the oldest farming communities to initiate and continue settlement in this unusual and much more demanding area, but also their very high adaptability to the conditions of the local areas, which are much less agricultural productive than the nearby loess areas due to significantly worse environmental conditions, including, in particular, soil conditions. This phenomenon has not been visible in the upland areas north of the Carpathians until now.

2650. Evaluating duration, seasonality, and mobility patterns of LGM foragers from lithics assemblages: micro-stratigraphy, raw-materials, spatial analysis, technology, and experimental Archaeology

Authors: Miguel Almeida (Dryas / Octopetala | Uniarq / Fac. Letras da Universidade de Lisboa) – Thierry Aubry (FCP - Fundação Côa Parque) – Bertrand Walter – Jean-Baptiste Peyrouse (SERAP Claise - Soc. Ét. Recherches Archéo. Paléo. Vallée de la Claise)
Format: Poster

The Maîtreaux site is characterised by successive occupations by small Solutrean groups who strategically exploited the nearby exceptional Upper Turonian flint source to produce extensive reserves of projectile points and blanks and backed bladelets, and large-sized laurel leaves, exported as unfinished preforms. The exceptional preservation of the site's stratigraphy, lithic remains, and spatial organisation supported a multi-faceted approach integrating geoarchaeology, lithic refitting, lithic technology, and spatial analysis, revealing the behavioural complexity of the occupations, certainly targeting the economic exploitation of the flint, but also including activities unrelated to tool production, as proven by Traceology analysis and the presence of unproductive operative chains, colorant processing, and symbolic objects. Intensive refitting and micro-stratigraphic and spatial analysis allow a detailed micro-historic reconstitution of the technical activities related to mineral raw materials, offering unprecedent insights into the social organisation of LGM's forager groups, their daily life, and intra-site use of time. An Experimental Archaeology programme was designed to provide a comparative referential, which includes, very cautiously, time-related variables. Moreover, a dynamic view of the group's seasonal economic strategy, derives from the consideration of (1) incoming objects and raw materials, (2) on-site activities, and (3) exported lithic tools and blanks. The goals of the Maîtreaux productive knapping (blanks and preforms) seem indicative of the group's time constraints at the site and seasonal economic strategy, as corroborated by further litho-technological analysis of much smaller, but complementary, flint remains from karstic sites showing the modification of imported blanks into projectile points and finishing of laurel leaf preforms (eg.: Roches d'Abilly, Abri Fritsh, and Petit-Guinards). Les Maîtreaux shows the possibility of assessing the (paleo)ethnological, rather than ethnographic, aspects of LGM foragers' time-use, duration, and mobility: time strategies can be derived from the available archaeological record, although the specific use of time by any "Solutrean" group remains inaccessible.

13 CROSSING THE DIVIDE: A CONVERSATION WITH CIFA RESEARCH AND IMPACT GROUP ON COLLABORATION IN PROFESSIONAL, ACADEMIC, COMMUNITY, AND COMMERCIAL ARCHAEOLOGY

Theme: 2. Crossing the divide. Archaeology and the open world
Organisers: Colin Forrestal (CIfA RIG committee) – Evelyne Godfrey (Uffington Heritage Watch) – Leila Joensson (The University of Vienna)
Speakers: Colin Forrestal (CIfA RIG committee) – Evelyne Godfrey (Uffington Heritage Watch) – Leila Joensson (The

University of Vienna)
Keywords: Commercial, Community, Professional, Academic, Collaboration, Communication
Format: Workshop
Affiliation: Chartered Institute for Archaeologists (CIfA)

SESSION ABSTRACT

The Chartered Institute for Archaeologists Research and Impact Special Interest Group (CIfA RIG) focuses on promotion of commercial, community, and professional archaeological projects that engage with universities and established researchers, providing material for joint enterprises. This workshop session will consider what field archaeologists and specialists need to improve their research requirements and output. The workshop will provide a forum for attendees to express examples of good and not so good experiences of producing research outside a purely academic setting. The workshop will be structured around the following themes: - What role do university departments or academics play in research output that has a public impact? - How do you access the latest information, papers or ideas relating to your research area? - How do professional archaeologists develop writing skills, write research proposals, and publish (including innovative publishing)? - What would you like to happen to improve the future of research in professional archaeology? The aim of the workshop is to produce an actionable process to improve the experience and effectiveness of research projects undertaken beyond the academic training stage (e.g., Masters and Doctoral level) of archaeological careers.

14 MATERIAL AND SURFACE DESIGN IN ANCIENT GREEK ARCHITECTURE. CREATING AND PERCEIVING VISUAL EFFECTS FROM THE ARCHAIC TO THE HELLENISTIC PERIOD

Theme: 1. Widening perspectives in material culture studies
Organisers: Adrian Kröger-Hielscher (Kiel University) – Matthias Grawehr (Graz University) – Asja Müller (Kiel University)
Keywords: Greek Architecture, Material Agency and Affordance, Architectural Praxeology, Material Aesthetics, Material Semantics, Materiality and New Materialism
Format: Regular session

SESSION ABSTRACT

This session investigates how building materials and surface finish contribute to the design and perception of Ancient Greek architecture. It focuses primarily on the genuine intrinsic properties of limestone, marble and other building materials (e.g. metals, terracotta, gemstones) – their color, translucency, texture, reflectance – as well as the enactment of these properties by varying degrees of finish or paint. The aim is to examine how ancient architects orchestrated such qualities to stage certain materials, create contrast, rhythm, or coherence. The interplay of materials, textures, and surfaces with light and shadow played a crucial role in shaping not only the visual and tactile qualities of façades, thresholds, and interior spaces but also the overall spatial experience and architectural coherence of Greek buildings. By analyzing the materiality of Greek architecture with regard to specific materials and their functional, aesthetic, and semantic uses, the session seeks to clarify how choices of stone, cutting, and finishing were integral to the design process and affected both the formal structure and visual presence of buildings. Material combinations, contrasts and transitions served to enliven and differentiate architectural elements, mark hierarchies of space, and establish visual relations between architecture and its surrounding landscape. These material and visual strategies were not static but developed in response to different cultural, technological, and environmental contexts across periods and regions of Ancient Greece. We are inviting contributions that address these questions through detailed case studies, comparative perspectives or digital simulations/reconstruction. By combining close architectural observation with material analysis, participants will explore how the visual presence of matter itself shaped perception and meaning in Greek architecture, revealing a sophisticated understanding of materials as active components of architectural composition, aesthetic expression and semantic communication.

CONTRIBUTION ABSTRACTS

145. Building Materials and Surface Design in Ancient Greek Architecture: Introduction

Authors: Adrian Kröger-Hielscher (Kiel University) – Matthias Grawehr (University of Graz) – Asja Müller (Kiel University)
Format: Oral

This introduction provides an overaching framework for the entire session. The primary focus of this contribution is the materiality of Greek architecture. Materiality, defined as the material state of things, is the result of a decision made by an individual to utilise a specific material, as well as the historical, social and economic conditions that influenced this choice. A substantial amount of research has been done on stucco, paint and pigments in Greek sculpture and architecture. The purpose of this session is a close and intensive analysis of visible building materials, with a particular focus on the various stones – the defining matter of Greece monumental architecture. Against the theoretical backdrop of new materialism, materiality and praxeology, this introduction

develops a differentiated view on the question of how breccia, tufa, limestone or marble has been used, displayed and, in some cases, even staged in Greek building practice. This extends beyond a mere analysis of the technical properties of different stones and the logistics required for their extraction and transportation. It may be argued that this presupposes a conscious design process. This aesthetically oriented perspective considers the visual impacts of stones and their surface treatments, including pattern and colour effects, bi- and polychromy, brilliance, roughness, polishing, (faked) naturalness, and so on. Additionally, a semantic dimension can be incorporated to explore the social and cultural significations attributed to the diverse stones. This comprehensive perspective on the use of building stones integrates a variety of approaches, including archaeological, archaeometric, geological, historical and art historical methods.

2682. What stone should I use? Combinations of stones in monumental buildings

Authors: Therese Emanuelsson-Paulson (Stockholm University)
Format: Oral

When discussing Greek monumental architecture we often think of the traditional features of designs: the columns, the painted terracotta roof or the imported marble details. Other part of the building and their construction material are often less conspicuous. Rear and side walls are commonly constructed of local materials as for example limestone and mudbrick, which are seldom discussed in their own right or together with the decorative façade of the building. The architects or builders of many ancient Greek buildings put in a great deal of effort into the designs of their monumental buildings and they did not leave the design, material or the stone dressing of the wall out of this grand scheme. Sometimes these walls of local materials stand as a strong contrast to the imported materials used in the facades of the building. Correspondingly, the decorative stone dressing or roughly work walls were clearly distinctive from the polished or plastered columns in the facades of the buildings. Some of these walls, shows clear signs of trying to be distinctive from the walls of the neighbouring building, undoubtably by design. Regardless if all walls of a building are constructed in the same material and stone dressing or are differentiated by both, they need to be included in our discussion of the entire design of the building. Even when a building is preserved only in bits and pieces, the ancient viewer saw an entire standing building planed as one unity, were the combinations of different stones contributed to their respective parts of the building design.

2325. Material, Surface Finish, and Experiment in the Earliest Greek Ashlar Architecture: The Temple of Poseidon at Isthmia

Authors: Alessandro Pierattini – Khachatur Manukyan (University of Notre Dame)
Format: Oral

Discussions of materials and surface finish in ancient Greek architecture have long focused on mature stone monuments, often taking for granted both the origins of these practices and the adoption of cut stone. Yet the early history of stone construction—one of the most consequential transformations in Greek architecture—remains poorly understood and is still shaped by entrenched narratives that privilege structural explanations. This paper revisits that transition through a case study of the early Archaic Temple of Poseidon at Isthmia (Corinthia), among the earliest Greek temples built in cut stone. Erected in the first half of the seventh century BC using isodomic ashlars—the earliest attested in Greek architecture—the temple represents an exceptionally early and experimental use of stone, preceding the Doric and Ionic visual languages by decades. Its scattered remains, preserved after its destruction in the fifth century BC, offer a rare opportunity to examine how materials and surface finishes shaped design and perception at the transition from perishable to permanent construction. By combining close architectural observation with a range of material-analytical approaches, including X-ray diffraction, Raman, and Electron microscopy, this paper reconstructs the building process and the visual strategies of the earliest Greek ashlar walls: the treatment of limestone surfaces, the use of smoothing, plastering, and painting, along with their elemental composition. Particular attention is given to how stone was processed and staged alongside stucco and polychrome decoration, in dialogue with contemporary visual practices such as vase painting and local funerary stone-working traditions. Rather than viewing the adoption of stone primarily as a structural choice, the paper argues that material and surface design at Isthmia must be understood in perceptual and semantic terms, showing how materials functioned as active components of architectural composition, visual experience, and social representation in early Archaic Greek communities.

37. Building a Deliberative Aesthetic. Hammer-faced and bossed-faced blocks and two-storey fronts in Late Classical and Early Hellenistic Greek Bouleuteria

Authors: Jordan Voillot (UMR 7044 Archimède, University of Strasbourg)
Format: Oral

Some studies, such as those by Krischen (1941), McDonald (1943), Meinel (1980) and Gneisz (1991), examined bouleuteria, the Greek meeting halls. These studies focused particularly on the design of these structures and how they evolved from rectangular rooms and hypostyle halls to theatre-like buildings. Researchers were less interested in the shapes of the elevation of these buildings, except for the famous Milesian bouleuterion. Buildings such as the Old Bouleuterion in Athens and hypostyle halls, like those in Argos and Sicyon, used a prevalent aesthetic in Greek architecture – columns and entablures – to adorn their exteriors faces. This pattern, which derived from religious architecture, was disrupted by the emergence of theatre-like buildings in the second half of the 4th century BC. The sloping stone seats, which were often built in halls closed on all four sides by walls, caused these buildings to increase in height. Ornamentation is now supported only by the walls and their treatment. Building materials used and the treatment of the

outer face of the blocks adorned with bossed face or hammered finishes became an important decorative pattern. Finally, the walls' surfaces reflect the buildings' interior organisation of the buildings, which is now divided into a lower part containing the seats and a free upper part. The contrast in the treatment of the two parts of the walls – the lower with a bossed or a hammered face, and the upper with a smooth face – and the presence of large windows, which also form a part of the ornamentation, became characteristic of the Greek meeting halls, allowing a new aesthetic to develop: the two-storey fronts. Thus, this talk proposes to demonstrate how the use of a specific type of plan led to the development of a particular aesthetic, and how this was achieved.

2568. Material and Surface Design at the Temple of Hemithea at Kastabos (Asia minor)

Authors: Christine Wilkening-Aumann (Philipps-Universität Marburg)
Format: Oral

This paper focusses on the temple of Hemithea at Kastabos on the Karian peninsula in Asia minor vis-à-vis the island of Rhodes. As the only known building on the peninsula, the temple is distinguished by its exceptionally fine architectural ornamentation of marble. In contrast, the interior and substructure were built from limestone. The numerous tiles found during the investigations suggest that the roof was covered in terracotta. With its monumental scale, the early Hellenistic temple not only surpassed the dimensions of its predecessor. It required the natural ridge to be enclosed by a rectangular platform measuring 54 by 33 meters, which fundamentally changed the appearance of the landscape and the sanctuary. Due to its position above the Gulf of Bybassos (today's Hisarönü) and its exposed location on the northern slope of the Eren Dag, the site was visible from afar. Built around 300 BC, it can be assumed that the surfaces were colored in a way that went beyond the natural lithic bichromy, although there is no evidence of painting. In my presentation, I would like to use this example to explore the question of the extent to which the use of materials, their composition and their supposed contrast allow conclusions to be drawn about their functional, aesthetic and semantic use in early Hellenism. Temple and terrace were studied within the Bybassos and Kastabos Project between 2006 and 2015 under the direction of Prof. Dr. W. Held, Philipps-Universität Marburg (Germany) and in cooperation with Ege Üniversitesi Izmir (Turkey).

1007. Stone Scenographies: Material Staging in the Hellenistic Asklepieion of Kos

Authors: Asja Mueller (Kiel University)
Format: Oral

The Asklepieion of Kos in the second century BC is widely known for its scenographic effect, designed for visual impact across the sanctuary. While this monumental ensemble has been the subject of numerous reconstructions, these have largely focused on architectural form and spatial disposition, paying little attention to materiality and surface design. Yet the visual effect of the sanctuary prospect depended not only on built form but also on the deliberate orchestration of materials, textures, and colour contrasts. This paper argues that material and surface choices played a crucial role in shaping the visual presence and perceptual coherence of the Asklepieion. Older buildings, terrace retaining walls, and less representative structures were executed in a coarse, brownish-yellow local travertine, characterized by rough surfaces and low reflectance. The darker, matte terrace walls did not merely serve a structural function but acted as a visual foil, against which the bright and highly reflective temple buildings stood out with increased clarity and prominence. Architecturally dominant buildings employed finely dressed and polished local marble, available in two distinct varieties: white and grey-blue. Especially in the Hellenistic phase, these two marble types appear to have been used in a consciously contrastive manner to articulate architectural hierarchies, structural elements, and visual rhythms within the sanctuary prospect. The interplay between rough and smooth textures and between dark, absorbent and light, reflective surfaces was thus central to the perception of the complex. To assess the perceptual impact of these material strategies, the paper draws on a digital 3D model of the Asklepieion of Kos, created within the project »Dynamic Spaces: The Asklepieion of Kos during Festivals and Healing Rituals« at Freie Universität Berlin. By integrating material properties and surface finishes into the model, the study demonstrates how materiality functioned as an agent of architectural composition and visual meaning.

537. Half-fluted columns, polychromy, and the changing aesthetics of the Doric order in the Hellenistic Period

Authors: Samuel Holzman (Princeton University)
Format: Oral

Starting in the 3rd century BCE, builders of stoas and peristyles in Greece and Asia Minor began crafting half-fluted columns, or to be more precise, columns—mostly Doric—with facets rather than flutes in the lower third of their height. In studies of Greek architecture, a functionalist explanation, first proposed by Leon Battista Alberti, has found broad acceptance: the half-fluted scheme prevented chipping the fragile arrises of flutes, particularly in public buildings with heavy foot traffic. Yet others have argued that aesthetic appreciation and not utility energized the rapid proliferation of the design (Wannagat 1995). There is a likely connection with bichrome columns, known best from Vesuvian sites, in which the lower half of a column is smooth and painted red or yellow, while the upper half is white and fluted (Grawehr and Lipps 2024). Yet, few Hellenistic examples survive with traces of paint to affirm the chromatic dimension to this design feature (reported at Hermapolis Magna ca. 230s BCE by Wace 1959). This paper examines the unusual case of half half-fluted columns (i.e. columns which are fully fluted on one side and half-fluted on the other). This includes a new reconstruction of the half half-fluted Doric columns of the Stoa in the Sanctuary of Great Gods on Samothrace (ca. 275-250 BCE). Unquestionably decorative, these half half-fluted columns illustrate how a broad shift in architectural aesthetics underway in the Hellenistic period impacted the inherited Doric order. The new practice of subdividing columns into horizontal registers of texture and color converges with other trends, including double decker colonnades with parapets, intentional rustication borrowed from unfinished masonry, and elaborate interior wall decoration divided into registers by polychrome dados and string courses.

15 MARGINALITY AND ENVIRONMENTAL SHIFTS: FROM SOCIOECOLOGICAL PERSPECTIVES ON THE ANCIENT MEDITERRANEAN TO PRESENT-DAY RAMIFICATIONS

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Rafael Scopacasa (University of São Paulo | University of Exeter) – Elisa Perego (University College London) – Kevin Lee (University of Texas at Austin)
Keywords: Marginality, Climate change, Socioecological challenges, Human-environment interaction, Urbanization, Climate/environmental justice
Format: Regular session

SESSION ABSTRACT

The study of the late-second and first-millennium BCE Mediterranean has long focused on élite social groups, their funerary rituals, material culture, and socio-political interactions. More recently, growing interest in social marginality in (bio)archaeology and ancient history is profoundly altering this scenario. Yet, the complex interplay between non-élite groups and environmental shifts such as climate change and natural disasters needs sharper focus. Critical is understanding how climatic and environmental challenges were experienced, perceived and tackled by potentially disenfranchised social segments, including some women and children, people with disabilities, and lower-status individuals. This session explores the impact of climatic and environmental shifts on marginalized/underprivileged groups, from the vantage point of the ancient Mediterranean. We invite contributions on: i) Analytical frameworks foregrounding the coping and survival strategies of non-élite and/or marginalized people in phases of climatic and environmental stress; ii) Bioarchaeological contributions to the study of marginality amid socioecological crises such as flooding and drought; iii) Settlement dynamics and urbanization in agriculturally and/or socially marginal environments; iv) Subaltern perceptions and lived experiences of ancient climate and environmental hazards. At the current historical juncture, characterized by both significant socioenvironmental instability and staggering (though somewhat concerning) scientific innovation, we also ask: v) How can archaeological knowledge inform debates on present-day climate justice, potentially fuelling and scaffolding current environmental movements; vi) How might the recent explosion of big-data initiatives in (bio)archaeology both inform and cloud our understanding of past and present climate change; vii) How can technological advances such as AI contribute to exploring marginality and human-environment interactions in the past, while also triggering socioeconomic and socioenvironmental inequalities in the present. Joining ancient Mediterranean experiences of marginality in their socioecological context to current global concerns, this session fosters dialogue across archaeological sub-disciplines with the aim of learning from the past for the future.

CONTRIBUTION ABSTRACTS

809. How Marginal? How Central? The case of Mt. Dikte, East Crete, during the Bronze Age

Authors: George Ntzoufras (Dept. of History and Archaeology, NKUA) – Yiannis Papadatos (Dept of History and Archaeology, NKUA) – Tina Kalantzopoulou (Belgian School at Athens)
Format: Oral

Mountainous landscapes of Bronze Age Crete have often been framed as marginal and socially peripheral, intermittently connected to broader settlement systems. Focusing on the eastern slopes of Mt. Dikte, this paper reevaluates this view by adopting a multi-layered approach that highlights the active role of upland environments in shaping settlement dynamics and territorial organization during the 3rd and 2nd millennia BCE. Rather than seeing mountains as isolated zones, the study treats them as historically embedded landscapes integrated within political and economic networks. The analysis employs a landscape-oriented perspective, emphasizing architecture as a key agent structuring upland space. Architectural remains are interpreted as material expressions of long-term planning and socio-political investment, with construction techniques, monumentality, and spatial articulation indicating sustained occupation and administrative presence. Archaeological datasets are contextualized through ethnoarchaeological perspectives from historical and modern mountain communities. Comparative evidence provides insight into mobility, land use, social organization, and resilience strategies, highlighting long-term continuities but also shifts in practices in highland lifeways. Considering that mountainous areas were neither systematically inhabited nor extensively exploited during earlier phases of Cretan prehistory, this paper seeks to identify the role of centralized polities in driving a decisive shift in upland settlement dynamics. It argues that political and administrative interventions promoted the sustained occupation and systematic exploitation of the demanding mountainous terrain of southeastern Mt. Dikte. In this way, the study emphasizes the "central" position of these otherwise "marginal" mountain settlements, interpreting them as a newly articulated political territory that remained in direct contact with the urban centers of the lowlands.

1360. Eravamo un Popolo Felice: When My Core Becomes Your Periphery at Torre Mordillo

Authors: Mattia D'Acri (Princeton University) – Ilaria Battiloro (Mount Allison University) – Nicholas Cullen (Stanford University) – Parrish Wright (University of South Carolina) – Giuseppe Lucarelli (Università degli Studi della Tuscia)
Format: Oral

The plateau of Torre Mordillo, overlooking the Sibari Plain and the Ionian Sea, has long been a locus of agricultural exploitation and human engagement with the landscape. From Bronze Age macrobotanical remains to early modern plow marks and contemporary practices of caper gathering, this place preserves a longue durée record of productive lifeways rooted in land use and foodways. Far from occupying a marginal position, the Bronze Age communities of Torre Mordillo were embedded within a prosperous and socially complex world, as evidenced by the site's wealthy burials and material culture. Only through historically contingent processes—most notably interaction with Greek-speaking groups—did this landscape become subsumed into what later historiographies have framed as a "periphery." This paper challenges such teleological narratives by approaching Torre Mordillo as a shifting center whose marginalization was neither inevitable nor intrinsic. Drawing on ongoing fieldwork, this paper presents the sampling strategies adopted at Torre Mordillo and discusses preliminary results from the integrated analysis of macrobotanical remains, organic residues from cooking and serving vessels, and samples from living surfaces. These datasets allow for an exploration of continuities and ruptures in diet, agricultural practices, and spatial organization across time. Ultimately, the paper investigates how relationships between people and landscape are transformed when a community ceases to exist within its own center and becomes incorporated into another's periphery, contributing to broader debates on colonial encounters, resilience, and social reconfiguration in contexts of historically contingent connectivity.

49. Water, Marginality and Archaic Dual Structures in the Cults of Mephitis and Marica

Authors: Simona Marchesini (Alteritas)
Format: Oral

This paper examines the cults of Mephitis at Rossano di Vaglio and of Marica at the mouth of the Garigliano as case studies of marginal religious practices embedded in liminal landscapes of ancient Italy. Both sanctuaries occupy environmentally and topographically peripheral settings dominated by water-related features—geothermal emissions, wetlands, and river mouths—approached here through a geosemiotic and phenomenological reading of landscape. The analysis focuses on the epigraphic and cultic evidence associated with two female water-related divinities operating outside canonical pantheons and within linguistically marginal contexts. Both sanctuaries lie in Sabellic-speaking areas (Oscan/Auruncan), allowing linguistic marginality to be treated as a structural component of local cult practice rather than as a secondary or residual feature. The core argument addresses numerical structuring—binary and triadic—as an archaic and marginal mode of organizing divine space. At Rossano di Vaglio, the coexistence of Mephitis and Mamers, materially attested by two statue bases within the sanctuary, has long been interpreted as evidence for a dual cultic configuration. Following Michel Lejeune, and supported by recent reassessments of the epigraphic record, this dualism is best understood as an archaic feature rather than the outcome of later syncretism. At the Garigliano sanctuary, the epigraphic evidence is more elusive. A revised reading of the inscription traditionally associated with Marica (deuom duo, "two of the gods") introduces a numerical articulation that contrasts with the presence of Trivia, whose name implies a triadic framework. Rather than resolving this tension, the paper highlights it as a meaningful structural feature of a marginal cultic context. Without invoking functional or environmental causality, the paper argues that such numerical configurations reflect archaic and peripheral modes of religious organization preserved in marginal sanctuaries and languages outside dominant religious systems.

2772. Cults at Dreadful Natural Environments: Quarry Workers and Religious Coping Strategies on Naxos

Authors: André Corso (National and Kapodistrian University of Athens) – Erica Angliker (University of São Paulo)
Format: Oral

Research on ancient Greek religion has extensively examined responses to uncertainty and risk, yet the religious experiences of non-élite groups working in hazardous environments remain underexplored. This paper investigates cultic practices embedded within quarry landscapes on Naxos, focusing on how quarry workers—operating at both social and environmental margins—negotiated daily exposure to danger through ritual activity. The study centres on the sanctuary of Phelerio, established within an active quarrying area and associated with the worship of local heroes and Nymphs, alongside evidence from the sanctuary of Apollonas. These cultic sites were situated directly in spaces of extraction marked by physical danger, sensory intensity, and environmental instability. Through the analysis of architectural features, votive assemblages, and quarry-related material culture, the paper argues that religious practices functioned as coping and survival strategies in response to uncontrollable natural forces. Particular attention is given to unconventional offerings—including carved stone objects, lithic graffiti, redeposited pottery, and unfinished or damaged statues—whose materiality reflects both precarious working conditions and workers' intimate knowledge of labour, risk, and failure. By foregrounding subaltern religious practices in a harsh environment, this paper contributes to broader debates on marginality, human–environment interaction, and socioecological stress in the ancient Mediterranean.

1040. The Flood of Florence in 1333: Society and Nature before the Anthropocene

Authors: Neri Almeida (Universidade Estadual de Campinas) – Marcelo Candido Da Silva (Universidade de São Paulo)
Format: Oral

The crises arising from global environmental changes are becoming increasingly evident. As they reconfigure social demands, they begin to exert pressure on the very forms through which urban societies represent themselves, revealing nature as a constitutive element of social existence. This experience has been equally significant in indicating the need to reconsider societies of the past, analyzed according to criteria shaped by the radical distancing from nature that characterizes the Anthropocene. Although historical research has not failed to attend to the social consequences of extreme environmental phenomena — such as famines, epidemics, human displacements, and struggles over resources — it has relegated to the background the deeper and more enduring intersection between such phenomena and societies. This intersection can be observed in the recurrence of these events, in their long-term effects, and in the initiatives developed to understand them. So, it is pertinent to ask how accurate our descriptions of the elements of these societies have been. The conflicts that emerge in crisis situations have generally been analyzed in terms of struggles for power and resources. However, from another perspective, might it be possible to identify in the records conflicts that extend beyond these dimensions, involving contestations over the very ideas of society and the future? We will discuss this question in light of the conflict that took place in Florence concerning the flood of 1333. This episode is interesting because it leads us to question the hegemony of social and economic forms associated with the emergence of the so-called "mercantile capitalism." We intend to discuss the extent to which an ecological perspective on crisis and society emerges in documentation shaped, on the one hand, by narrative formulas and specific instruments for describing nature and, on the other, by hegemonic historiographical interpretations that condition the reading of these records.

1775. Marginality and human-climate interactions in Iron Age Veneto, northern Italy

Authors: Rafael Scopacasa (University of São Paulo) – Elisa Perego (University College London)
Format: Oral

In the Iron Age, the marshlands of central Veneto, northern Italy, were characterized by riverine landscapes affected by flooding episodes, which appear to peak in frequency and intensity around 800-600 BC. From a climatic perspective, this period was related to a phase of potential cooling, which might have contributed to increased fluvial instability in the region. From a social perspective, our ongoing research has demonstrated that these environmental challenges were concomitant with changes in ritual, pottery and metal production, trade links, stone procurement, burial practices and cemetery organisation, which foreground evolving social relations and the negotiation of different identities in life and death. Funerary sites, such as those in the flood-prone centre of Padua, reflect the image of a society where social inequality and potential marginality became especially prominent in these phases of environmental downturns and climate change. By analysing a sample of several hundreds of graves from Padua, we show that different burial practices, sometimes concomitant with stratigraphic evidence of flooding, were adopted to single out specific social groups or individuals, such as some neonates and children, people potentially affected by impairments and disabilities, and adults who might have belonged to lower social "classes" or had failed to receive full social inclusion.

1777. Life and death histories of potentially marginalised individuals in Iron Age Veneto, northeast Italy

Authors: Elisa Perego (University College London) – Rafael Scopacasa (University of São Paulo)
Format: Oral

Our research on Iron Age Veneto, northern Italy, c.800-600 BC, has recognized a phase of accelerated socioeconomic change, which was concomitant with climate change and episodes of severe flooding. Ritual violence and "deviant" burial practices were chronologically associated with these broader environmental and social challenges. The use of inhumation instead of the more common cremation rite was one potential marker of incomplete social inclusion, or social difference, especially when associated with unusual features, such as prone burial, disarticulation, and deposition in liminal areas of the burial space. We, therefore, pinpoint the life and death histories of three inhumed individuals who display "abnormal" post-mortem treatments in the flood-prone centre of Padua: an infant, who received a funerary rite reflecting complex nuances of both social recognition and incomplete social inclusion; an adolescent/young adult with osteological evidence of possible disability, who was disposed of in a way that appears to underline social exclusion and the violent erasure of personhood; and an adult male, whose burial treatment embodied somewhat contradictory aspects for his gender and age. From our micro-scale analysis, marginality and social exclusion emerged as complex social constructions that were negotiated through different depositional practices in a phase of growing inequality, against the backdrop of recurrent flooding and climatic oscillations.

2538. Woodworking in Spina, a people's practice? Dendrological evidence for investigating socio-ecological behaviours in the Po Delta

Authors: Léonard Gournay (Université Paris 1 Panthéon-Sorbonne | Università di Bologna | EURArChal | ArScAn)
Format: Oral

The socio-ecological implications of human–environment relationships are difficult to reconstruct due to their limited visibility in the material record. The actors involved in the chaîne opératoire of timber production often remain invisible, and it is still unclear whether woodworking constituted a specialised or a widely shared practice. When considering, as in the case of Spina, wooden structures of large dimensions that likely required a substantial workforce, questions of labour organisation and management inevitably arise. From this perspective, it is essential to consider the social position of workers and the potential hierarchies structuring tasks and functions within woodworking activities. In this context, dendrology makes it possible to extend the scope of inquiry beyond the sole consideration of wood as a construction material and to think its impact on some structural phenomena. This paper thus explores the potential of archeodendrometry for investigating the social position of woodworkers and the organisation of timber production, by presenting a range of methods that help situate woodworking within past societies. Drawing on wooden remains from the perimetral structures of the settlement of Spina and from its necropolises, we investigate woodworking savoir-faire through use-wear analysis of the considered wooden assemblages, and we assess builders' empirical knowledge of the mechanical properties of wood by interpreting tree essences in light of their spatial disposition through GIS analysis. Finally, quantitative estimates of the workforce and timber required for these structures will ground our analyses in a larger social framework.

2651. Altering Aetolia, Shifting Status: Enslaved Labor, Manumission, and Environmental Change in the Hellenistic Mórnos Valley

Authors: Kevin Lee (The University of Texas at Austin)
Format: Oral

In a 2021 study published in "Environment and Planning E", David Brown and his coauthors identify feedback loops between various forms of modern slavery and environmental degradation. This reminds us that marginalized groups not only experience and respond to environmental shifts; willingly or not, they also actively contribute to them. This paper is an exploratory application of the "slavery-environmental nexus" identified by Brown et al. to the ancient Mediterranean. Combining archaeobotanical, sedimentological, and palynological evidence with manumission decrees from eastern Aetolia and western Locris, it explores how enslaved and manumitted individuals helped change the environmental profile of eastern Aetolia's Mórnos River valley during the Hellenistic period (c. 300-150 B.C.). It argues that they did so not only as laborers and consumers, but also as business managers. The paper first correlates evidence for accelerated erosion and expansion of anthropic cultivars with increased Hellenistic-period settlement activity along the Mórnos from Kallipolis to Naupactus. It situates these environmental shifts within a four-legged model of the local mountain economy in which agriculture was complemented by export-oriented pastoralism, forestry, and emigration. It then turns to the region's enslaved and manumitted individuals, both those epigraphically attested at regional sanctuaries and those who remain anonymous behind the archaeobotanical and ceramic assemblages from House IV at Kallipolis. Close readings of these sources strongly suggest the ways enslaved and freed persons changed the valley's environment, from building and cultivating agricultural terraces to managing the pastoral and sylvicultural portfolios of landed estates. Though the ancient evidence does not afford the level of detail available to Brown et al., reading environmental data alongside material and epigraphic evidence nonetheless permits a historically grounded reconstruction of the "slavery-environmental nexus" in an ancient mountain economy, furnishing a comparative point of reference for similar studies in other regions of the ancient Mediterranean.

2099. Resilience in a resource-rich landscape: human-environment interactions at Histria (Romania) across the longue durée

Authors: Adam Rabinowitz (The University of Texas at Austin) – Elijah Fleming (University of Minnesota-Duluth) – Katherine Reinberger (University of Georgia CAIS) – Liviu Iancu (National Museum of History of Romania)
Format: Oral

The Greek settlement of Histria, on the Black Sea coast of Romanian Dobrogea, was continuously occupied for 1300 years, despite a series of violent destructions, the gradual silting of its port, and the shift of economic activity in the Roman period to the nearby center of Tomis (now Constanta). Its residents seem to have adapted to these setbacks across historical moments that climate historians have considered less than ideal for agricultural prosperity, and that saw significant disruptions in this region (for example, the Hellenistic period, which began with a city-wide destruction at Histria, followed by an economic downturn that was acute by the first century BCE, or the third century CE, which saw more violent unrest including sacks by Gothic groups). This paper seeks to explain the city's resilience through its geographic location, which provided it with access to a wide variety of natural resources that allowed the residents of Histria to shift their economic and subsistence activities in response to environmental or historical challenges. These resources seem to have been particularly important to the non-elite populations who were buried in Histria's cemeteries from the second century CE on, at a time when the city was struggling to manage repeated crises. We discuss the results of a preliminary program of analysis of environmental and bioarchaeological remains at the site, and lay out the framework for a broader interdisciplinary, multiscalar research project that will explore the ways in which Histrians managed the resources provided by the varied landscape of Dobrogea to ensure their community's adaptability and persistence.

2424. Dynamic niches along the fringes of the eastern Sahara in antiquity: water stress as a model for adaptive strategies

Authors: Anna-Latharina Rieger (Catholic University Eichstätt-Ingolstadt)
Format: Oral

This paper explores socio-ecological marginality and adaptive economic strategies in the Marmarica, a semi-arid to arid region located along the northern fringes of the eastern Sahara, between the second millennium BCE and the first half of the first millennium CE. Rather than focusing on episodic environmental crises or abrupt climate-driven disruptions, the paper foregrounds permanent environmental stress, especially water scarcity and limited carrying capacities, as defining economic potentials and livelihood in this marginal landscape. Drawing on the geo-archaeological evidence, the paper argues that communities in the Marmarica developed adapted lifestrategies that enabled agricultural production beyond mere subsistence. These strategies can be labelled as exploitation of an ecological niche, where people were flexible in land-use practices, and the combination of pastoral and agricultural activities across micro-environments. These communities were not primarily reacting to sudden disasters or short-term hazards, but operated within long-term constraints that demanded continuous adaptation and resilience. By approaching the Marmarica as a zone of socio-ecological marginality, the paper challenges core–periphery models that frame such regions as economically dependent, fragile, or passive, and at the same time questions the label of marginal for their population. Instead and in line with the session's aims, it draws attention to the model character the adapted life-strategies can have and highlights how marginal environments could foster innovation, sustainability, and forms of economic agency that are often obscured in elite- and urban-centred narratives of the ancient Mediterranean. In dialogue with broader debates on marginality and environmental change, the paper reflects on how archaeological perspectives on populations long accustomed to climatic stress can inform present-day discussions on climate-driven marginalisation, niche exploitation, and coping strategies. It ends with the of over-developping such areas in recent years as touristic destinations, coming along with new challenges for the marginal environments.

34. Ecological Grief and the Safaitic Inscriptions of Ancient North Arabia

Authors: Eris Williams-Reed (Wellcome Collection / University of Warwick)
Format: Oral

To what extent can we recognise experiences of ecological grief in antiquity and how can these experiences inform our own understanding of environmental emotions in the modern world? This paper will explore these two questions via the Safaitic inscriptions of ancient north Arabia. Carved over 2000 years ago in the Harrah desert, these texts offer a rich insight into their authors' ways of life and close relationship with the environment. One key element of this relationship concerned the animals (including sheep, goats, and camels) led by the authors across the desert to known areas of water and pasture. Yet the authors and their animals also experienced drought and ecological instability, with many texts detailing their ensuing enhanced emotional reactions and behavioural changes. By bringing these ancient testimonies into dialogue with contemporary thinking about environmental emotions, this paper will develop a cross-cultural methodology for identifying and analysing expressions of ecological grief in pre-modern communities.

1586. Evolution, persistence, and resilience of the landscapes of Sannio Pentro. A case study from the province of Benevento (Campania, Italy)

Authors: Oriana Cerbone (University of Salerno | Associazione Nazionale Archeologi)
Format: Oral

The case study presented refers to a segment of the ancient Sannio Pentro region in the province of Benevento, characterised by various forms of human occupation, transhumance routes and ancient roads connected to the Via Appia. The landscape analysed here is understood as a multi-layered palimpsest, the sum of the relationships between man and the environment over time. The dynamic process of landscape transformation has therefore involved both anthropic and environmental components, from ancient times to the present day. Some elements of the ancient landscape have survived, blending in with the current landscape. Environmental elements, such as the river and mountains, have strongly influenced the development and evolution of these landscapes. The geographical context chosen is relevant to an area of the Campania region that is the focus of national and European policies as an area at high risk of marginalisation, depopulation and social and economic exclusion. The multi-layered landscape patterns of this territory are highly informative, but their survival is threatened by several factors: their intrinsic fragility - linked to abandonment and depopulation - and the intensive exploitation of the area for the installation of contemporary infrastructure (wind farms, hydroelectric and photovoltaic systems). The scarcity of accessible or recent data creates many problems of interpretation. However, environmental data on a regional and provincial scale can be used to provide a general reference framework. It has therefore been necessary to try to bring together different types of sources (archaeological, cartographic, historiographic, epigraphic, etc.) with data that is not native to archaeological research but which must be considered (such as hydrological instability maps, landslide maps, geomorphological and geolithological maps, etc.) in order to investigate and reconstruct the possible dynamics and interactions between humans and the environment over time.

16 WEAPONS, BODIES AND IDENTITIES: RETHINKING WARRIOR BURIALS IN LATE PREHISTORIC EUROPE

Theme: 1. Widening perspectives in material culture studies
Organisers: Andrea Dolfini (Newcastle University) – Christian Horn (University of Gothenburg) – Maria Katsimicha (University

of Manchester)
Keywords: Warrior burials, Weapon-rich graves, Warrior identities, Osteobiography, Late prehistoric Europe
Format: Regular session
Affiliation: Archaeology and Gender in Europe - AGE

SESSION ABSTRACT

Warrior burials are among the most iconic and enduring forms of funerary evidence in late prehistoric Europe and the Mediterranean. Emerging as early as the 4th millennium BC in regions as distant as the Caucasus and Italy, these burials flourished through 3rd and early 2nd millennium traditions as diverse as Bell Beakers, Corded Ware, and El Argar, and continued into later Bronze Age and early Iron Age contexts, including southern Scandinavia and Mycenaean Greece. Their distinctive assemblages of weapons and personal gear have long fuelled debates on identity, gender, personhood, mobility, migration, social turmoil, and conflict. However, these debates often remain confined within narrow regional or chronological frameworks, limiting cross-cultural comparison and the development of broader interpretative models. This session seeks to bridge these divides by inviting innovative approaches to weapon-rich burials and related evidence from the Late Neolithic to the Iron Age, across Europe from the Caucasus to Ireland and from Scandinavia to the northern Mediterranean. We encourage papers and posters that combine archaeological and bioarchaeological perspectives, and that explore both the material assemblages and the buried individuals themselves – or ideally, the interaction between the two. Contributions may address the life and death of these individuals alongside the social lives of their artefacts, from production and use to deposition and commemoration. Particularly welcome are interdisciplinary studies examining the interplay between weapon assemblages and osteological evidence for conflict, osteobiographical reconstructions integrating archaeological and bioarchaeological data, contextual analyses of weapon and non-weapon burials, and comparative approaches that cut across regional and temporal boundaries. By foregrounding both the materiality and biographies of weapons, and the identity and lived experiences of the buried, this session aims to widen our perspectives on how warrior burials illuminate social identities, gender roles, power dynamics, and ideologies of violence in late prehistoric Europe.

CONTRIBUTION ABSTRACTS

324. Warrior burials in Chalcolithic Italy: a new interpretation

Authors: Andrea Dolfini (Newcastle University)
Format: Oral

This paper proposes a new interpretation of so-called 'warrior graves' and other richly furnished individual burials of Chalcolithic and Early Bronze Age Europe, focusing on the Rinaldone funerary tradition of central Italy (4th–3rd millennia BC). Across large swathes of Europe, a new funerary language emerged during this period, characterised by individual inhumation in anatomical connection and by the use of grave goods—metal and non-metal alike—to mark gender and, according to prevailing interpretations, elevated social status. Warrior graves have become the most visible and intensively studied expression of this phenomenon and are frequently understood as material indicators of emerging sociopolitical hierarchies grounded in metal wealth. The paper critically reassesses three key assumptions underpinning this reading. First, the taphonomy of Rinaldone cemeteries suggests that burials with grave goods were originally more numerous than the surviving archaeological record implies. Second, it questions the presumed rarity and exceptional value of copper in early Italy. Third, it challenges the tendency to interpret prehistoric individual burials through modern, Western concepts of personhood, identity, and status. Instead, the paper argues that warrior graves are better understood through culturally specific notions of gender, age, and the life course, and through the ways these categories were reconfigured during funerals. Unusual life and death circumstances—including episodes of violence, both inflicted and suffered—may have motivated the deposition of selected individuals with conspicuous weapon assemblages, without any subsequent reopening of the grave to disarticulate the skeleton and recirculate its grave goods. From this perspective, warrior graves reflect not an established social hierarchy, but a new system of meanings centred on memory, social transformation, and the ritualization of death.

2251. Aegean Late Bronze "Warrior Graves" Before, During and After the Palatial Period: Similarities and Differences

Authors: Ioannis Georganas (Canadian Institute in Greece)
Format: Oral

Burials with weapons are one of the most striking features of Aegean Bronze and Early Iron Age archaeology. Such burials appear as early as the Early Bronze Age and continue well into the Early Iron Age. Although the type of graves used and the nature of the artefact assemblages vary temporally and spatially, all of the burials are usually males accompanied by weapons; in some cases these are not only numerous but also spectacular. Well known examples come from Grave Circles A and B at Mycenae and the Late Minoan cemeteries around Knossos, as well as numerous postpalatial graves from mainland Greece. The purpose of this paper is to examine the similarities and differences between the Palatial and Postpalatial "warrior graves", both in terms of material culture and ideas about identity and status. Special attention is going to be given to the graves dating to the Late Helladic IIIC period.

1591. Again...are all warriors male? Investigating gender and warrior identities in the European Iron Age, ca. 650 – 400 BCE

Authors: Kathryn Mccarty (University of Wyoming)
Format: Oral

There are two lingering misconceptions about a deceased individual buried with weapons during the European Iron Age. First is that the individual is male, and second, that they are a warrior. However, given that certain evidence has come to light, we now know that this is not necessarily the case. Archaeologists have gotten better about exploring other possibilities in terms of identity, personhood, and gender, but there is still much more to uncover. Because aDNA and osteological identification of an individual's sex are not always done, what is still usually analyzed in terms of identifying gender are differences in the composition of grave good assemblages between males and females. In this paper, I hypothesize that gender-based warrior identities will show marked differentiation in terms of frequencies of certain categories of grave goods and that the cultural identity and identification of female warriors changed over time as gendered ideologies evolved within the context of the encounters between the Classical Mediterranean world and temperate Europe. To more fully explore this, I analyzed data from numerous early Iron Age burial sites in Europe, identifying key differences in grave good assemblages and compositional frequencies. The results of my research indicate significantly more work challenging modern gender-based ideologies and their application to the pre-modern world may be in order.

584. Does the Weapon Make the Man? Weapon burials, and expressions of masculine identity in Cisalpine Gaul, c. 400–180 BCE

Authors: Alastair Lumsden (University of St Andrews)
Format: Oral

In pre–Roman Cisalpine Gaul, mortuary assemblages constitute the principal evidence for interpreting identity, yet assessing status and position within an aristocratic hierarchy is precarious, particularly when measured through weapons alone. This paper presents an interdisciplinary model that tests whether patterns in the deposition of military items track social differentiation or whether non-military items more reliably reflect the deceased's age, authority, status, or wealth. It collates and analyses over 100 weapon burials from major necropoleis across the four dominant Cisalpine Gallic polities (Boii, Cenomani, Insubres, Senones), presenting their assemblages in cemetery-specific itemised databases. This detail and scope enable both intra-regional and inter-regional comparisons, revealing patterns and anomalies in burial assemblages that infer an individual's relative positioning within an aristocratic hierarchy and trace how expressions of masculine identity were renegotiated as differing cultural ideologies responded to broader sociopolitical and military developments. Observations are then subject to formal statistical testing (Chi-square test, Fisher's Exact test) to evaluate whether deposition rates of specific pieces of military equipment and domestic goods remained proportionally similar between necropoleis and amongst Cisalpine Gallic polities over the longue durée. These conclusions are integrated with modern anthropological theories (Hegemonic masculinity, Cost-signalling theory) to contextualise potential ideological motivations behind the deposition of specific items and their association with the deceased's identity. Where permissible, this analysis also integrates osteological evidence to illustrate that age or martial trauma alone do not reliably indicate hierarchy or martial participation. These findings are supported by comparison with burial practices and expressions of masculine identity among contemporary pre-state groups (Celtiberians, Iberians, and Samnites), demonstrating the transferability of this model across cultural and temporal boundaries.

1603. Swords and Saddles? An Interrogation of Warrior Identity, Status, and Mobility in the Eurasian Iron Age

Authors: James Johnson (University of Wyoming)
Format: Oral

Research into the social lives (and deaths) of warriors in the broader Eurasian Iron Age, ca. 900 – 200 BCE, focuses conventionally on presence/absence of certain types of grave goods like swords and spears. Based largely on this premise, archaeologists have identified deceased individuals during the 'Scythian' period, ca. 600 – 300 BCE, as not only warriors but homogeneously define the Scythians as a warrior-based society. This is probably because as pastoralists, Scythian populations left relatively ephemeral traces in the archaeological record besides their mortuary practices that centered on the use of different size burial mounds. Within those burial mounds the statuses and social roles associated with warriors seem to take center stage in Scythian burial rites. Yet it remains unclear as to whether this predominant focus on the warrior: 1) is deserved; 2) can be identified in terms of regionally specific material correlates of Scythian period 'warriors'; and, if so, 3) can such materials be linked to other social positions and/or roles. Utilizing data from Renate Rolle's (1979) compendium of Scythian period burials in the lower Dnipro region of present-day Ukraine and data collected from the ongoing Comparative Iron Age Burial Mound Project at the University of Wyoming, I interrogate the degree to which Scythian warrior identities were homogeneous and subsequently singularly constructed and expressed. I investigate if such identities were linked to other social and material factors such as mound construction, the deposition of grave goods other than just weapons, such as horses and riding accoutrements, and various other symbolic expressions of status. This study suggests a more complex social structuring of Scythian society was at play from 600 – 300 BCE, and perhaps even earlier.

2247. Graves with weapons in the Latène biritual cemetery from Trestieni (Prahova county, Romania)

Authors: Vlad Carabisi – Meda Toderas – Andrei Magureanu ("Vasile Pârvan" Institute of Archaeology, Bucharest) – Marta Petruneac ("Horia Hulubei" National Institute for R&D in Physics and Nuclear Engineering)
Format: Oral

During the archaeological investigations preceding the construction of the A7 motorway (Ploiești – Buzău) in 2022 and 2023, a biritual cemetery was excavated, dated in the 5th-4th c. BC. The grave goods in both cremations and inhumations consist largely of the same categories, namely weapons, arrowheads, numerous pieces of attire, and pottery. Weapons were found in cremation and inhumation graves and consist of two akinakai, a double axe, and numerous bronze arrowheads. The grave goods also contained iron knives, however, their function as weapons is uncertain. Computer Tomography was used in the analysis of certain grave goods. Both graves with akinakai share similarities in the ritual, i.e. in both cases the akinakes was placed on a concentration of cremated bones along with bronze arrowheads. Notably, neither the akinakai, nor the arrowheads displayed traces of burning. This suggests the body was burnt elsewhere and the remains were subsequently deposited in the rectangular pit alongside the grave goods. Arrowheads occur frequently in both cremation and inhumation graves and are associated with both weapons and pieces of attire. The purpose of this contribution is to identify patterns and variations in the funerary behaviour regarding the treatment and deposition of weapons, compared to other types of grave assemblages in the same cemetery. Finally, the grave assemblages from Trestieni are compared to other contemporary cemeteries from the Lower Danube, to place the cemetery in a broader context.

1108. Warrior or warlord – Hallstatt period sword grave from Brzoza in Poland

Authors: Tomasz Gralak (University of Wrocław)
Format: Oral

Inside the barrow from Brzoza, not only weapons were discovered, but also a very large set of objects not related to the military sphere. The buried man was therefore equipped with a sword, a dagger, a spear, and horse tack. Metal (including gold) and glass elements of the costume were also found. The basic part of the equipment consisted of several dozen different types of ceramic vessels. In addition, a crescent-shaped idol and bones constituting the remains of a cattle carcass were also discovered. Assuming that all of them constitute a source of information about the buried person, violence was only one element of his activity. Pottery is directly associated with consumption, and its number suggests it was collective. It can therefore be assumed that this was a way of showing control over food and other goods. In this sense, weapons and violence were merely a means used to achieve other goals. Two other barrows located in the immediate vicinity were characterized by less extensive equipment and female ornaments. Domination, therefore, also concerned the gender sphere. Moreover, flat graves (cinerary urns) without any equipment were recorded around the barrows. The entire cemetery was therefore a visualization of the social pyramid – at its top stood an armed man.

2590. Warriors and Princes in the Eastern Hallstatt Circle – class, role, status, or something else?

Authors: Hrvoje Potrebica (University of Zagreb, Faculty of Humanities and Social Sciences)
Format: Oral

The Hallstatt Culture was used as a synonym for the Early Iron Age of the Central Europe. This paper will cover its eastern part (eastern Alps and southern edge of the Carpathian Basin), specifically Hallstatt sites in the Požega Valley. Several cultural groups existed in this area in period from 8th to the 6th century BC that shared some common traits believed to be inherent to all Hallstatt societies. One of them was that ruling elite of these communities consisted of warrior aristocracy. This was reinforced with category of princely graves with lavish inventories dominated in many cases by sets of weapons and horse equipment. This definition was at least oversimplified as well as somewhat circular argument. Unfortunately, the dominant burial ritual was cremation with little or no anthropological remains to be studied in relation to weapons from particular graves. However, the study of chronological or provenance background of individual weapons from these graves provides different insight in warrior identity of those communities. It seems that 'warrior' was not class but status intertwined with social role of these individuals. Feasting sets present in these graves also suggest much more complex identity and multiple social roles of individuals buried with weapons. We have to ask were warriors ruling class of Hallstatt societies or elite that ruled these communities adopted warrior paraphernalia as part of their special identity markers. The carefully compiled sets of weapons do note reflect just warrior character of person buried with it but also continuity and legitimacy of their rule as well as exclusive control of communication network between neighbouring and distant communities and/or local resources.

803. Resonant Power: Weapons, Horse, and Identity in an Early Iron Age Princely Burial at Jalžabet

Authors: Sasa Kovacevic (Institute of Archaeology, Zagreb)
Format: Oral

The princely burial mounds in Jalžabet, northwest Croatia, provide a rare insight into Early Iron Age mortuary practices within the East Hallstatt cultural sphere. Excavations conducted by the Varaždin City Museum and the Institute of Archaeology over the past three decades have revealed substantial quantities of cremated remains; however, the highly fragmented condition of the bones

presents a significant challenge for the reconstruction of the burial rite. Owing to extensive fragmentation, mixing, and post-depositional disturbance, the scientific identification of unequivocal human remains is problematic. This situation raises important methodological and interpretative questions concerning the treatment of the body and the construction of identity in elite Hallstatt funerary practice. The associated assemblage includes weapons (fragments of scale armour, spearheads, and arrowheads), elements of horse gear, and items of gold and amber jewellery. This combination suggests the deliberate construction of a princely identity in which martial equipment, equestrian symbolism, and prestige goods collectively articulated power, mobility, and social status. The prominence of horse gear points to the significance of mounted warfare or elite mobility, while the coexistence of weapons and ornaments challenges narrowly defined interpretations of "warrior burials". This lecture argues that the Jalžabet burial assemblage reflects a complex and layered expression of identity that cannot be understood through a single disciplinary perspective. It therefore calls for closer interdisciplinary collaboration between osteology, archaeology, the archaeology of ritual, and related fields in order to address the methodological and interpretative challenges posed by elite cremation burials of the Early Iron Age.

599. Women, Warriors, and Victims - Tracking Gendered Cultures of Violence in Danish Early Iron Age Bog Burials

Authors: Cecilie Wilsborg (Aarhus University)
Format: Oral

This paper presents preliminary results from the PhD project Women, Warriors, and Victims – Tracking Gendered Cultures of Violence in Danish Early Iron Age Bog Bodies, which investigates multiple-burial deposits in wetland contexts as a complementary and rather underexplored body of evidence for warrior identities, conflict, and funerary ideology in southern Scandinavia. These contexts are defined as abnormal burials in which two or more individuals were deposited during the same event, including apparent mass graves in bog environments. The dataset comprises 453, mostly skeletonised, individuals from 98 localities across Denmark, enabling large-scale quantitative and comparative analyses. Moving beyond traditional burial evidence, the project foregrounds the embodied biographies these individuals through an multidisciplinary methodology combining osteological assessment of the skeletal remains, analysis of associated material culture and combat equipment, emerging genetic data, and exploratory statistical modelling, integrated with gender and bioarchaeological theory. Patterns of ante- and perimortem trauma, sex-based selection, and the presence of weaponry in some contexts suggest links to organised warfare and militarised identities. Other deposits appear to reflect massacres of small groups, with both adults and children displaying lethal injuries, pointing to different modes of conflict and victimhood. Across the multiple-burial contexts, female individuals are consistently underrepresented, raising critical questions about gendered participation in warfare, violence, and the selection of victims. These patterns are explored through the development and statistical testing of a new theoretical framework, the Gendered Cultures of Violence Model. The hypothesis is that these bog body deposits represent long-term, socially structured practices of violence that actively shaped the construction and negotiation of gender, power, and martial identities in the Early Iron Age.

1373. Weapons and warriors from the cemetery of Store Frigård (Bornholm): mobility vs. local patterns

Authors: Piotr Łuczkiewicz (Maria Curie-Sklodowska Univeristy of Lublin) – Tine Trolle (Aarhus University, Bornholm Museum) – Aneta Kuzioła (Adam Mickiewicz University of Poznan) – Michał Grygiel (Nicolaus Copernicus University in Torun)
Format: Poster

The "Bornholm – the island in the middle" project currently underway aims to shed light on societies, contacts and alliance systems in the Baltic Sea region in the Early Iron Age (500 BC – 400 AD). It-is based on material from Bornholm's largest cemetery, Store Frigård with 1250 cremation graves. With its central geographical location in the middle of the Baltic Sea, the island of Bornholm has always been an obvious link and a treasured "stepping stone" between the Continent and Scandinavia. Weapons were found in 40 graves and are among the most significant finds at the site (although the original number of weapon graves was certainly greater). Particularly interesting is a high percentage of swords in the burials, which is very rare in Northern Europe. Weapons, as well as the presence/absence of other grave goods, provide a wealth of information about self-identification of local communities, personal mobility, social status, power dynamics and ideologies of violence. The social life of the weapon artifacts, from production and use to deposition, is examined together with the life and death of the buried individuals. The cremation burial rite and the generally small number of bones in most weapon graves limit the perspectives for bioarchaeological analyses. However, combining the archaeological perspective (morphology, typology, chronology, contextual analyses of weapon and non-weapon burials) with natural science methods – provenance analyses of iron, glass, ceramics and the buried individuals themselves – reveals a complex network of local and cross-regional interactions. This reflects - in a unique 900-year perspective - mobility on various scales, possible political and military alliances in smaller or larger geographical areas, but also local patterns/habits and the power of tradition.

1557. Symbolism of the Graves with Weapons from the Late Eneolithic and Early Bronze Age in Bohemia

Authors: Katarina Petriscakova (Museum of Prague)
Format: Poster

The aim of this study is to describe the changes at the end of the Eneolithic period and at the beginning of the Bronze Age, on the basis of the analysis of graves with weapons and the possibilities (limits) of identifying the warrior burials in Bohemia. The end of

the Eneolithic is characterised by two cultural complexes, the Corded Ware Culture and the Bell Beaker Culture, on which the Early Bronze civilization evolved, characterised by the Únětice Culture in our context. It is in this transitional period, that graves with specific goods appear increasingly, and we can finally call these as true weapons. Weapons are associated with warfare attributes that, according to the latest theories, played an active role in prehistoric society. However, weapons could also represent attributes of certain symbols associated with socially significant individuals. More than 500 graves that contained weapons – warrior's burials – from Bohemia dating to the Late Eneolithic and Early Bronze Age as part of this study were analysed. A fundamental concept is based on spatial analysis of specific grave assemblages and traceological analysis of selected types of weapons. Current analyses and re-analyses of human skeletal remains with evidence of conflict were also mentioned.

1735. A Warrior Burial by the Fjord – Networks, Rituals and Identity in the Early Bronze Age

Authors: Marie Rasmussen (Museum Horsens)
Format: Poster

This poster presents a unique Early Bronze Age warrior burial excavated in 2022 near Horsens Fjord in eastern Jutland, Denmark. The grave is dated to Period 1b (1600–1500 BC) and is characterized by a long stone setting shaped like a boat, with a raised prow and a straight-cut stern. Although the organic material was not preserved, the dimensions and morphology of the grave, combined with the boat-shaped stone setting, indicate that the deceased was originally placed in a log boat coffin. The narrow coffin trace further suggests the burial of a single individual. The grave contained three prominent artefacts: a flint dagger, a sandstone battle axe imitating a Fårdrup-type copper axe, and a bronze dagger of the Sögel type. No close parallels to this combination of grave goods are currently known from Denmark, and the overall burial form likewise lacks direct local comparison. The poster explores how this unusual assemblage and burial architecture can be interpreted within broader Early Bronze Age warrior traditions and mortuary practices. Archaeological interpretation is combined with archeometallurgical analyses of the bronze dagger, which indicate participation in long-distance exchange networks linking eastern Jutland with northern Germany and Central Europe. The burial is discussed as a locally distinctive and socially meaningful expression of warrior identity, ritual practice, and connectivity in the Early Bronze Age.

2300. Arrowheads as Markers of Male Identity in Early Bronze Age Funerary Contexts North and South of the Carpathians

Authors: Pawel Jarosz (Institute of Archaeology an Ethnology Polish Academy of Sciences) – Eva Horváthová (Archeologický ústav SAV) – Anita Szczepanek (Institute of Archaeology an Ethnology Polish Academy of Sciences | Department of Anatomy Collegium Medicum Jagiellonian University) – Piotr Mączyński (Institute of Archaeology, Maria Curie-Skłodowska University)
Format: Poster

Arrowheads constitute one of the most recurrent categories of grave goods found in male burials dating to the Early Bronze Age. This paper examines the role, typology, and contextual significance of arrowheads deposited in funerary contexts north and south of the Carpathians, with particular emphasis on their association with adult male individuals. Based on a comparative analysis of burial assemblages, the study explores morphometrical variability, raw material selection, and technological features of arrowheads, as well as their placement within graves. The primary source base consists of richly furnished warrior burials from the Mierzanowice culture cemetery at Krzyżanowice Dolne, site 81 (south-eastern Poland), and funerary complexes of the Košťany culture from Michalany and Hatalov (eastern Slovakia). These assemblages originate from distinct raw material provinces, characterized respectively by the use of flint and obsidian. The presence of flint arrowheads is interpreted as a marker of social identity, potentially reflecting gendered roles associated with hunting, warfare, or symbolic representations of masculinity. The analyses contribute to a broader discussion on social differentiation, the construction of identity, and cultural interactions within Early Bronze Age communities of the Carpathian zone. This research was funded by the National Science Centre Poland, grant number NCN 2020/37/B/HS3/03816 and 2020/39/B/HS3/00454.

17 BRINGING TOGETHER ZOOARCHAEOLOGY, ARCHAEOGENOMICS AND MORPHOMETRY: SHAPING THE FUTURE OF INTERPRETATION

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Konstantina Saliari (Natural History Museum Vienna) – Vlatka Čubrić Čurik (University of Zagreb/ Faculty of Agriculture) – Preston Miracle (University of Cambridge) – Ino Čurik (University of Zagreb/ Faculty of Agriculture) – Katerina Trantalidou (Hellenic Ministry of Culture)
Keywords: aDNA, Morphometrics, Zooarchaeology, Migration, Subsistence strategies, Biodiversity
Format: Regular session

SESSION ABSTRACT

Zooarchaeological material is recovered from numerous archaeological sites. Although the amount of faunal remains may vary, they constitute one of the most significant categories of biological/ archaeological finds. In recent years applications of ancient DNA and morphometrics have been transforming the field of zooarchaeology. Novel knowledge has been produced concerning a large variety of topics, including the process of animal domestication, livestock management, taxonomic identification, mobility, trade and networks as well as palaeovirology. The new genetic and osteometric data provide a crucial historical database, contribute significantly to the interpretation of archaeological sites, help us understand mechanisms of human choices and decisions, are of vital importance to reconstruct evolution and past relationships and can be used to help preserve biodiversity. This interdisciplinary session aims to bring together researchers with wide-ranging theoretical, geographical and chronological interests to apply ancient DNA and morphometrics to make the most out of archaeological faunal remains for both our past and future.

CONTRIBUTION ABSTRACTS

1082. Uncovering history using ancient parasite DNA: A metagenomical screening approach

Authors: Kristýna Kuklová (Department of Botany and Zoology, Masaryk University | Department of Archaeology and Museology, Masaryk University | Institute of Vertebrate Biology, Czech Academy of Sciences)
Format: Oral

The study of helminths in archaeological context provides indicators of diet, hygiene, mobility, and human–animal interactions, and also offers a means to understand pathogen evolution, shifts in virulence, and historical epidemics. However, classical diagnostic methods used to detect parasitic infections in archaeological materials are often limited by insufficient specificity and sensitivity. In molecular analyses, this problem is compounded by extensive DNA fragmentation, limiting recovery and reconstruction of long genomic sequence. Targeted metagenomic screening using molecular probes to enriched sequencing library for specific taxa enables precise identification of parasitic DNA even in samples previously assessed as negative for helminths using traditional microscopic and PCR methods. One of the main advantages of molecular probe-based analyses is the ability to reconstruct complete genomes of ancient organisms that may be thousands of years old. Using environmental samples from the Czech Republic, archaeologically dated to the 11th to 13th centuries, we conducted a pilot study employing a targeted sequencing using probe panel focused on complete mitochondrial genomes of parasitic helminths. This analysis complements classical microscopic examination and standard approaches that have already been performed. We show that integrating metagenomic parasite screening into zooarchaeological and archaeogenomic research enhances the interpretative potential of environmental remains, contributing to reconstructions of past parasitic infections, health, subsistence strategies, and human–animal interactions. This interdisciplinary framework integrating genetics and archaeology highlights the relevance of ancient parasite DNA for shaping future bioarchaeological interpretations.

369. Paleogenomic characterization of animal populations used in funerary LBK contexts in the Paris Basin

Authors: Thierry Grange – Eva-Maria Geigl (Université Paris Cité, CNRS, Insitut Jacques Monod) – Lamys Hachem (INRAP - UMR 8215 Trajectoires)
Format: Oral

The nature and placement of whole animals or animal body parts as grave goods suggest distinct meanings and may offer valuable insights into the symbolism of early sedentary life. They not only reveal the roles animals played in funerary rituals but also contribute to the understanding of animal-human-environment interactions within specific ecological contexts. Indeed, animals placed as grave goods reflect their source wild or domestic animal populations. Paleogenomic (ancient DNA) analyses are instrumental in identifying the exact animal species of the faunal remains, their domestication status, hybridization between domesticates and wild counterparts, and other biological characteristics. Moreover, the analysis of the genomes of contemporary faunal remains in the villages and the surrounding environment refine the genetic characterization of the source populations of the faunal grave goods. In this study, we explore such a situation in the LBK of the Paris Basin, northern France, and place these animal genomes in the overall supraregional context through time.

2421. First genomic insights into the evolutionary history of the Greek dogs from antiquity to the present

Authors: Eleftheria Tosiou (School of Biology, Aristotle University of Thessaloniki | GENeTres, Center for Interdisciplinary Research and Innovation, Balkan Center) – Evangelos Antonios Dimopoulos (Department of Veterinary Medicine, University of Cambridge | Ineos Oxford Institute for Antimicrobial Research, University of Oxford) – Nikoleta Karaiskou (School of Biology, Aristotle University of Thessaloniki | GENeTres, Center for Interdisciplinary Research and Innovation, Balkan Center) – Katerina Trantalidou (Hellenic Ministry of Culture) – Dimitrios Kiousis (4th Hunting Federation of Sterea Hellas) – Angelos Hadjikoumis (The Cyprus Institute) – Elaine A. Ostrander (National Human Genome Research Institute, National Institutes of Health) – Laurent A.F. Frantz (Institute of Animal Systems Genomics, Ludwig-Maximilians-Universität München | School of Biological and Behavioural Sciences, Queen Mary University of London) – Larson Greger (Palaeogenomics and Bio-Archaeology Research Network, University of Oxford) – Alexandros Triantafyllidis (School of Biology, Aristotle University of Thessaloniki |

GENeTres, Center for Interdisciplinary Research and Innovation, Balkan Center)

Format: Oral

Dog is the first domesticated animal, originating from the grey wolf in the Old World, and has a complex evolutionary history. In Europe, the ancient dogs exhibited extensive genetic diversity, resulting from admixture between Near Eastern and Arctic dog lineages at least 10.9 thousand years ago along with multiple population expansions. Previous studies suggested that a transformation in dog ancestry coincided with the dispersal of Neolithic farmers from the Near East into Europe. These human populations followed two main routes: one along the Mediterranean coast and an inland route crossing the Balkans and central Europe. Subsequently, a distinct ancient dog population expanded within Europe replacing the earlier populations and erasing the genetic diversity of modern European dogs. There is a knowledge gap regarding how the Greek dogs have been influenced by these expansions and replacements across time and space, as well as by the sustained maritime trade and communication between human civilizations of the ancient Mediterranean world. In this study, whole genome sequencing data were generated from ancient dog bones, found in Greece and Cyprus and dated from 7,000 BP to Middle Ages, as well as for three Greek and six Balkan modern hunting dog breeds. These genomes were collectively analysed and compared with available genomic data of ancient and modern dog samples from the Balkans, Europe, Africa and Asia to investigate the genetic ancestry, diversity and population structure of Greek dogs from antiquity to present day. Our study provides the first comprehensive genomic evidence on the evolutionary history of ancient and modern Greek dogs and contributes to a broader understanding of dog population dynamics in the Mediterranean region. The preliminary results suggest that the native Greek hunting dog breeds are characterized by distinct genetic profiles. The incorporation of ancient genomic data will further elucidate their genetic history.

2428. Inheritance of coat color in Balkan cattle: contributions of modern and aDNA

Authors: Ivana Keršić – Zvonimir Mijadzikovic (University of Zagreb, Faculty of Agriculture) – Aurélien Capitan (INRA, GABI, AgroParisTech, Université Paris-Saclay) – Maja Ferenčaković (University of Zagreb, Faculty of Agriculture) – Ino Curik (University of Zagreb, Faculty of Agriculture | Hungarian University of Agriculture & Life Sciences, MATE) – Preston Miracle (University of Cambridge, McDonald Institute for Archaeological Research) – Vlatka Cubric-Curik (University of Zagreb, Faculty of Agriculture)

Format: Oral

In cattle, coat color is a key phenotypic trait, representing a complex polygenic trait with potential pleiotropic effects and serving as an indicator for breed identification, selective breeding, and adaptation to environmental conditions. Contemporary cattle breeds show a marvelous variety of coat colors and patterning as a result of intense selection by humans. Today's coat color spectrum is based upon the past genetic diversity of cattle and aurochs populations, of which we have limited information on coat color through ancient and historical art and texts. With ancient DNA analysis, our knowledge of this foundational genetic diversity in cattle can be greatly expanded, provided the gene region of interest is present within the typically damaged, lower-coverage ancient sequence. Analysis of genetic polymorphisms underlying coat color provides valuable insight into within- and between-population genetic diversity necessary for conservation strategies of endangered breeds, and the addition of a temporal dimension through ancient DNA analysis allows us to trace the evolutionary past of cattle coat color inheritance. In this study, whole genome sequences of individuals representing modern cattle breeds, along with low-coverage sequences representing ancient cattle and aurochs and published ancient sequences from areas relevant to the neolithization process in the Balkans were analysed for coat color. Variant discovery and annotation were conducted using a custom bash pipeline, focusing on two key coat color-determining genes, MC1R and ASIP. Identified variants were classified by genomic location and mutation type. Functional annotation was used to assess their potential impact on gene expression and protein function. These results contribute to the understanding of coat color inheritance in cattle and show the importance of incorporating ancient DNA into these kinds of analyses.

1247. Paw Prints of Progress: Animal Influence on Copper Age Technological Diffusion in Hungary

Authors: Linoy Namdar (MTA-ELTE Lendület "Momentum" Innovation Research Group | Institute of Archaeological Sciences, ELTE Eötvös Loránd University) – Péter Csippán (ELTE Eötvös Loránd University, Institute of Archaeological Sciences | Hungarian National Museum) – Zsuzsanna Siklósi (MTA-ELTE Lendület "Momentum" Innovation Research Group | Institute of Archaeological Sciences, ELTE Eötvös Loránd University)

Format: Oral

The Early and Middle Copper Age (4500-3650 cal BCE) in the Carpathian Basin was characterized by a network of small, farm-like settlements and the emergence of formal cemeteries. There has long been a hypothesis that this era saw a greater reliance on animal husbandry and animal products, which may have facilitated access to prestigious long-distance raw materials and artefacts and maintained contact between communities. This study investigates animals' role as products in shaping long-distance interactions between Copper Age communities in the Carpathian Basin, comparing archaeological sites from three regions (Great Hungarian Plain, Central Hungary, and Transdanubia) and exploring the potential change in animal husbandry practices between periods. To do so, two research objectives will be examined: (1) identify evidence for specialization in hunting and livestock production, through detailed zooarchaeological analysis of animal bone assemblages, focusing on species abundance, age and sex profiles, and rare cases of paleopathologies and butchery patterns (cut marks); (2) explore the potential of livestock mobility and inter-community contact between settlements. This will be made by analysing 2D and 3D geometric morphometric (using a MicroScribe) variation of cattle astragali and metacarpals to differentiate between different breeds.

2227. ZooMS-based Identification of Faunal Materials from The Necropolis of Antandros

Authors: Seher Mekik (Istanbul University, Institute of Graduate Studies in Sciences | Istanbul University-Cerrahpasa, Institute of Nanotechnology and Biotechnology) – Nur Bayram – Eren Erişçi (Istanbul University, Faculty of Science, Dept. of Molecular Biology and Genetics) – Begüm Sekmen (Istanbul University, Institute of Graduate Studies in Sciences) – Gürcan Polat (Ege University, Faculty of Letters, Dept. of Archaeology) – Ercan Arıcan (Istanbul University, Faculty of Science, Dept. of Molecular Biology and Genetics)

Format: Oral

Faunal materials recovered from funerary contexts provide important insights into ritual practices, resource selection, and human-animal interactions in the past societies. Bone remains associated with grave goods, offerings, and symbolic objects are particularly informative, yet their taxonomic identification is often limited by fragmentation, surface modification, and the absence of diagnostic morphological features. Biomolecular approaches offer an effective means of overcoming these limitations. In this study, faunal remains unearthed from the necropolis of Antandros, which is an important settlement in western Anatolia with long-term occupation from the Classical through Byzantine periods, were analyzed using Zooarchaeology by Mass Spectrometry (ZooMS). Collagen peptide mass fingerprinting was employed to identify animal taxa represented among highly fragmented bones associated with funerary contexts. The ZooMS analyses reveal the presence of multiple animal taxa within the necropolis assemblage, indicating a diverse use of faunal materials in funerary practices. Identified remains include domesticated species commonly linked to subsistence and ritual activities, as well as taxa less frequently recognized through conventional zooarchaeological methods. In particular, the biomolecular identification of compact and morphologically similar skeletal elements, such as astragali, provides new perspectives on species selection in symbolic and burial practices and contributes to discussions of dietary choices. By integrating ZooMS-based taxonomic identification with archaeological context, this study offers new perspectives of funerary behavior at Antandros and demonstrates the value of biomolecular approaches for reconstructing human-animal relationships in ancient necropoleis.

2450. Birds of a Feather: Use of ZooMS to distinguish between domestic pigeon and stock dove in Hauskirchen Lombard graves (Austria)

Authors: Manasij Pal Chowdhury (Department of Evolutionary Anthropology, University of Vienna) – Konstantina Saliari (Naturhistorisches Museum Wien) – Elisabeth Nowotny (Universität für Weiterbildung Krems) – Swen Renner – Hans-Martin Berg (Naturhistorisches Museum Wien) – Katerina Douka (Department of Evolutionary Anthropology, University of Vienna)

Format: Oral

Domestic pigeons (Columba livia f. domestica) have been of great historical importance to humans, playing an important role as food, messengers, and pets. Rock dove, the wild progenitor of domestic pigeon, was among the first birds to be ever domesticated, with the human use of pigeons documented as early as the Pleistocene era (circa 10,000 years ago), with evidence for their possible domestication documented in Mesopotamian records as early as 5000 years ago. However, despite their significance in archaeology, identifying domesticated pigeons in archaeozoological records can be onerous – they share important morphological characteristics with stock dove (Columba oenas), complicating secure identification. Here, we apply Zooarchaeology by Mass Spectrometry (ZooMS) to distinguish between stock dove and domestic pigeon remains using collagen fingerprinting. Known reference specimens belonging to both stock dove and domestic pigeon were obtained from Naturhistorisches Museum Wien, and ZooMS was applied on them to create a reference spectral library. Following the identification of certain biomarker peaks allowing us to distinguish between stock dove and domestic pigeon, avian faunal remains from Hauskirchen, one of the most well-preserved and important Lombard period cemeteries in Central Europe, were then analysed using ZooMS. The presence of previously identified biomarkers, applied in conjunction with comparison with the reference spectra, enabled their taxonomic identification, resulting in the first secure identification of domestic pigeon in Austrian archaeological records.

734. Paleogenomic analysis of the demographic history of ancient goats from the Canary Islands, a North African isolate

Authors: Clara Díaz Pérez (Universidad de La Laguna, Evolution, Paleogenomics and Population Genetics Group) – Kevin Daly (UCD School of Agriculture and Food Science, University College Dublin | UCD Conway Institute of Biomolecular and Biomedical Research) – Aitor Brito-Mayor – Alejandra C. Ordóñez (Universidad de Las Palmas de Gran Canaria | University of Las Palmas de Gran Canaria, TARHA Group) – Javier G. Serrano (University of Copenhagen Lundbeck Foundation GeoGenetics Centre, Globe Institute) – Jonathan Santana (Universidad de Las Palmas de Gran Canaria | University of Las Palmas de Gran Canaria, TARHA Group) – Rosa Fregel (Universidad de La Laguna, Evolution, Paleogenomics and Population Genetics Group)

Format: Poster

Archaeological, linguistic and genetic evidence supports a North African origin for the indigenous people of the Canary Islands. Radiocarbon dating indicates that, apart from a temporary Roman purple dye workshop established in the first century BCE, the indigenous human occupation of the islands began in the first centuries CE and persisted until the European conquest in the 15th century. The most abundant domesticate found in Canarian indigenous sites are goats, offering a proxy for investigating the origin

and the temporal evolution of indigenous herds. Also, they represent an opportunity to characterize the North African populations at the time of the islands' colonization, providing paleogenomic data on this understudied region. We obtain a total of 36 low-coverage genomes, including individuals from the Roman, indigenous and post-conquest periods. Ancestry inference analyses support an African ancestry for both the Roman and indigenous goats, placing the most probable origin in the northwestern region. We detect a temporal continuity from the Roman and indigenous times until modern-day goats. However, historical goats show a minor European input due to the introduction of goats after the conquest. Finally, we identify signatures of isolation such as high inbreeding and low heterozygosity values.

1223. Inter mare et terram: animal resource management at the Late Antique villa of Almenara-Puras (Valladolid, Spain) during the 5th century

Authors: Rocío Pazos García – Alberto Marchán-Fernández (Universidad de Salamanca. GIR PREHUSAL) – Rosana Cerezo-Fernández (Universidad de Salamanca. GIR PREHUSAL | Université Toulouse Jean Jaurès. CNRS. Laboratoire TRACES-UMR 5608) – Esteban Álvarez-Fernández (Universidad de Salamanca. GIR PREHUSAL) – Margarita Sánchez Simón (Universidad de Burgos)
Format: Poster

This poster presents the integrated results of the archaeozoological, archaeomalacological and bone industry study from the late antique levels (5th century AD) of the Roman villa of Almenara de Adaja-Puras (Valladolid, Spain). The site corresponds to an agricultural settlement with a sequence of occupations beginning in the Neolithic period, in which Roman activity is documented from the 1st century AD. In the middle of the 5th century AD, the villa was abandoned and destroyed, the chronological context with which the analysed archaeozoological assemblage is associated. The aim of this work is to demonstrate how the integration of data from different categories of archaeological materials allows us to review and refine the interpretation of production and consumption practices in Romanised rural areas. Faunal analysis reveals patterns of livestock farming characterised by diversified management of bovids, ovicaprids and suids, together with a significant presence of small hunted species. Likewise, the malacological assemblage, composed exclusively of marine oysters, provides complementary information on resource procurement strategies and coastal-inland exchange networks. For its part, the study of the bone industry reveals the existence of secondary use strategies, as well as specialised domestic workshops. The integration of these assemblages, evaluated from different analytical perspectives (taxonomic, taphonomic, biometric, and technological, among others), allows us to address key issues such as animal mobility, specific selection, the standardisation of craft techniques, and economic resilience in a period of socio-political transformation.

1265. Ancient Genomes Inform Social Complexity and Kinship Transformation in Neolithic China

Authors: Yuntao Sun – Quanchao Zhang (Jilin University) – Chao Ning – Rui Qiao (Peking University) – Lobsang Dargye (Jilin University)
Format: Poster

Ancient genomes offer new leverage on prehistoric social organization, yet diachronic, community-scale reconstructions remain scarce in East Asia. We analyze genome-wide data from 29 newly generated middle-phase Dawenkou individuals and assemble a time series of Dawenkou-related samples spanning the early, middle, and late cultural phases. After quality control and reanalysis of previously published datasets, 77 individuals with more than 400,000 SNPs on the 1240k panel were retained. Population genetic results place Dawenkou-related groups on the cline of Yellow River millet farmers while retaining variable ancestry related to ancient southern East Asians. Using genome-wide relatedness, uniparental markers, and mortuary provenience, we reconstruct pedigrees across the sequence and identify a progressive transformation in social organization. Early contexts show flexible, overlapping kin networks that traverse burial features. The middle phase exhibits matrilineal tendencies, including a three-generation maternal lineage and household-level spatial clustering by maternal lines. Previously reported matriliny in the late phase provides an endpoint for comparison and contextualizes this transition. Patterns of genomic homozygosity and segment sharing indicate strengthening endogamy through time, with a marked contraction in effective population size in the late phase. Rather than conforming to a uniform model, these findings highlight how descent, mobility, and ritual interacted in distinct ways across communities, shaping diverse pathways in the formation of Neolithic social complexity.

18 WEALTH AND (IN)EQUALITY IN PREHISTORY: IMPACTS, EXTENTS, AND MECHANISMS

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Mikael Fauvelle (Lund University) – Mikkel Nørtoft (Saxo Institute, University of Copenhagen) – Lasse Sørensen (National Museum of Denmark, Department of Prehistory)
Keywords: Economic anthropology, Political economy, Social inequality, Quantitative methods
Format: Regular session

SESSION ABSTRACT

Wealth inequality shapes many aspects of modern life. Despite this, it is only relatively recently in our history that some human societies started to be characterized by stark and persistent disparities in access to different forms of wealth. It is therefore critical that we understand the mechanisms, impacts, and extents of wealth inequality in early societies, and why potential levelling mechanisms were successful or failed. This session invites papers that explore different ways of both quantifying and theorizing wealth (in)equalities in prehistory. Papers will explore different intersecting aspects of wealth including forms of material, relational, and embodied wealth. Topics will include studies of wealth indices related to burial wealth display, early weight and monetary systems used to measure wealth and value, as well as case studies documenting the sociopolitical impacts of changes in degrees of wealth inequality. We are especially interested in papers from case studies of small-scale and transegalitarian societies where systems of wealth (in)equality were emergent and potentially in flux. Our discussion will advance our understanding of processes that have led to the emergence of persistent social (in)equality in the past and shape our society today.

CONTRIBUTION ABSTRACTS

1953. QuantWealth.eu – A multivariate browser app for easy wealth and inequality calculation and visualization

Authors: Mikkel Nørtoft (University of Copenhagen)
Format: Oral

Wealth expression can change over time, between, and within, cultural traditions. Quantifying wealth and (in)equality from one proxy over the longue durée, yields periods where data becomes less prominent or absent. QuantWealth.eu addresses this head-on. For grave goods (or any count data), QuantWealth calculates "exclusivity values" based on Total Object Types (TOT) per grave (presence only), and per grave good type, with confidence intervals based on sample size and grave occurrence. This gives more nuance than uniform values of 1. To account for large quantities of some types, QuantWealth adds squareroot-transformed counts to the total wealth per grave. When calculated separately for specific time slices, this exclusivity approach can let exclusivity values change with developing exchange networks, technologies, and symbolisms. QuantWealth addresses problems with high Gini coefficients (henceforth Ginis) for zero-inflated count data (graves without grave goods), and problems with comparing Ginis over time with very different wealth amounts by focusing on the Absolute Gini (Gini × Mean wealth). Because researchers categorize grave goods (or construction features, animal species, etc.) differently, QuantWealth simulates Ginis with categories merged or split. If results are added to the time-atlas, the plots and data can be stored so every resulting map point can be interrogated or downloaded for further analysis while the app data accumulates with new contributions. Beyond calculating wealth proxies and (in)equality, and producing interactive and downloadable plots, QuantWealth leverages the multitude of wealth proxies: house and storage sizes, burial mound sizes, grave pit depth, and various count data. It combines these by summarizing Ginis from different proxies in the Composite Archaeological Inequality index (CAI, Oka et al. 2018) in an interactive "Trendplot" from a user-drawn area and timeframe. This helps to close our data gaps and embrace the pluralism of past wealth expressions. See more: https://QuantWealth.eu Nørtoft 2026, https://doi.org/10.31235/osf.io/wzcqy_v2)

566. Measuring wealth, constructing (in)equality: the use of measurements and quantitative systems in Late Prehistoric Western Europe

Authors: Thibaud Poigt (Ausonius, Bordeaux)
Format: Oral

Traditionally associated with trade and monetary processes, measuring tools can offer a broader scope of observation and interpretation of ancient societies. These cognitive devices facilitate the assessment of quantities and values, as well as processes that result in material traces of quantitative thought and organisation. This mode of thought and the structuring of the environment are frequently observed in instances of endeavour to establish egalitarianism or inequity among individuals, social groups or communities. The purpose of this paper is to provide a comprehensive overview of the evidence for the use of measurements and quantitative processes in societies from the Bronze and Iron Ages in Western Europe. This presentation, which is non-exhaustive in nature, is based on several studies that have been conducted in recent years. It will include the following topics: the use of length/surface measurements to organise and hierarchise urban and rural settlements or their environment; the application of common to standardised capacities in some potter productions; and a reflection on the way ancient societies could calculate their agricultural production and store it. It will also include a comparison of the diffusion of weights and scales in Europe with the evidence for weighing practices, in particular those based on metal production and hoarding. The purpose of this presentation is to propose a novel approach to the utilisation of metrology in order to stimulate reflection and debate on inequality in Late Prehistoric Europe. This approach will explore the tools that may have been developed by people to reinforce inequality or, conversely, to avoid or combat it.

635. Premise-driven approaches to inform Concepts of Inequality in Prehistoric Burial Communities

Authors: Sven Brummack (Marie-Curie University Lublin)
Format: Oral

I propose an analytical framework based on premises for investigating social inequality in prehistoric burial communities. Inequality is approached not as a question of reconstructed meanings or individual identities, but fundamentally as a structured phenomenon of distribution. This approach is explicitly grounded in a set of self-defined premises that aim to clarify the epistemic conditions under which inequality can be identified in archaeological burial data. Firstly, social complexity is conceptualised as a scale of interaction potential, rather than as a proxy for hierarchy or social geometry. Complexity and equality are treated as analytically independent dimensions, allowing for multiple organisational forms. Secondly, the framework rejects assumptions of homogeneity or social equilibrium in prehistoric communities, instead arguing for heterogeneous social spaces characterised by varying degrees of inequality. Thirdly, burial practices are defined as a distinct social field in Bourdieusian terms. They are understood as the outcome of collectively executed, rule-aware actions, which are structured by shared dispositions and classification frames instead of viewing them as direct reflections of individual identities. Fourthly, the symbolic order of things in burial assemblages is considered intentional, though not necessarily truthful with regard to lived social realities. Representation and identity are therefore analytically decoupled. Further premises emphasise the collective authorship of burial practices, the coexistence of intentional and unconscious dispositions in ritual action and acknowledging the limited archaeological accessibility of 'identity' as such. On this basis, inequality is most productively examined at the collective rather than the individual level. Recurrent patterns of selection, exclusion and spatial organisation are interpreted as manifestations of constraints on collective action. Methodologically, the focus is on quantifying variance, diversity and exclusivity within and between groups in order to assess distributional inequality. By foregrounding explicit premises, the aim is to provide a transparent and transferable framework for researching inequality in prehistoric burial archaeology.

210. Wealth as an infrastructure for relations

Authors: Knut Rio (University of Bergen)
Format: Oral

When addressing the concept of wealth in pre-capitalist/pre-historic society we must leave behind our own era's orthodoxy of economy and production, exchange and consumption. We should instead draw on approaches akin to Marcel Mauss' idea of wealth as a total social phenomenon and recognize in wealth its capacities for reproduction, materialization of crucial relations and animation of spiritual capacities. Drawing on lessons from anthropology, I propose to look at wealth primarily as a concept of infrastructure - a technology for making and upholding relational forces. My starting point will be the spectacular megalithic structures of Neolithic Europe, but understood through the comparative specter of displayed wealth in ethnographic descriptions – with particular attention to megalithic cultures of the Austronesian world. Explicit comparison will be drawn from the relational capacities of polished stone blades in the islands of Papua New Guinea as well as the ritual hierarchies of male grade-taking ceremonies in Vanuatu.

1093. The Emergence and Reproduction of Social Inequality in Prehistoric and Protohistoric Societies: Combining Behavioral Genetics and Archaeological Approaches

Authors: Ralph Großmann (Institute of Pre- and Protohistoric Archaeology, Kiel University) – Christoph Spörlein (Department of Social Sciences, Düsseldorf University)
Format: Oral

This project integrates recent developments in sociology and archaeology to advance an interdisciplinary understanding of the origins and reproduction of social inequality. Both disciplines increasingly employ genetically informed approaches, albeit with distinct conceptual and methodological orientations. The project aims to synthesize these perspectives to generate new insights into the structure and dynamics of prehistoric societies. In sociology, the measurement of genetic potentials has become an important tool for describing the magnitude and transformation of social inequality. The extent to which genetic variation contributes to individual social positioning provides indirect evidence for the rigidity of social structures: stronger genetic effects imply weaker constraints imposed by ascriptive traits such as social origin or gender. Spatial and temporal variation in these effects thus reflects the institutional and normative foundations of inequality. In archaeology, analyses of ancient DNA (aDNA) have predominantly focused on migration and population history. However, these data also permit the construction of genetic potential measures that, when combined with detailed archaeological records of burial contexts, can serve as indicators of social status. By linking sociological theory with archaeological and genetic evidence, the project seeks to reconstruct patterns of inequality from the Neolithic Age onward, thereby illuminating the institutional roots of stratification in human prehistory.

477. Comparing Wealth Inequality in Complex Fisher-Forager Societies: A Quantitative Approach

Authors: Mikael Fauvelle (Lund University) – Mikkel Nørtoft (University of Copenhagen) – Alicja Björk (Lund University)
Format: Oral

Fisher-forager societies have long attracted the attention of archaeologists and anthropologists due to their propensity towards sedentary lifeways and high degrees of economic complexity. Yet how unequal were fisher-forager societies? Furthermore, how much variation in inequality do we see between fisher-foragers in different world regions? This paper employs the QuantWealth application to quantify differences in burial wealth display between different fisher-forager societies in North America and Scandinavia. Specifically, we compare the Middle Neolithic Pitted Ware Culture from Gotland with Late Holocene fisher-foragers from southern California and the Pacific Northwest Coast. All of the case studies chosen for comparison were sedentary fisher-foragers, yet

considerable differences exist in population sizes and settlement organization. We explore connections between wealth display in burial contexts and the ethnographically documented political-economic organization in the two North American Cases. We then use the insights gained from such comparisons to propose possible models for understanding the social organization of the Pitted Ware Culture.

1369. Quantifying Wealth Inequality in Bronze Age Transylvanian Mortuary Practices

Authors: Sophie Chorek – Colin Quinn (University at Buffalo)
Format: Oral

Archaeologists have long considered variability in mortuary practices to be an important line of evidence in the presence of social difference and inequality in the past. The introduction and spread of cremation in late prehistoric Europe is part of a complex process in which status, identity, and the body are transformed. In Middle Bronze Age Transylvania (2000-1500 BCE), there were numerous pathways of the body from death to burial, including both cremation and inhumation. In this paper, we present a comprehensive analysis of quantifying wealth and intracultural comparison in mortuary practices across Transylvania. We quantify wealth based on Nørtoft's (2022) QuantWealth framework, calculating the total object types present among graves, the prestige of grave goods, and scarcity. We compare these results between both inhumations and cremations in the region to verify if different treatments of the body extended into wealth. Grave good categories in these analyses include decorated and undecorated ceramics, metal and nonmetal adornment pieces, tools, stone objects, and faunal remains. Our broader framework for exploring inequality and equality is mediated through treatment of the dead has applicability in other global contexts.

516. Inheritance of wealth and socioeconomic inequality in the Early Bronze Age: Evidence from the Mokrin necropolis (2100–1800 BCE)

Authors: Marko Porcic – Marija Krečković Gavrilović – Mina Amzirkov – Sofija Stefanović (Faculty of Philosophy, University of Belgrade)
Format: Oral

The social structure of Bronze Age societies in Europe, particularly the extent and nature of socio-economic inequality, remains a subject of debate. At the heart of this discussion is the question of whether the Bronze Age witnessed a substantial increase in social and economic inequalities, or whether observed changes represent a continuation of patterns already present during the Neolithic and Eneolithic periods. Central to this debate is the issue of inheritance, since socio-economic inequalities are both expressed and reproduced through the intergenerational transmission of material wealth within kin groups. This paper contributes to ongoing discussions of inequality and inheritance in the European Bronze Age by quantitatively assessing socio-economic inequality and by examining evidence for the intergenerational transmission of material wealth at the Mokrin necropolis (2100–1800 BCE), one of the most important Bronze Age cemetery sites in Southeast Europe. Our aims are twofold: 1) to measure inequality, and 2) to look for evidence of wealth inheritance. Given the economic importance of metal in the Bronze Age, it is reasonable to assume that the quantity of metal reflected material wealth to at least some extent. On this basis, we use the mass of metal grave goods (predominantly bronze) as a proxy for material wealth and calculate the Gini index to quantify inequality. To address questions of inheritance, we examine 1) the distribution of metal quantities across age categories and 2) the potential spatial correlation between adults and children buried with metal objects, which may indicate intergenerational wealth transmission within family groups.

1599. Bronze, Beads, and Beasts: Inequality in the Carpathian Basin Bronze Age (Maros Culture)

Authors: Amy Nicodemus (University of Wisconsin-La Crosse) – John O'Shea (University of Michigan)
Format: Oral

The second millennium BC in the Eastern Carpathian Basin is a time of dramatic social and cultural transformation. As in many other European regions, unprecedented levels of wealth inequality emerge among some of these transegalitarian societies. Here we consider this trajectory of change within one such regional polity, the Maros Group, situated in southeast Hungary, western Romania and northern Serbia. The Maros are among the best studied Bronze Age groups in the region, with research traditionally centered on their extensive inhumation cemeteries. There are striking differences in the quantity and quality of grave goods between individuals, supporting the development and embodiment of significant wealth inequality at this time. However, less attention has been paid to how this inequality manifests within the structure and daily practices of living communities. This paper integrates results from extensive new excavations of Maros settlements. We examine wealth through several economic lenses, including subsistence, craft production, and trade. A proliferation of high-precision C14 dates allows for a detailed comparison of settlements across space and time. Maros communities demonstrate considerable variation in economic organization, with heightened differentiation over time. The largest tells, such as Pecica Şanţul Mare (Romania), become major economic centers for the production and distribution of high value goods, like horses, composite ornaments, and metals, and serve as key nodes in an emergent macro-regional system of interaction and trade. Further, they integrate more strongly within extra-regional exchange networks, providing its inhabitants with a greater range of exotic materials. The Maros serve as an ideal case study for differential economic development within complex non-state level societies.

1904. Quantifying Wealth and Inequality in Middle Danube Germanic Chiefdoms: An Analysis of

Roman-Period Burial Context

Authors: Marek Vlach – Balázs Komoróczy – Petra Dragonidesová (Institute of Archaeology of the Czech Academy of Sciences, Brno) – Katarína Hladíková (Slovak National Museum - Archaeological Museum)
Format: Oral

Germanic communities, referred to as the Marcomanni and Quadii, beyond the Roman frontier in the Middle Danube region during the first four centuries CE, provide a case study for examining wealth disparities and their societal implications. These groups – traditionally termed "tribal" but showing features of chiefdom organisation – coexisted with the Roman Empire, and the resulting interactions are reflected in various sources, primarily burial contexts that exhibit both distinctive variability and regularities in grave-goods composition. To address these questions, we apply a data-driven framework to a large burial dataset (more than 5500 graves) from the Middle Danube Suebian populations across three distinct regions of Czechia, Austria, and Slovakia. This study aims to address wealth distribution and the potential reflection of social stratification through the analysis of burial contexts and grave-goods assemblages, acknowledging that such material expressions may not directly mirror lifetime status. A suite of computational techniques, such as unsupervised clustering, predictive classification to detect patterns in assemblage composition, convolutional neural networks for automated urn typology classification, aoristic temporal modelling, and random forest classifiers to accommodate uncertain dates and to infer age and sex for poorly documented burials, enables the identification of patterns of wealth distribution across regions and over time. It is apparent that external economic stimuli from the Roman Empire contributed to internal social differentiation, enabling certain individuals or families to accumulate exceptional wealth. By integrating advanced analytical methods with robust archaeological data, this study provides a quantitative assessment of inequality in a distinctive part of the ancient Germanic world.

2138. Pomp Funebre Competition in Mycenae

Authors: Tim Kerig (Museum Alzey) – Jutta Lechterbeck (Museum of Archaeology, University of Stavanger)
Format: Oral

The shaft graves of Mycenae can undoubtedly be related to an elite. In Antiquity already Pausanias interpreted them as royal tombs. This contribution aims to identify and interpret the grave's differences in effort in tomb construction and in richness of grave goods. To this end, a seriation of the burials from grave circles A and B is performed and the diversity of grave goods is measured (method: detrended correspondence analysis). Based on this new chronological model, Gini coefficients for expenditures and grave goods are calculated. This reveals unexpected effects that linked to a particularly historical situation of competition for rank and/or conspicuous consumption. Fundamental considerations regarding the Gini index will be discussed. Over time, funerals became more elaborate and lavish, while the Gini indices show a convergence of these funerals. Evidently, a point was reached where the less affluent withdrew from the competition for social positions, while the more affluent continued to display lavish funeral pomp.

273. Textile Colours of the Viking Age: A matter of wealth?

Authors: Charlotte Rimstad – Ulla Mannering (National Museum of Denmark)
Format: Oral

Our present understanding of colours in the Viking Age is largely limited to small-scale studies of paints, beads and Old Norse colour terms written in Icelandic texts after the Viking Age. Nonetheless, hundreds of textile fragments that contain dyestuff traces are preserved from the Viking Age and these traces offer an opportunity to discern not only which colours were used but also how they were used. In the Textile Colours of the Viking Age (TeCoVa) project, textile samples are selected from a range of Danish male and female graves dated to the Viking Age, supplemented by textile samples from other comparable contexts. By using the HPLC dye analysis method, the textile colours are identified and compared to the colours of beads and other jewelry. The project seeks to answer: Which textiles colours were available in the Viking Age? How and where were they produced and used – and by whom? Did certain colours represent more value than others? How do these new results change our perception of the visual appearance of Viking Age people? Especially the identification of the societal and status markings, hidden in the still understudied colour schemes of clothing and dress of the period, is a challenge. This study thus targets problems of colour production, perception, conception, value, use and change. Several case studies will be presented that challenge our understanding of the Viking Age, not least in how we visualize this period of the past.

288. When the farmers met the locals – wealth and sharing in Early Neolithic Norway

Authors: Håkon Glorstad (Community of Archaeological Legislation and Organisation)
Format: Oral

When the farmers met the locals – wealth and sharing in Early Neolithic Norway Recent aDNA analyses of Late Mesolithic and Early Mesolithic skeletons indicate that agriculture was introduced to South Scandinavia by immigrant farmers. Some evidence suggests that such immigrants also reached Southeastern Norway. Here, they met the local hunters and gatherers as part of a wider acculturation process. The archaeological evidence from the region also indicates that this was an encounter between two different ways to understand and handle wealth. This paper presents some of the evidence and discuss those based on anthropological observations on perceptions of wealth in agrarian segmentary lineage societies and among hunters and gatherers. The hunter-gatherer imperative of unconditional sharing may have stood in rather sharp contrast to the agrarian worldview of depts and accumulation. Such differences may explain significant patterns in the archaeological record in Norway. Historical differences between different groups of hunters and gatherers may also have shaped the encounters between the agriculturalists and the indigenous populations.

2153. Farms, fields and inequality: House Size, Land Use, and Landesque Capital in Prehistoric Rogaland, Southwestern Norway

Authors: Jutta Lechterbeck – Barbro Dahl – Hilde Skjerping Dahl (Museum of Archaeology, University of Stavanger)
Format: Oral

This paper explores the relationship between agricultural investment, landesque capital, and social inequality in prehistoric Rogaland, south-west Norway. Using house size as a proxy for household wealth, we examine how settlement structure and agricultural intensification shaped social differentiation from the Late Neolithic to the Viking Age. Our dataset comprises 236 houses with associated radiocarbon dates, including the uniquely extensive Forsandmoen settlement. Summed probability distributions (SPDs) of radiocarbon dates, combined with size-based house classes, reveal long-term stability in household size from the Late Neolithic through the Pre-Roman Iron Age. A marked change occurs in the Roman Iron Age, when both the average house size and the variability between houses increase, signalling the emergence of significant social stratification. Parallel analysis of deep anthropogenic soils (DAS), themselves a form of landesque capital, demonstrates sustained agricultural investment across the region. Together, these findings highlight the interplay between farming practices, the creation of enduring agrarian landscapes, and the rise of inequality. Rogaland thus provides a key case study for understanding how long-term agricultural labour and land modification underpinned the development of increasingly hierarchical societies in northern Europe.

1871. Quantitative Approaches to Iron Age Hillforts in North-Western Iberia from Intra- and Inter-site Spatial Analysis: Domestic Units, Community and Territory

Authors: Santiago Tunas-Corzon – Alicia Hernández-Tórtoles – Brais Currás-Refojos – Inés Sastre-Prats (Spanish National Research Council, IH-CSIC)
Format: Oral

In 1998, María Dolores Fernández Posse and Javier Sánchez Palencia published a paper that laid the foundations for interpreting Iron Age hillforts (castros) in northwestern Spain as egalitarian agrarian settlements with a segmentary landscape structure. According to this theory, castros followed a model of self-sufficient peasant villages with no clear signs of social hierarchy. This conclusion was based on the intra-site spatial analysis of several castros in the province of León and on their territorial organisation, defined by a social landscape oriented towards agriculture, as well as isolation and equidistance between sites. Today, it is increasingly common to interpret prehistoric societies, particularly protohistoric ones, using analytical categories such as heterarchy or egalitarianism. It is therefore important to recognise that similar perspectives had already been proposed for the Iron Age in NW Iberia four decades ago, when such views were still highly controversial and unpopular. At the time, this approach challenged the traditional view of the European Iron Age as dominated by highly hierarchical societies and heroic warrior elites. Since then, the segmentary model has evolved theoretically and has been applied to various regional case studies. Testing its strengths and inconsistencies across the Iberian northwest is the main goal of an ongoing PhD thesis from which this paper derives. This is being approached through the application of quantitative and computational methods by conducting an extensive spatial analysis of Iron Age castros across the entire region. Adopting the multi-scalar approach of the original article by Fernández-Posse and Sánchez-Palencia, this study examines socio-economic relationships at three analytical levels: material dispersion within households, relationships between domestic units within settlements, and territorial landscape structure in terms of settlement hierarchy. Spatial and multivariate statistics, together with GIS analysis, are employed at intra- and inter-site scales, supported by social theory on rationality and peasant ways of life.

1995. From Stone to Bronze in Scandinavia – Tradition and Transformation

Authors: Casper Sørensen (Aarhus University, Department of Archaeology and Heritage Studies | Viborg Museum) – Heide Nørgaard (Moesgaard) – Helle Vandkilde (Aarhus University, Department of Archaeology and Heritage Studies)
Format: Oral

The transition from second part of the Late Neolithic (c. 2100-1700 BCE) towards a booming metal-based Middle Bronze Age society (c. 1500-1200 BCE) in Southern Scandinavia included vast transformations in wealth display, often correlated with increasing social inequality. In this paper we examine these changes within a framework where the display of wealth shifts from traditions of collectivity towards individuality. To begin with, a strong collective tradition was challenged by the new opportunities for individual enrichment mirrored in a global bronze-led metal-for-amber network. This transition follows a dramatic increase in metal quantities from few objects in collective votive offerings in the Late Neolithic to a massive display of wealth in individual graves in the Middle Bronze Age, a development reinforced by the Europe-wide disruption c. 1700 to 1600 BCE. These changes are concurrently reflected in other parts of the archaeological record, particularly in settlements and monumental burial mounds. The display of wealth is evident not only in the substantial accumulation of metal objects but also manifests in monumental architecture and changed settlement patterns. As the amount of bronze increased and the focus shifted from the collective to the individual, the

perceived value of bronze as a marker of wealth in society may also have changed. By tracking these transformations across the material record, we can theorize how this development evolved and begin to question how we approach potential shifts in prehistoric perceptions of wealth.

1109. Displaying wealth in the Danish Viking Age through the use of fur in clothing

Authors: Luise Ørsted Brandt (The Globe Institute, University of Copenhagen) – Asta Berenth Schunck (The National Museum of Denmark) – Laura Viñas Caron – Helene Skou De Neergaard (The Globe Institute, University of Copenhagen)
Format: Oral

Fur is considered as one of the major commercial products of the Viking Age (~800-1050 CE). The records describe how fur from wild animals hunted in current day Northern Scandinavia and Russia like fox, beaver, marten, ermine, and sable were amongst the pivotal commodities brought by the eastern Vikings (Rus) via the Russian rivers to the growing Arab fur market. An example of the economic value and signalling effect of fur traded by the Rus is given by the Arab al-Mas´ūdī who in 943 wrote: "The black furs are worn by Arab and non-Arab kings… ...There is no king who does not possess a fur coat or a caftan lined with the black fox fur of the Burtās". In the VAFur (Viking Age Fur) project, we aim to understand if fur was also purchased and worn as a visual marker of wealth in the Danish Viking Age. So far, in Viking Age Denmark, fur has mainly been acknowledged in elite burials. We question whether this is a sign of wealth or if the current representation of fur is biased by the better preservation of organic materials in elite graves. These are often deep and have chambers and or mounds compared to shallow ordinary graves. Moreover we hypothesize that fur is more abundant than previously assumed as focus has laid on e.g. the often more well-preserved and dashing metal objects. We systematically survey Viking Age graves for fur and in our database quantify the grave's objects, register burial style and other parameters, which in Viking Age are related to wealth. In cases where fur is preserved, we identify the animal species using proteomics and isotopically characterise them as imported or local. We present preliminary data as a first step to understand fur´s value and meaning as status markers.

2480. What the wealth!? Current narratives for the Bronze Age versus a posthuman view on a transalpine Gateway-Community

Authors: Raphael Berger (University of Bern, Institute of Archaeological Sciences)
Format: Oral

Common narratives about the Bronze Age tell that the alloy bronze brought the possibility for wealth accumulation, which increased or created wealth inequalities. Such stories about a group of 'rich' burials from the Early Bronze Age (2200-1600 BC) in the lower Lake Thun region in Switzerland are also echoed in specialist and popular scientific literature. The most popular explanation for the large amount of 'precious' metal objects recovered in this region is that certain communities controlled access to important passes through the Alps that connected the densely settled alpine foreland with ore-deposits in the mountains. This Gateway-position within 'trade' networks brought wealth to the region and allowed a local elite – reflected in the graves – to gain power. These narratives about the ancient world are based on contemporary capitalist thinking; they assume bronze had proto-monetary characteristics and link metals, wealth, and power in a typically modern way of structuring the world. In this talk, I argue that posthuman theory combined with formal network analysis offers an alternative and more productive research framework for explaining the regions 'wealth'. Newly discovered settlements expand the archaeological record for the early Bronze Age in that region and enable further investigation of how the burials fit into socio-material networks. Based on the key study of the lower Lake Thun basin it is proposed to rethink 'wealth' and '(in)equalities' from a posthuman perspective based on Actor-Network Theory (ANT).

1173. A wealth of stories about the past: Grand narratives and inequality

Authors: Jess Beck (University College Dublin)
Format: Oral

The disciplinary focus on materiality and deep time provide archaeology a unique access to millennia of human social organization. Ironically, however, the most popular books about past societies are no longer written by archaeologists. Instead, today's best-selling histories of the human condition are authored by historians, geographers, and evolutionary biologists, few of whom have been trained in interpreting the material traces of the human past. In this paper, I explore how archaeological research has been leveraged by a cohort of public intellectuals to make specific arguments about the nature and direction of inequality in human social evolution. I explore common themes that pervade this body of literature and examine what lines of archaeological evidence, and what forms of archaeological research, are drawn upon by such books. I conclude by discussing the implications of the "grand narratives" phenomenon for popular understandings of the human past and articulate a need for a greater range of research dissemination strategies in archaeology.

19 ARCHAEOLOGY SUPPORTING MENTAL HEALTH AND WELLBEING – HOW COULD A EUROPE-WIDE CONNECTED APPROACH BETTER IMPROVE PEOPLE'S LIVES?

Theme: 2. Crossing the divide. Archaeology and the open world
Organisers: Andres Dobat (Aarhus University) – Carenza Lewis (University of Lincoln) – Linda Monckton (Historic England) – Francesco Ripanti – Faye Sayer (University of Birmingham)
Speakers: Anne-Sofia Hjemdahl (Oslo University) – Arkadiusz Marciniak – Patrycja Filipowicz (Adam Mickiewicz University in Poznań) – Heleen van Londen (University of Amsterdam) – Monique van den Dries – Roberto Arciero (Leiden University) – Tibor Ákos Rác (Pázmány Péter Catholic University)
Keywords: Archaeology and Wellbeing, Mental Health, Heritage Therapy, Public Archaeology, Social Impact, European Collaboration
Format: Workshop
Affiliation: Public Archaeology Community

SESSION ABSTRACT

Poor mental health and wellbeing is a serious and rising problem across Europe: 46% of EU citizens report emotional or psychosocial issues (www.socialeurope.eu/from-crisis-to-pandemic-mental-health-in-europe) and poor mental health affects >84 million EU residents (www.europarl.europa.eu/RegData/etudes/BRIE/2023/751416/EPRS_BRI%282023%29751416_EN.pdf). Studies across Europe including in the Czech Republic, Cyprus, Denmark, England, Germany, Italy, Netherlands, Poland, Spain and elsewhere have shown that participation in archaeological activities can support wellbeing and improve poor mental health. The ways in which it achieves this include by reducing loneliness, anxiety and symptoms of depression, by increasing physical activity, self-esteem, community trust and place attachment, and by enabling people to learn, enjoy themselves, develop and fulfil aspirations and make a contribution to society, among many other mechanisms. But these benefits are considerably less widely felt than they could be because research has to date not reached most parts of Europe, leaving many people unaware of the health benefits of archaeology, and practitioners and policymakers unable to recommend or fund activities that deliver these benefits. This workshop, run in collaboration with the EAA Public Benefits of Archaeology Advisory Committee, will bring together discussants from states where activities and/or research has already provided compelling evidence for the health benefits of archaeological participation, and discussants from states where knowledge, understanding and awareness is much more limited. The aim will be to share experience and explore whether, and if so how, a coordinated, pan-European programme of research, delivery and dissemination might potentially enable archaeology to support good mental health and wellbeing more effectively and more widely in the future.

20 THE SOCIAL LIFE OF FUNERARY MEGALITHS: THE CONSTRUCTION OF IDENTITY THROUGH STONES

Theme: 1. Widening perspectives in material culture studies
Organisers: Laura Waldvogel – Méryl Defours Rivoira (Laboratoire d'archéologie préhistorique et anthropologie, University of Geneva) – Noisette Bec Drelon (Membre associé au laboratoire Archéorient - UMR 5133 / Paléotime)
Keywords: megalithism, Social structures, Ethnoarchaeology, Funerary practices
Format: Discussion session

SESSION ABSTRACT

Megalithism is a complex and multifaceted phenomenon which developed in several regions of the world within differing chronologies. It involves monuments with funerary purposes (dolmens, tumuli, etc.) or not (menhirs, stelae, alignments of standing stones, etc.), whose characteristics raise questions about their meaning and the social structure of the populations that erected them. In this context, data from recent and contemporary megalith-building societies provide an essential source for understanding this phenomenon. They help eliminate certain interpretations, broaden the scope of possibilities, and develop new models for interpreting past megalithism. This session aims to bring together researchers studying funerary or related megalithism, without geographical or chronological limitations, with the goal of addressing the issue of its social context. Among other things, we will examine themes such as memory, territories, social structures and hierarchies. Presentations and posters may take the form of national or regional syntheses, as well as case studies. They may focus on the following points: • Architectural variations of the constructions and their spatial distribution. • The sourcing of materials used in construction. • The "biography" of the monuments (removals, additions, reuses, etc.) and their evolution. • The decorative repertoire of megalithic slabs and their interpretations. • The relationship with other types of contemporary burials. • Funerary recruitment (types of human deposits, biological and kinship links, geographical origin, age at death, biological sex, health status, etc.).

CONTRIBUTION ABSTRACTS

1271. Megalithic tombs: architectural variations and spatial distribution in Alentejo (Portugal)

Authors: Leonor Maria Pereira Rocha (Évora University, CHAIA)
Format: Oral

Southern Portugal has the highest concentration of Megalithic tombs in the Iberian Peninsula. A brief review of the research carried out shows that the first references to megalithic monuments in the region date back to at least the 15th century, in documents published by G. Pereira (Pereira, 1887: 35), and that at the end of the 19th century and beginning of the 20th century, more than 700 megalithic funerary monuments were excavated. Despite the difficulties encountered with the older excavations (recording and interpretation of data), the architecture was recorded in a very systematic manner. Archaeological work carried out in recent decades has provided extremely interesting data on megalithic monuments and, in particular, on the raw materials used in their construction and types of architecture. The megalithic constructions of the Late Neolithic/Chalcolithic societies of southern Portugal demonstrate the existence of population groups that, despite proven contact with each other and the exchange of materials and raw materials, opted for different construction techniques to bury their dead... for different types of monuments. In this paper, we present a brief summary of the diversity of architectures and typologies existing in this region.

1558. Peribolos tombs from the necropolis of Apollonia Pontica, Sozopol, Bulgaria

Authors: Teodora Bogdanova (National Archaeological Institute with Museum Bulgarian Academy of Science) – Dimitar Nedev (Municipal Cultural Institute „Museum Center-Sozopol“, Bulgaria) – Alexandre Baralis (Ecole française d'Athènes)
Format: Oral

The aim of this report is to give an overview of the funerary structures known as "peribolos tombs," found in the necropolis of Apollonia Pontica, in the context of the new social elite of the polis. Despite the fact that more than 3000 graves were excavated at the necropolis, peribolos tombs are relatively rare, and only 7 such structures have been discovered so far. They can be dated to the period between the second half of the 5th and the beginning of the 3rd century BC. These structures are massive stone enclosures erected under tumuli, containing between one and seven burials. Although the predominant burial ritual is inhumation, in one case cremation is also recorded, which is the earliest in the necropolis of the polis. The construction of such structures, even the most modest ones, was an extremely expensive undertaking, unaffordable for the majority of society. The main focus of the report will be the architecture of these monuments and the burials they enclose (cist graves, sarcophagi, etc.). Their location in the necropolis, as well as the funerary and post-funerary rites, will also be mentioned. In a few cases, rituals related to the construction of the tomb or the raising of the tumuli are also attested. Data from the anthropological analysis of the buried individuals will be presented: age at death, biological sex, and health status. Based on the archaeological and historical context of their appearance, the social status of the individuals buried in them will be analyzed and interpreted.

265. Monumentality on the forest edge: New Research on the Tazunu of the Central Africa Republic

Authors: Peter Coutros (Ghent University) – Nicolette Edwards (Southern Methodist University) – Henri Zana – Lucien Nguerede (Ghent University | University of Bangui) – Sara Pacchiarotti (Ghent University)
Format: Oral

Along the northern edge of the Congo rain forest, on the boarder between the Congo and Chad basins, exists a substantial, yet understudied, megalithic tradition. These monuments, locally known as Tazunu, comprise a Megalithic Zone with more than 100 currently known structures between Bouar and the Cameroonian boarder. Sporadic research in this region between the 1960-80s revealed that this tradition was relatively long-lived, with Tazunu construction beginning around 1200 BC and lasting until approximately AD 1000. The Tazunu of Bouar show variation in both form and function, Including both tumuli with rectangular or U-shaped burial chambers and non-burial monuments with up to 30 standing stones. Significantly, the various megalithic monuments are part of a broader archaeological landscape intermixed with contemporary village and iron production sites earthen tombs, and cremations features. The coeval emergence of megalithism and iron production, as well as the apparent differentiation in burial practices, suggests that this phenomenon is likely tied to the emergence of new social forms and technologies (e.g., iron production). Furthermore, the Tazunu are almost uniformly constructed along the edges of the plateaus, between 1000 and 900 masl, suggesting their secondary purpose as possible landscape markers. This paper presents the newest research on the Bouar Megaliths, based on large-scale survey and excavations conducted by the CongUbangi project during January, 2026. Excavations targeted both Tazunu and the associated village and special activity sites. This new archaeological data will be complimented by ethnographic and linguistic information collected over the past two years of research across the region. The focus of this interdisciplinary research is to explore the social context in which the Tazunu were constructed, how this shifted over time, and how they relate to the landscape and contemporary burial, iron production, and village sites.

2140. A story of rock'n roll. The « biography » of a megalithic tomb from Gollu Kadelu (West Sumba, Indonesia)

Authors: Laura Waldvogel – Élisa Eschenlauer – Méryl Defours Rivoira – Marie Besse (University of Geneva, LAP)
Format: Oral

In the absence of written sources, graves offer one of the main windows into the social identities of past individuals. Reconstructing these identities, particularly through the study of funerary megaliths, is a delicate task in archaeology, as the archaeological record provides only a partial and indirect image of social structures. In this context, ethnoarchaeology emerges as a key methodological tool for better understanding these structures. This paper presents data from a one-month ethnoarchaeological fieldwork conducted in 2025 among societies in the western part of Sumba Island (Indonesia), where megalithic practices remain a vivid tradition. The study provides valuable insights not only into the social dynamics involved in the construction of these monuments, but also into the events that may lead to changes in their architectural forms. To illustrate these dynamics, we will focus on a megalith constructed in the garden house of the 'ancestral house' of the Weebole clan, near the village of Gollu Kadelu ('ancestral village'). The 'biography' of this monument reveals a complex history, intricately linked to ritual and memorial concerns, as well as to social competition between 'noble' and 'commoner' lineages within a 'segmentary' society structure.

1091. Social structures reflected in megalithic grave studies of the Funnel Beaker Culture in northern Germany

Authors: Anja Behrens (Lower Saxony Inst. of Historical Coastal Research, Wilhelmshaven)
Format: Poster

The megalithic graves in northern Germany play a key role in understanding Funnel Beaker societies of the Neolithic. Over the past years excavations and studies in this field were carried out to tackle questions on communication and social structures. Hereby, two areas have been investigated in detail – the island of Rügen and the Elbe-Weser Triangle – two macro regions associated to different Funnel Beaker groups. Within a phd-thesis over 400 megalithic graves could be recorded and analyses for Rügen. Comparative studies on the architecture and pottery finds revealed regional traditions that point to tight community areas. Further, single exceptional monuments could be exposed and might reflect hierarchical structures. For the Elbe-Weser Triangle records of about 430 megaliths are the base of a recently running project on Funnel Beaker societies in that area. First analyses of the architecture reveal a similar pattern of the traditional habits as on Rügen. In both areas excavations at well preserved sites were carried out and uncovered complex biographies. Here insights are given on the different construction periods as well as on the activities connected to the monument. The poster presents an overview of all the results to open the discussion on megalithic tradition and social interpretation.

21 VISUALIZING ARCHAEOLOGY: CONSTRAINTS AND SOURCES OF INNOVATION IN RESEARCH

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Jean-Olivier Gransard-Desmond (ArkeoTopia) – Dominik Lengyel (BTU Brandenburg University of Technology Cottbus-Senftenberg | Lengyel Toulouse Architects Berlin) – Harold Mytum (University of Liverpool) – Matthew Walsh (National Museum of Denmark, Modern History & World Cultures)
Keywords: illustration of archaeological data, Outreach activities, Innovation in archaeology, Methodological bias, Public engagement, Case studies
Format: Regular session
Affiliation: Community on Storytelling and Archaeology

SESSION ABSTRACT

The visualization of archaeological research results has both tremendous potential as well as the risk of terrible pitfalls. Illustrations and visualizations concomitantly illuminate and obscure certain aspects of the original data for both professionals and the general public. Sharing research findings with a general audience may result in oversimplification, while visualizing 3D models or other visual aids can lead to misunderstandings among experts. The limitations of visualization, such as colour coding, omission of details, and inadequate information leading to overanalysis, can obscure uncertainty or skew tentative conclusions. The constraints of visualization, ironically, provide a rich terrain for invention. By revealing the whole from a single component, it can spark fresh inquiries, crowd-sourced insights, or local wisdom that uncovers overlooked research avenues. The process of re-explaining or re-framing hypotheses for a broader audience in the realm of popularization acts as a kind of self-reflective mirror for archaeologists and heritage professionals. It prompts them to examine their own blind spots and methodological biases. Furthermore, the use of cutting-edge media, such as virtual reconstructions and participatory mapping in dissemination can significantly enhance research pipelines, generate fresh data, foster new hypotheses, and/or refine visualization techniques. The same is true for the interaction between graphic designers, architects, and archaeologists, and not least any creative or artistic discipline. As a result, visualizing archaeological research data is no longer just a final product of communication. Instead, it becomes a dynamic tool that can reveal research gaps, spark innovation in methodology, and generate new data. Speakers are invited to discuss real-world

examples where the visualization of archaeological data –whether for public or academic audiences– has encountered constraints, but has also uncovered fresh paths for exploration.

CONTRIBUTION ABSTRACTS

412. Finding the archaeological angle: Tips, tricks and case studies for public outreach/ archaeological science communication today

Authors: Samantha Reiter (National Museum of Denmark | The European Archaeologist)
Format: Oral

So you want to do public outreach, but don't know how or where to start? Think it's a simple case of "dumbing down" or "simplifying"? Think again! Public outreach is all about SALES. This presentation gives tips and tricks on how to 'sell' yourself (and your research!) and gives practical advice you can ACTUALLY USE. This presentation will help you 'find your angle' (and will tell you a bit about what that actually means, too…) We'll talk about strategies for catching attention—and keeping it!!!—and we'll explore several examples of where this has been successfully from various fora, including exhibition design, live action events, YouTube video and via the written word. The format we will follow will examine 1) why you should invest in creating a narrative, 2) how to build a story and 3) strategies for building rapport with the audience. The presentation will round off with an open discussion of three case studies from the author's own work, where we will (with the new tools from the talk) determine which were successes and which failures. This presentation represents the extracted knowledge from involvement with the Danish Royal Academy of Sciences and Letters' Science Communication Academy, the EAA's StoryArch Community, ArcheoSnack, five years' editorship of The European Archaeologist (TEA), and a lifetime as the daughter of an excellent saleswoman.

368. From Outreach to Innovation: What Educational Illustration Adds to Archaeological Research

Authors: Jean-Olivier Gransard-Desmond (ArkéoTopia)
Format: Oral

In archaeology, educational illustration is often used as an outreach tool. It translates complex data sets into accessible images for schools, museums, and the general public. This article proposes that such "popular" visualizations should be recognized as research instruments in their own right. Creating visual representations from firsthand archaeological findings, such as stratigraphic records, artifact analyses, architectural remains, wear patterns, or spatial models, does more than just convey results. It also serves as a way to validate them through the act of drawing. Illustration can force implicit assumptions to become explicit (missing joins, uncertain scales, reconstructed gestures, lighting, visibility, sequences of actions). This allows for the generation of new research questions, the exposure of cognitive biases embedded in interpretive routines, and the exposure of errors that remain hidden in texts, tables, or even standard diagrams. Outreach activities based on research-derived illustrations, such as guided drawing sessions, participatory reconstructions, museum mediation using sequential visual narratives, or comics with scientific value, can therefore serve as controlled "stress tests" of archaeological interpretation. Audience feedback, misunderstandings, and narrative friction points become diagnostic indicators, revealing where reconstructions lack sufficient argumentation, are overly linear, or reflect modern expectations. The proposed communication outlines a framework for treating educational visualization as an iterative research cycle: evidence, visual reconstruction, critical review and revised hypotheses. At the heart of this approach is the collaboration between the archaeologist and illustrator. Rather than a mere division of labor (one providing data, while the other creates art), they form a symbiotic pair, combining visual proficiency, material understanding, and logical storytelling to generate insight and innovation. Drawing is recast as a tool for epistemic exploration, capable of broadening the scope of inquiry, enhancing clarity, and bolstering the validity of archaeological assertions.

2015. Between Evidence and Imagination: How Far Can Youth Archaeological Fiction Go Without Betraying the Data?

Authors: Christiane Angibous-Esnault (ArkéoTopia)
Format: Oral

Archaeology depends on evidence, yet the moment we communicate that evidence—through words or images—we inevitably shape it. This paper explores a central tension in youth archaeological fiction: how far can imagination go without betraying the data? I argue that this boundary is not only an ethical or pedagogical concern, but also a powerful lever for research innovation when addressed through a deliberate collaboration between an archaeologist, a youth novelist, and an illustrator. Building stories and illustrations from excavation records, specialist studies, and interpretive hypotheses requires constant decisions about selection, emphasis, and visualization. These choices expose what academic writing often leaves implicit: degrees of uncertainty, competing explanations, and the narrative "gravity" that pulls interpretations toward familiar plots and iconic imagery. In practice, the novelist's need for coherence and the illustrator's need for visual clarity repeatedly provoke the same revealing questions: What is actually supported by the data? What is plausible but unproven? What is pure invention—and how can it be signposted? I show how this triadic workflow turns popularization into a methodological probe. By documenting where storytelling demands exceed what the dataset can justify, the team can detect cognitive biases, identify fragile inferential steps, and surface potential errors. Rather than rejecting imagination, the paper proposes a framework for controlled, transparent creativity: fictional expansions are permitted,

but explicitly framed in relation to evidence and uncertainty. Ultimately, youth fiction that respects archaeological data can do more than educate. By negotiating the evidence–imagination boundary in a structured way, the archaeologist–writer–illustrator trio can generate new research questions, refine interpretive claims, and develop more honest, uncertainty-aware forms of archaeological visualization.

2476. Standing solitary: the Araca church revisited through gaming engine

Authors: Jugoslav Pendic (Institute BioSense) – Milica Tomic (Arhneo) – Dejan Vukelic (Mathematical Institute of the Serbian Academy of Sciences and Arts)
Format: Oral

Monumental remains of Araca, a romanic basilica constructed first during 13th century, are found between Novi Bečej and Novo Miloševo, Serbia. The towering ruin of the church has drawn attention of both local residents and traveling writers for centuries. A cultural heritage site, declared as one of exceptional importance to the Republic of Serbia, it rises above the surrounding (unpopulated) plains, a sight of awe, impossible to ignore even from kilometers away. Below the structure: another monument, a sprawling medieval settlement anchored to the church grounds, largely unexplored - but thoroughly mapped by detailed geophysical prospection. Yet despite its great heritage value, the site remains isolated, with little to offer in the access roads or management and presentation facilities on the ground. This paper presents an attempt to build up on a powerful storytelling image of this monument to bring it back from isolation and cut the distance between the material remains and general public. The authors have relied on usage of now well established workflows for digitalization of structures via 3D scanning methodologies, in order to create a digital twin of the church's remains. From that starting point, we have opted to explore versions of the digital reconstruction, using an Unreal Engine workspace. In this presentation we showcase our results and discuss our decision making process to the final product, and its intended impact.

713. Most Likely: Object-Based, Interdisciplinary Learning in an Archaeology–Design Exhibition

Authors: Nurith Goshen (Israel Museum, Jerusalem) – Oded Friedland (Bezalel academy of art and design, Jerusalem | Monkey Buisness)
Format: Oral

Most Likely: Designers, Archaeologists, and Mysterious Objects is an exhibition at the Israel Museum, Jerusalem, that uses archaeological "mystery objects" as a laboratory for object-based learning, design thinking, and public engagement. Ten undeciphered artifacts, from the Neolithic to the early Islamic period, are re investigated through collaborative work between archaeologists and designers. Each case study makes explicit archaeological reasoning while applying design methods. The project invites visitors into this dialogue by presenting competing interpretations and foregrounding uncertainty and inference rather than authoritative answers. Interactive trilingual materials (Hebrew–Arabic–English) extend learning in and beyond the gallery, encouraging participants to propose their own "most likely" functions for the objects. In doing so, the exhibition models archaeology as an open, evolving inquiry that links primary evidence with secondary narratives and contemporary creative practice and offers low threshold entry points for non specialist audiences. In the present socio-political climate, this shared practice of questioning objects and interpretations functions as an intellectual resource: visitors learn to formulate more precise questions, to scrutinize unsupported claims, and to cultivate evidence based critical thinking, acquiring not only archaeological and design skills but also tools for engaging with an information rich world. Finally, the aftermath of the exhibition is a university course that exemplifies a grassroots approach to education, in which knowledge, questions, and experience flow from the general public into academic institutions rather than only in the opposite direction. In this paper, we will present the ideas behind the exhibition, how it operated and was received, and reflect on future directions, including aspects that proved successful and those that call for improvement.

1327. Architecture as method of reflection and generation of archaeological knowledge

Authors: Dominik Lengyel (BTU University) – Catherine Toulouse (Independent Researcher)
Format: Oral

As a long-established discipline steeped in tradition, architecture possesses an extensive repertoire of methods for analysing and generating space. This makes architecture a particularly versatile and competent partner for analysing spatial archaeology and generating appropriate spatial hypotheses. Precisely because the tools of architecture serve entirely different purposes than those of archaeology, their transfer to archaeology is a genuinely complementary enrichment. The methods include both the generation of new forms, a process that in architecture takes place in dialogue between the client and the architect, and the meaningful visual representation of spatial ideas in all phases of the development of new buildings, from the rough volumetric sketch to the development of construction details. The tension between vague intentions and the need for constant exchange in every phase of development can be directly transferred to the relationship between historical truth and archaeological research. In both architecture and archaeology, knowledge about planning on the one hand and historical truth on the other is constantly evolving. The difference lies in achieving certainty. While architecture usually culminates in a final realised building, archaeology usually has to content itself with a stage of incomplete certainty. Achieving historical truth is an almost endless asymptotic process. But apart from this final moment of achieving the realised building, the requirements of the two disciplines are very similar. Both cases deal with the negotiation of intention and interpretation. This paper aims to show the added value that the discipline of architecture has

brought to archaeological discourse and how the dialectical relationship leads to further results. Numerous projects by the authors, most of which have been published and some of which have been exhibited in museums, are demonstrated. All of these projects were developed in close collaboration with various cultural and research institutions.

394. "L'image pertinente" as a guideline: a walk through Rome balancing accuracy and intelligibility for 3D reconstruction

Authors: Orline Poulat (UR 4254 ERLIS – CIREVE, Université de Caen Normandie)
Format: Oral

This paper stems from the researches carried out by the Plan de Rome project (Université de Caen Normandie, France) that reconstructs 4th century AD Rome in 3D. If 3D reconstruction has become quite common, it is often limited to the study of isolated monuments. Therefore, being able to visualize entire urban districts constitutes a scientific tool that radically questions hypotheses' feasibility and prompts researchers to a detailed reexamination of the available sources. Measurements, luminosity and mobility, otherwise often overlooked, stand out as important matters to consider when recreating buildings destined to be seen and "experienced". The spectator is no more such: one becomes an actor through interaction, enhancing a better understanding through active participation. Besides, experimental archaeology and 3D reconstruction complete each other, with 3D's ability to "low-costly" produce several hypotheses for a mechanism such as roman theatre's uela. Through successive models, a building's evolution can be made visible: architectural choices, function changes, or even the perception of the building itself can be highlighted. Nonetheless, incomplete data often leads to "too polished" reconstructions thus distorting spectators' vision: research over the colors on art and buildings is an interesting example that enhance the "marble-white" models' fragility often offered when archaeological data is unavailable. As highlighted by Jean Claude Golvin (2003), creating an "image pertinente" (relevant image) needs to both ensure scientific accuracy and public accessibility. In the Plan de Rome project we decide to reconstruct elements even if details aren't precisely discovered, knowing the non-representation of such elements would have been equally, if not more, scientifically wrong. Through critical feedback, this paper will debate these elements and highlights both the interdisciplinarity's challenges and benefits between graphic designers and researchers, and knowledge-sharing with a broader non-specialized audience.

464. Reading Reconstructions: uncovering unconscious decisions in all modes of image creation

Authors: Harold Mytum (University of Liverpool)
Format: Oral

Archaeologists often use reconstruction images, scale models and full-scale recreations to convey impressions of the past. Whether constructed by computer, a graphic artist or construction craftsmen, all rely on many decisions made on many aspects of production that affect how the public (and indeed other professional archaeologists) view – read – the output and formulate their interpretations. This paper concentrates on two issues out of many that comprise the challenges of using reconstruction images to convey what the archaeologist intends. The first is the matter of presence vs. absence, which comes in many forms. 1) Reconstruction concentrates on, for example, construction methods or overall appearance of a structure in isolation. The focus is not on placing the structure in its environmental, cultural, peopled, context and so its functions and meanings are not revealed let alone explored. 2) The static reconstruction vs the dynamic context in which the structure operated. Physical reconstructions and computer modelled visualisations may allow movement around a structure provide some of this dynamism, but rarely show changes through time – the day, the season, the life cycle of the structure, or different past experiences within that structure. They do not convey change through time or varied past experiences of a space that are often central to archaeological interpretation. The paper discusses how these issues can be addressed to support those 'reading' the reconstruction.

1607. 3D representations of archaeological textile finds: From fabric properties to visualizing "real" garments

Authors: Karolina Pallin (The Society for Textile Archaeology and Culture Studies, TexArk)
Format: Oral

In archaeology, textiles are often numbers in a form and 2D photos and drawings. Even clothing is often presented in this numerical and flat manner, for good reasons in many aspects but not super helpful in others. Using the more common 3D techniques is another way for representing textiles, and especially garments, but this format is not perfect either. Textile is a flowing, draping material and cannot really be understood in a "frozen" format, which an image and even most 3D models must be classified as. The fashion industry has for a long time been developing softwares for both constructing and visualising textile, both for clothing and interior. There are also softwares where you can make your own fabrics to be used in your own 3D projects. I have made several studies on how these softwares can be used for textile research and visualization of foremost archaeological textile finds. I have presented this for colleagues in the textile archaeological field with enthusiastic response and many ideas on how to take this further. By creating 3D garments from already published pattern analyses, I've faced construction issues with the pattern and gained insight into different interpretations, sewing methods and also the wearers body size and posture, as an example. Now I believe it is time for a broader audience. Might this approach to visualising textile discoveries and interpretations serve as one of several methods within the 3D toolkit?

854. Interpreting fluvial dynamics through historical maps: opportunities, biases, and reinterpretations

Authors: Anna Kharlanova – Claude Vella (Aix-Marseille Univ, CNRS, IRD, INRAE, Coll de France, CEREGE, Aix-en-Provence) – Véronique Rinalducci (ciham, umr5648) – Philippe Rigaud (LA3M, umr7298) – Jules Fleury – Doriane Delanghe – Olivier Bellier (Aix-Marseille Univ, CNRS, IRD, INRAE, Coll de France, CEREGE, Aix-en-Provence)
Format: Poster

Historical maps provide a visual archive of past landscapes that can be reinterpreted from a geomorphological perspective. They allow the identification of palaeochannels, meander migration, avulsion patterns and shoreline changes. The Rhône Delta during the Little Ice Age (LIA) serves as a reference case, a period marked by enhanced fluvial activity and hydroclimatic variability (Arnaud-Fassetta, 1998; Bond et al., 2001; Mann et al., 2009; Miller et al., 2012; Pichard et al., 2014; Kharlanova et al., 2025;). Georeferencing and comparison with present-day topography reveal traces of fluvial dynamics that are no longer visible today. Although these maps were produced for non-geomorphological purposes, they can be used as geomorphological archives, provided that scale, graphic conventions, spatial uncertainty and cartographic bias are considered (Rinalducci et al., in press; Kharlanova et al., in prep). Beyond geomorphology, such analyses can foster archaeological and historical reinterpretations of existing studies (Rossiaud, 1994; Deye, 2024) by reframing settlement patterns, land use and infrastructures in relation to river mobility. They also help to provide geomorphological explanations for shifts in activities, such as the abandonment of the Vernède saltworks driven by documented fluvial dynamics. The case of Mas de la Bélugue, an agricultural estate in the Rhône delta plain, illustrates both the heuristic potential and the limits of cartographic visualisation. Variations in the position of the toponym on historical maps suggest a possible relocation of the estate linked to fluvial dynamics (Kharlanova, in prep.). However, the present-day building does not spatially correspond to the location depicted on early maps, despite archaeological evidence dating occupation to the same period (Deye, 2024), raising the possibility of an earlier, unrecorded structure not represented cartographically. This exploratory approach can be extended to other Mediterranean deltas to assess how cartographic visualisation shapes the visibility of LIA fluvial dynamics across different deltaic systems.

22 COLLABORATIVE SYNTHESIS TO ADDRESS MAJOR RESEARCH QUESTIONS WITH BROAD RELEVANCE

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Sarah Klassen – Scott Ortman (CU Boulder) – Martin Furholt (Kiel University)
Keywords: synthesis, cross-disciplinary, collaborative
Format: Session with presentation of 6 slides in 6 minutes

SESSION ABSTRACT

This session will create a dynamic forum to examine how collaborative, cross-disciplinary, and international synthesis can address one of archaeology's most pressing challenges: integrating heterogeneous datasets and methodological approaches to answer large-scale questions about long-term human and environmental dynamics. Presenters, including members of the Coalition for Archaeological Synthesis (CfAS) and affiliated initiatives, will demonstrate how synthesis-driven research can overcome fragmentation in archaeological data and practice by combining diverse evidence, comparative frameworks, and multiscalar analyses. The session will highlight concrete case studies in which synthesis has produced new insights into major thematic problems such as urban resilience, socio-environmental change, religious transformation, and inequality. Speakers will introduce methodological strategies for integrating datasets, from textual and material archives to remote sensing, computational modeling, and community-based knowledge. They will also share lessons learned in building and sustaining long-term collaborative research networks, including best practices in data interoperability, ethical engagement, and knowledge translation. Participants are warmly invited to reflect on their own experiences with collaborative research and to contribute ideas for future synthetic efforts. Through focused discussion on the problem of archaeological fragmentation and the methodological innovations needed to overcome it, this session aims to chart a clear and actionable vision for the next generation of archaeological synthesis.

CONTRIBUTION ABSTRACTS

238. What made the Global Dynamics of Inequality Project successful?

Authors: Scott Ortman (University of Colorado Boulder)
Format: Oral

The Global Dynamics of Inequality Project, sponsored by the Coalition for Archaeological Synthesis through NSF, has by all measures been very successful, in terms of publications, awards, and on-going collaborations. What was it about this working group that made it successful? In this presentation, I go beyond the research itself to consider some of the social, logistical, and practical aspects of the project that made it work so well. One important aspect was the process through which the working group came together, which ensured a combination of existing collaborators and individuals who had not worked together previously became

part of the team. A second was the mix of periodic in-person meetings and regular remote meetings, which kept everyone engaged. A third was the structure of the working group, which included core and extended members, ensuring there was always a quorum available for project activities. A final ingredient was the character of project leadership, which included effective communication, reasonable workplans, and data integration support. All of these and more were necessary for the project to be successful.

3. The Network Structure of the Urban Revolution

Authors: Giacomo Benati – Sergi Lozano (University of Barcelona)
Format: Oral

Long-distance interaction predates cities, but the scale, intensity, and organizational complexity of exchange during the Urban Revolution were unprecedented. How did early urban societies sustain transcontinental trade without modern transport technologies, financial instruments, or formal institutional infrastructure? We address this question through a formal network analysis of the Uruk Expansion in Chalcolithic Mesopotamia (ca. 4000–3000 BCE), widely regarded as the earliest episode of globalization. Drawing on a newly assembled dataset of more than 1,700 settlements and documented interaction routes, we reconstruct evolving patterns of connectivity across Mesopotamia and its peripheries. Our results show that exchange networks initially structured around riverine corridors gradually transformed through processes of diaspora settlement and intermediary bridging. These dynamics generated increasingly dense clusters and, over time, small-world network properties that balanced strong local integration with efficient long-distance connectivity. This transition from sparse, branching systems to grid-like integrated networks challenges core–periphery and dependency-based interpretations, instead highlighting an emergent process of market formation and self-organized coordination in early urban economies.

1951. From Fragmentation to Integration: Big Interdisciplinary Archaeological Database (BIAD)

Authors: Natalia Ryabogina (University of Gothenburg) – Adrian Timpson – Simon Carrignon (University College London) – Jelena Bulatović (University of Gothenburg) – Robert Staniuk (Adam Mickiewicz University in Poznań) – Jan Kolář (Institute of Archaeology of the Czech Academy of Sciences) – Samantha Reiter (National Museum of Denmark) – Stephen Shennan – Mark Thomas (University College London) – Kristian Kristiansen (University of Gothenburg)
Format: Oral

In this paper, we present how the COREX ERC project has developed the Big Interdisciplinary Archaeological Database (BIAD) for the exploration of complex relationships in response to multifaceted research questions. BIAD is an initiative aimed at integrating and harmonising large, heterogeneous archaeological datasets within the current scientific move towards Big Data. At present, BIAD integrates detailed information of archaeological sites, including material culture, human data (burials, individual characteristics, palaeopathology, and links to ancient DNA), ^{14}C, isotope and strontium data, metallurgy, faunal and botanical datasets. Critically, all datasets are internally linked and traceable to verified source citations. We outline the core principles of the BIAD architecture, together with its conceptual differences from existing archaeological repositories and databases. Key project outcomes and methodological challenges related to the integration of non-standardised datasets from diverse European research traditions are addressed, with particular emphasis on strategies, data structures, and vocabularies developed to improve cross-dataset comparability and data quality. Although BIAD entries now focus primarily on Europe, the database is designed to be scalable and flexible, allowing for the integration of data from any region. BIAD is conceived as a fully relational system built for long-term growth and potential globally. Beyond data aggregation and linkage, BIAD is conceived as an integrated analytical environment that tightly articulates complex data queries with statistical analysis. This has been made possible by the development of BIADConnect, a versatile R interface that enables direct interaction with the database and supports a range of analytical workflows. This interface also facilitates the development of complementary applications, such as BIAD TaxaExplorer, a web-based tool for visualising data distributions and summary statistics for archaeobotany and zooarchaeology. TaxaExplorer allows exploration within user-defined spatial polygons and time slices, enabling rapid visual assessment of sample distributions and dimensionality reduction using correspondence analysis.

936. A synthetic and integrative approach to the exploration of the deep ROOTS of Socio-Environmental Connectivities

Authors: Martin Furholt (Kiel University)
Format: Oral

The Excellence Cluster Roots explores the long-term trajectories of current socio-environmental challenges related to conflict, inequality, diet and disease, settlement concentrations and urbanity, knowledge transmission, and the impact of environmental hazards. We aim to mobilise and integrate a set of usually diverging disciplines from the humanites, social and naturals sciences in order to empirically assess the deep histories of those phenomena, as well as their interrelations. We use this work to critically reflect the impact of these historical trajectories on our current societies and on our current worldviews including our current academic approaches to the past. In this contribution, I will address inherent challenges of interdisciplinary integration, data and proxy development and their interpretations as well as the impact of historically contingent academic traditions that play an important part in our integrative approach to the past. The integration into an international research network like CfAS is a central pillar of our strategy.

415. Pizza, not Pantry: Turning fragmented archaeological data into digestible evidence

Authors: Martin Hinz – Sophie Schmidt (Kiel University)
Format: Oral

Archaeological datasets are increasingly visible, digital, and openly shared, yet they remain difficult to use in large-scale analysis within and beyond archaeology. This matters because other research communities, especially in the climate and Earth system sciences, are seeking long-term human-impact baselines: signals of land use, settlement dynamics, and socio-ecological change that can complement palaeoenvironmental archives. In practice, much archaeological data does not find its way to these research communities. It is encoded in discipline-specific categories, unevenly documented, spatially and temporally heterogeneous, and accompanied by uncertainty that is hard to carry into downstream analyses. Archaeology therefore risks being simultaneously highly relevant and operationally unusable for interdisciplinary synthesis. Large-scale questions with broad relevance require something different: not just ingredients, but a meal that is ready to be served and eaten. This paper argues that bridging the gap is not primarily a matter of more data, but of archaeological synthesis understood as translation across communities of practice. We must deliver the pizza, not the pantry. Making archaeological evidence reusable requires treating interoperability, uncertainty, and bias as first-class research products. Concretely, this means a three step workflow: 1. curate data with provenance and machine-readable metadata so others can assess fitness for use, 2. formalise preservation loss, sampling intensity, and infrastructural inequalities that shape what becomes visible, and 3. produce harmonised outputs with credible intervals and documented assumptions that can be integrated into interdisciplinary workflows. Also within the field such practices will facilitate large scale meta-analyses. We illustrate these points with an ongoing demographic synthesis effort that consolidates multiple archaeological proxies within a transparent Bayesian framework and produces reusable estimates plus diagnostics, a nutrition label that collaborative networks can rely on. The take-home message: interdisciplinary relevance depends on whether we deliver results in forms that other communities can immediately use, test, and build upon.

1285. The "Myth of Barter" Reconsidered: Comparative Commercial Development on Europe's Periphery in the Late Iron Age

Authors: Thomas Hall (Christopher Newport University)
Format: Oral

The origins of money, and their relationship with the broader development of exchange, commerce (standardization), and finance, have received new attention by scholars spanning economic and commercial history, archaeology, and anthropology in recent years. In this paper, we identify testable hypotheses derived from four broad theoretical traditions: orthodox, Chartalist, trade, and new institutional economics. To compare the theories, we derive findings from archeological, numismatic, and inscribed evidence from peripheral Europe during the first eras in which archaeology can be supplemented with relevant historical and archival research: the late Iron Age. More specifically, we analyze the comparative development of commerce, standardization, and financial sophistication, using three sets of data analyzed in this way for the first time here. Our first empirical exercise is a qualitative analysis of long-term monetary, commercial, and financial developments in the under-studied periphery of Europe. Second, we test hypotheses related to standardization of earthenware containers for commercially-traded goods. Our third inquiry develops a period-appropriate approach to industry analysis (also known as asset allocation at the industry level), and proposes a capital market line diagram for Macedonian Dynasty-era Byzantium. We conclude with suggestions for comparing the four theories using archaeological, historical, and anthropological data from other times and places, with appropriate concomitant dissemination of the actual, historical roots of money in broader perspective.

1473. Beyond the Species List: Marine Exploitation and Human–Coastal Dynamics on the Eastern Adriatic, Hellenistic to Early Modern

Authors: Antonela Barbir (Institute of Archaeology - Zagreb) – Melita Peharda (Institute of Oceanography and Fisheries - Split)
Format: Oral

Despite the long-standing maritime orientation of Eastern Adriatic communities, marine animals, a key yet underutilised proxy for past human-coastal interactions, remain significantly understudied in the region's archaeological record. This study presents the first comprehensive synthesis of marine resource use from the Hellenistic period to the Early Modern Era, drawing on published evidence from multiple archaeological contexts that vary in function, chronology, and analytical resolution. By jointly considering molluscs and fish, the study moves beyond taxonomic inventories to provide a nuanced evaluation of human engagement with coastal ecosystems. The review critically examines methodological diversity, ranging from systematic quantitative studies to brief species listings, and considers how these differences shape current interpretative frameworks. Structural imbalances in research visibility emerge: Roman-period assemblages constitute the most analytically developed body of evidence, whereas the Medieval and Early Modern periods remain comparatively underrepresented. Hellenistic material, although increasingly documented, is still seldom explored in depth. Evidence for fish is generally scarce, limiting integrated reconstructions of marine economies. Rather than framing these disparities solely as limitations, the study situates them within broader research traditions and disciplinary trajectories that have guided archaeozoological practice in the region. Recurring taxa nonetheless indicate persistent and adaptable

strategies of coastal exploitation across different site types and historical periods. By establishing a regional interpretative baseline and highlighting critical gaps, this study underscores the potential of marine faunal remains to illuminate long-term human–coastal interactions. It further advocates for consistent recovery and analytical approaches, including application of sclerochronological methods, to support robust diachronic and interregional comparison, providing a framework for future research that extends well beyond existing site-specific datasets and enables meaningful comparative analyses across the broader Mediterranean region.

1501. From Close Kinship to Population Interactions: Integrating Biological and Cultural Indicators of Past Social Identities in a Multiscalar Framework

Authors: Niels Johannsen (Department of Archaeology and Heritage Studies, Aarhus University) – Kent Johnson (Sociology/Anthropology Department, SUNY Cortland)
Format: Oral

In this presentation we will report on an ongoing initiative to chart a novel roadmap for next-generation archaeogenetic approaches to social organization and identity in the deep past. In March 2026, a diverse group of researchers in archaeology, archaeogenetics, other biomolecular archaeologies, and data modelling met at the Sankelmark Academy in northern Germany for a workshop sponsored by the CfAS and the Kiel Center for Collaborative Synthesis in Archaeology (CCSA). The purpose of this meeting was twofold; first, to discuss potential designs of future research collaborations that use genetic and cultural data to generate more nuanced interpretations of social networks and cultural identities across multiple scales, ranging from kinship to supra-regional cultural affiliation networks; and second, to initiate collaborative outline of one or more proposals seeking funding to implement such a longer-term research effort. We reflect on the process so far as well as the wider, strategic challenge of identifying and integrating existing archaeogenetic and cultural datasets and developing the theoretical approaches and methodological techniques needed to advance archaeogenetic research in archaeology.

2125. Ancient DNA implicates Salmonella Paratyphi C as a candidate pathogen in a thirteenth-century East Asian epidemic

Authors: Jiayu He – Li Yu (China Academy of Chinese Medical Sciences) – Fan Zhang (School of Archaeology and Museology, Sichuan University) – Ge Song (China Academy of Chinese Medical Sciences)
Format: Oral

By synthesizing palaeogenomic, archaeological, and historical records, this study investigates disease dynamics in 13th-century North China. We screened ancient metagenomic data from 15 individuals from a 13th-century mortuary context at the Xiyang site (Shanxi, North China). Authentic Salmonella enterica subsp. enterica serovar Paratyphi C (SPC) reads were detected in 5/15 individuals, of which three met criteria for downstream analyses. Ancient authenticity was supported by deamination signatures, short fragment lengths, mapping stringency, and negative controls. Human genomic profiles show affinities consistent with contemporaneous North China agricultural populations. Archaeological context reveals these 15 individuals derived from six multi-individual burials with no biological kinship ties across burials, indicating multi-household exposure rather than a single-family cluster. Pathogen detections represent a conservative lower bound; the true number of infections likely exceeded five. Historical records from 1213–1232 CE document a severe epidemic with fever, headache, diarrhea, and bloody stool—symptoms consistent with SPC. Wartime environmental degradation likely facilitated faecal-oral pathogen spread. SPC detection aligns temporally with this epidemic. Together, archaeological, palaeogenomic, and textual evidence support the hypothesis that SPC contributed to outbreaks, while acknowledging it was not necessarily the sole agent. Limitations include modest sample size (n=15; positives=5), uncertain within-tomb simultaneity, and incomplete chronological precision. These findings extend SPC's range to 13th-century North China and motivate targeted capture, direct dating, and broader screening to evaluate scale, timing, and aetiological heterogeneity.

1186. The BIAD Standards: Data protocol recommendations from the COREX Project

Authors: Samantha Reiter (National Museum of Denmark) – Robert Staniuk (Adam Mickiewicz University in Poznań) – Jan Kolář (Institute of Archaeology, Czech Academy of Sciences) – Jelena Bulatović – Helene Rose – Natalia Ryabogina (University of Gothenburg) – Stephen Shennan (University College London) – Kristian Kristiansen (University of Gothenburg) – Mark Thomas – Adrian Timpson (University College London)
Format: Poster

The Big Interdisciplinary Archaeological Database (BIAD) has been under construction by members of the COREX Project and many other collaborating projects since 2021. Currently BIAD predominantly covers Europe c. 6000 to 500 BCE, but continues to expand in scope with ambitions to incorporate all types of archaeological data from around the world. Datasets are properly integrated within a relational structure, currently including archaeobotany, radiocarbon dates, zooarchaeology, grave constructions, demography, health, stable isotopes, material culture, metallurgy, funeral rites and monument formation processes. This poster gives a brief introduction of the project and then provides a series of guidelines for the publication of archaeological data for the facilitation of big data projects. The guidelines are based on five years collecting, harmonising and relating published data into BIAD and represent the collected suggestions of a team of c. 20 topical specialists working with the data types listed above. Advantages to publishing in a big-data friendly manner support FAIR principles, increasing the usefulness, impact and reach of data, whilst also increasing the frequency of citations for data contributors.

23 SCALING UP THE SMALL: ASSESSING MICROARCHAEOLOGICAL ASSEMBLAGES AND METHODOLOGICAL FRAMEWORKS IN SOUTHEAST EUROPE AND EASTERN MEDITERRANEAN

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Evanthia-Stefania Kourti (Université Paris 1 Panthéon-Sorbonne | UMR 7041 ArScAn | EUR ArChal) – Yoanna Katreva (Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences)
Keywords: microarchaeology, multi-proxy analysis, human–environment interactions, subsistence strategies, archeobotany, Southeast Europe
Format: Regular session

SESSION ABSTRACT

The regions of Southeast Europe and Eastern Mediterranean form an area whose subsistence patterns and environmental conditions during prehistory have been widely researched through diverse datasets. Over recent decades, archaeological studies have largely focused on macroarchaeological evidence – plant macrofossils, pottery, lithics, shells, and other material culture – providing a robust framework for understanding subsistence strategies and socio-economic activities. In the past few decades, however, there has been a significant rise in pluridisciplinary studies with a strong focus on microarchaeological remains that aim to better capture past anthropogenic and natural landscapes and to unravel the complex interplay between humans and their environments. This session is inspired by the conviction that to address the complexity of human–environment interactions, we must turn to multi-proxy and interdisciplinary approaches. Combined microarchaeological assemblages have the potential to reveal broader patterns of human–landscape interaction where people did not only exploit, adapt to, or intentionally transform their environments, but also left behind traces of unplanned, indirect, and often subtle relations with their surroundings. In particular, we aim to emphasize the methodological potential of combining micro-proxies as pollen, microcharcoal, diatoms, non-pollen palynomorphs, phytoliths, and starch grains with geoarchaeological, isotopic, GIS-based, and other environmental datasets. Special attention will be given to the methodological challenges posed by preservation in different archaeological contexts and the interpretive difficulties of taphonomic processes. In addition, we aim to put emphasis on the methodological potential and limitations of archaeological archives and past excavation materials of relevance for microarchaeological approaches. Finally, this session is viewed as a special opportunity for comparing data, refining methodological approaches, and fostering collaboration to shape future research directions for this pivotal region.

CONTRIBUTION ABSTRACTS

1452. Microremains and macroquestions: plant processing and subsistence strategies in two Late Neolithic sites in Eastern Bulgaria

Authors: Nataliya Ivanova – Teodora Bogdanova (National Institute of Archaeology and Museum, Bulgarian Academy of Sciences) – Rositsa Hristova (History Museum Atanas Karaivanov – Karnobat)
Format: Oral

The study of microbotanical remains, particularly phytoliths and starch grains, within the interdisciplinary research of Bulgarian archaeology is still in its initial stage. However, large-scale rescue excavations over the last few decades provide a good opportunity for studying "fresh" material, allowing the accumulation of data and attesting the potential of microbotanical remains for addressing both specific and broad research questions. Such is the case with two Late Neolithic sites located in Eastern Bulgaria, near the modern town of Burgas. Both sites have revealed structures with different interpretations – pits and dwellings with possible storage areas, where complete or fragmented grinding stones have been discovered. By examining microremains recovered from the active surface of grinding stones, this study aims to shed light on the subsistence strategies of the people inhabiting the area during the second half of the 6th and beginning of the 5th millennium BC through combined phytolith and starch grain analyses. The results reveal the use of the sampled tools in plant processing and add to our knowledge about plant-human interaction.

1924. Out of the Pit : First phytolith results from the upper levels of a Neolithic site in Northern Greece.

Authors: Evanthia-Stefania Kourti (Université Paris 1 Panthéon-Sorbonne)
Format: Oral

The Late Neolithic site of Promachon-Topolnitsa (5150-4800 BC), located on the lower part of the Struma/Strymon valley and divided by the Greek-Bulgarian border, is a unique example of spatial use; the Greek sector of the site is dominated by a large subterranean structure, used throughout the first two habitation phases of the settlement. The first phase of this structure (Promachon 1a) presented successive destruction layers, containing significant amounts of ritually coded objects, animal bones and food-preparation tools, has been the most studied one. Although multiple interpretations have been proposed, the most used one was that of a large depository of possibly ritualistic nature. A recent phytolith analysis conducted on the active surfaces of some of the numerous grinding tools found inside these layers revealed the presence of wheat and barley, as well as some species of the Chloridoideae, the Panicoideae and the Cyperaceae families. Furthermore, this analysis hinted at a differentiation between the interior and the exterior

of the structure: a phytolith presence was noted inside of the structure, but not in the sample coming from outside of it. This study, stemming from the previous analysis' results, wishes to further examine this area and the rest of the Greek sector, used during the subsequent phases of the settlement. It is a comparison of the three consecutive phases of the Promachon settlement (1a, 1b and 2), using phytolith records from grinding stones found in different areas of the settlement. Finally, this study aims to start a discussion on the methodology that can be used in post-excavational analytical practices that rely heavily on spatial data.

2574. Micro-archaeobotanical remains and taphonomic processes in fumier deposits: evidence from El Mirador cave

Authors: Aitor Burguet-Coca – Isabel Expósito – Nit Cano-Cano – Josep Maria Vergès – Ethel Allué (IPHES-CERCA, Institut Català de Paleoecologia Humana i Evolució Social | URV, Universitat Rovira i Virgili, Departament d'Història i Història de l'Art)
Format: Oral

Microarcheobotanical interpretations are strongly influenced by preservation pathways due to anthropogenic or natural post-depositional processes. This study presents a case study from the Neolithic–Bronze Age sequence of El Mirador (Atapuerca, Burgos), focusing on the taphonomy of phytolith, spherulite and pollen assemblages within fumier deposits formed through repeated cycles of livestock stabling, burning, and post-depositional alteration in a cave context. The study integrates quantitative, morphological, taxonomical and taphonomic data from phytoliths, spherulites and pollen with FTIR-based sediment mineralogical analyses from Sector 100. MIR104 represents an in situ, high-temperature burnt fumier, where fire emerges as the dominant taphonomic agent. Phytolith and spherulite concentrations are unexpectedly low despite the abundance of burnt dung, while alteration indices indicate intense thermal impact. In contrast, pollen assemblages in the most intensely burnt facies are strongly degraded, indicating a near-complete loss of taxonomic information. MIR105 records a different preservation trajectory, characterised by lower fire impact and a stronger influence of post-depositional processes linked to sediment reworking and alternating humid–dry conditions. In this unit, phytolith alteration is dominated by physicochemical weathering related to water percolation and reactions with calcite, and both phytolith and spherulite concentrations vary along the sequence. Pollen assemblages show higher richness but clear evidence of fragmentation and mixing, indicatinf pointing to complex depositional and diagenetic histories. By comparing phytolith, spherulite and pollen assemblages formed under contrasting fire regimes and water-related post-depositional processes within the same archaeological context, this study demonstrates how preservation biases differentially affect archaeobotanical proxies in fumier deposits. The results highlight the need for an integrated microbotanical approach to unravelling formation processes and improving interpretations of plant use, environments, and subsistence in highly anthropogenic contexts.

52. Agriculture in southern Attika during Historical times. The phytolith evidence

Authors: Georgia Tsartsidou (Ephorate of Palaeoanthropology-Speleology, HMC | Wiener Laboratory for Archaeological Science, ASCSA) – Liana Psarri (Ephorate of Antiquities of Piraeus and Islands, HMC)
Format: Oral

This study presents the first integrated phytolith analysis from seven rescue excavation plots in the region of Alimos, southern Attika, offering a microarchaeological perspective on agricultural practices during Historical times. Phytoliths were extracted through a standardized protocol involving acid digestion, heavy liquid separation, and high magnification petrographic microscopy, enabling the identification of morphotypes linked to major plant families and cultivated taxa. Despite the challenges posed by the region's calcareous sediments—an alkaline sedimentary environment that promotes dissolution of silica bodies—the assemblages preserve diagnostic signatures of past land use. Across the plots, phytolith concentrations vary considerably, yet several samples exhibit exceptionally high densities, reaching tens of thousands of phytoliths per gram. These peaks, dominated by morphotypes of the Pooideae subfamily, indicate intensive cultivation of C3 cereals such as wheat. The presence of articulated silica skeletons from seed glumes further supports the interpretation of in situ crop processing or repeated agricultural activity. Low frequencies of dicot phytoliths, combined with the scarcity of taxa typical of orchards or shrubland, suggest that the investigated fields were primarily dedicated to cereal agriculture rather than arboriculture. Only in one plot grapevine remains were recovered in later pits dug in the furrows. The Alimos dataset demonstrates how microbotanical residues can illuminate agricultural regimes even in taphonomically adverse contexts. When scaled up across multiple small excavation plots, the phytolith evidence reveals a coherent agricultural landscape characterized by sustained cereal cultivation and soil management practices consistent with long term field use. This study highlights the value of microarchaeological approaches for reconstructing land use histories in densely occupied Mediterranean environments.

2530. Wild versus Domestic: Using AI to Refine Wheat Husk Phytolith Identification at the Pre-Pottery Neolithic Mega-site of Beisamoun

Authors: Lachlan Kyle-Robinson – Melanie Pugliese – Keevan Buch – Zehao Fan – Nicolas Iovu – Monica Ramsey (University of Toronto)
Format: Oral

Beisamoun is a large Pre-Pottery Neolithic (PPN) B–C mega-site in the Hula Valley of northern Israel. Occupied during the advent of the first morphological cereal domestics in the region (Triticum dicoccum (emmer), poor macro botanical preservation means that it is still unclear if the wheat exploited at Beisamoun represents wild gathering, domesticated production, or both. This unanswered question directly affects interpretations of cultivation intensity, subsistence strategy, and the tempo of early agricultural development. Phytoliths, inorganic silica casts of plant cells, provide a solution. Applying our lab's latest artificial intelligence (AI) model, we have refined our identification of Triticum to the species level, surpassing the precision of manual methods. In this paper we apply these AI models to archaeological materials for the first time, separating wild from domestic Triticum (dicoccoides vs. dicoccum) This study applies a supervised deep-learning (DL) classification model to archaeological multi-cell husk phytoliths from a triumvirate of sites in the Southern Levant, including a Natufian site (prior to morphological domestication), Beisamoun (PPNB-C), and a post-PPN site (after morphological domestication). Multi-cell cereal husk phytoliths from Final Natufian deposits provide a baseline for wild cereal exploitation, while samples from a post-PPN fully agricultural site provides a comparative baseline for domesticated cereal processing. The model is then applied to phytolith assemblages from Beisamoun to evaluate whether the Triticum husk phytoliths, align more closely with wild-type (dicoccoides) or domesticated-type (dicoccum). The development and now application of DL models marks a turning point in archaeobotany, enabling domestication status to be evaluated through microbotanical analysis rather than relying solely on macro botanical preservation. This improved discrimination between wild and domesticated Emmer wheat directly strengthens reconstructions of PPN plant economies, contributing to a stronger understanding of how Beisamoun maintained a stable occupation during a period of broader regional social reorganization.

2119. Evaluating an Expanded and Interpretable Deep Learning Framework for Automated Phytolith Identification

Authors: Melanie Pugliese – Lachlan Kyle-Robinson – Kevaan Buch – Zehao Fan – Nicolas Iovu – Monica Ramsey – Takia Talha – Mahdi Alani (University of Toronto)
Format: Oral

Recent deep learning applications to phytolith identification have demonstrated high accuracy under controlled conditions, yet most remain limited by narrow class structures and highly curated image datasets. This presentation reports the results of an expanded phytolith classification algorithm designed to operate across a broader range of morphologies and image conditions representative of archaeobotanical microscope slides from the Southern Levant. The study integrates three key components: best practices in training dataset construction, image segmentation strategies that distinguish single-cell and multi-cell phytoliths, and a modeling framework that improves robustness as class diversity increases. Particular attention is given to how training data quality, class balance, and background management influence model learning. These design choices are evaluated for their impact on algorithm performance when applied to complex archaeological slides rather than idealized reference material. This presentation reports the performance metrics of an expanded algorithm, including class-specific accuracy, error structure, and model behavior as classification complexity increases. Interpretability tools such as Grad-CAM, are used to examine which visual features of phytolith morphology the model relies upon, allowing assessment of whether algorithmic decision making aligns with established human identification criteria. These analyses also highlight cases in which the model consistently differentiated similar phytolith morphologies that are difficult to separate through traditional visual analysis. To test archaeological applicability, the model will be applied to phytolith assemblages from Southern Levantine archaeological sites including Ohalo II, Kharaneh IV and Beisamoun. These sites span a broad chronological range from the Epipalaeolithic through the Neolithic, allowing evaluation of the algorithm across diverse archaeological contexts. The pilot focuses on common Levantine grass phytolith morphotypes such as dendritic long cells, psilate long cells, rondels and other short cell morphotypes. By automating the identification of single cell grass phytoliths the workflow substantially accelerates analyses and enables large-scale comparison of plant exploitation patterns across time.

2257. Resinous Adhesive Materials as Multi-Proxy Archives of Environmental and Technological Practices for the LBA. A Case Study from Plovdiv, Bulgaria

Authors: Yoanna Katreva (Institute of Biodiversity and Ecosystem Research, BAS) – Elena Marinova (Archaeobotany Lab at State Office for Cultural Heritage Baden-Württemberg) – Elena Bozhinova (Regional Archaeological Museum - Plovdiv)
Format: Oral

Plant exudates had a wide range of uses in the past; however, they are rarely preserved in the archaeological records and are still not well studied in Bulgaria. This paper presents a microbotanical case study of resinous substances preserved on pottery vessels from a Late Bronze Age well in Plovdiv, Bulgaria, excavated over sixty years ago and now housed in a museum collection. By combining chemical and microbotanical analyses, the study questions the origin and technological use of plant exudates as adhesives and evaluates the potential of such materials to preserve ecological, environmental, and cultural information. Preliminary results suggest the utilization of both local and potentially non-local plant resources in the production of the adhesive substances. A comparison with regional palynological, antracological, and biomolecular analyses from the North Aegean and the Balkans will test hypotheses concerning the availability of woodland resources, patterns of exploitation, and technological choices involved in the manufacture and use of adhesives during a period of intensified human mobility and increasing anthropogenic pressure on forested landscapes. Also, the paper addresses a methodological question: how reliably can resinous substances preserved on pottery vessels be used to reconstruct past craft practices and local environments (especially when working with museum collections)?

819. Medieval and Modern Environmental Change in Southern Herzegovina: A Palaeoecological

Perspective

Authors: Nina Caf – Maja Andrič (ZRC SAZU, Institute of Archaeology) – Saša Čaval (ZRC SAZU, Institute of Anthropological and Spatial Studies | University of Primorska, Institute for Archaeology and Heritage)
Format: Oral

Humans have inhabited Southern Herzegovina since prehistoric times; however, palaeoecological analyses of human impact on the environment remain rare. We present a palaeoecological study from the Dabarsko polje area, using pollen, NPPs, microcharcoal, LOI, and XRF, with a focus on the Medieval and Modern periods. Methodologically, this research addresses the challenges of working in a karst polje, with its complex hydrological regime and relatively rapid changes. Moreover, disentangling climatic and anthropogenic drivers of landscape change in a karst setting is often challenging; therefore, a multi-proxy analysis was necessary. Palynological results indicate an open landscape dominated by grasslands over the last 1,000 years. Low percentages of tree taxa are presumably due to a combination of continuous human impact, Mediterranean climate, and karst geomorphology, which limited (thermophilous) forest development. Anthropogenic indicators and NPPs suggest that grazing was the primary activity during the studied period. Pollen grains of the Cerealia type were present in only one sample; however, historical data indicate continuous agriculture in the area. This discrepancy is probably due to poor pollen dispersal of Cerealia type and seasonally flooded valley floors, which limited crop production and restricted arable cultivation to higher, better-drained terraces. Palaeoecological data show gradually drying conditions in the area over the last 200 years, with increased fire activity, the appearance of more aridity-tolerant taxa, and more oxidative conditions within the seasonally flooded valley floors. Overall, the results suggest that climatic variability strongly influenced land-use opportunities and economic practices in the karst environment.

1114. Using teeth as tools: dental wear and calculus micro-remains evidence for textile crafts in 15th–19th century skeletons from Romania

Authors: Paul Donciu – Ozana Ciorpac-Petraru – Mihaela Danu ("Alexandru Ioan Cuza" University of Iași, Faculty of Biology, Iași) – Ana Drob (Arheoinvest Center, Department of Natural and Exact Sciences, Iași) – Aurel Stănică ("Gavrilă Simion" Eco-Museum Research Institute,Tulcea) – Luminița Bejenaru ("Alexandru Ioan Cuza" University of Iași, Faculty of Biology, Iași | "Olga Necrasov" Center of Anthropological and Biomedical Research, Iași)
Format: Oral

Dental wear can offer valuable insights into non-dietary activities and the behaviours (e.g., everyday craft practices), in which the teeth were used as tools. Although there are many studies addressing activity-induced dental modifications (AIDMs) in past human populations, knowledge on this topic remains limited in Romania. This study focuses on the analysis of activity-induced dental modifications and dental calculus micro-remains in two human skeletons recovered from a necropolis of 15th–19th centuries associated with the "St. Athanasius" Church in Niculițel (Tulcea County, Romania). Dental surfaces were examined through low- and high-magnification optical microscopy and scanning electron microscopy. The anthropological study revealed that the two skeletons belonged to young adult females. Distinct grooves with smooth walls and parallel microstriations were recorded on the second incisors, suggesting repeated non-masticatory use of the anterior dentition. The morphology and orientation of these features are consistent with the manipulation of flexible materials, most plausibly fibres involved in textile-related activities. Also, multiple chipping features on anterior teeth probably resulted from task-related behaviours. Microscopic analysis of dental calculus revealed preserved textile fibres of plant and animal origin, including hemp, flax, cotton, and wool, providing direct evidence of contact with textile materials. These findings suggest a possible association between fibre preparation activities and female individuals. This study is the first in Romania correlating AIDMs with micro-remains found in human dental calculus. Activity-induced dental modifications associated with fibre manipulation have been documented in several archaeological populations across Europe, including Bronze Age communities in Iberia and Portugal and prehistoric populations in Italy; however, evidence from southeastern Europe remains limited. The results support the potential of dental evidence for exploring non-dietary behaviours in archaeological contexts; specifically, the dental wear, and calculus micro-remains allowed the reconstruction of everyday textile-related practices during the Ottoman and early modern periods in southeastern Romania.

24 TOUCHING THE PAST: EXPLORING THE COGNITIVE, EMOTIONAL, AND SOCIAL VALUE OF ARCHAEOLOGICAL HERITAGE IN CONTEMPORARY SOCIETY

Theme: 3. Museums and cultural heritage in the era of 'permacrisis'
Organisers: Laura Sarli (GAE Engineering) – Marianna Negro (University of Cambridge) – Aura Piccioni (Universität Trier)
Keywords: Archaeological heritage, Museums, Well-being, Engagement, Cognitive stimulation, Emotional stimulation
Format: Regular session

SESSION ABSTRACT

This session invites contributions that explore and critically reflect on the multifaceted value of cultural and archaeological heritage in contemporary society, with a particular focus on its impact on individual and community well-being. Beyond their historical and aesthetic significance, archaeological finds can be powerful tools for engagement, inquiry, and learning. They can stimulate cognitive processes, foster curiosity, encourage social interaction, and contribute to improving physical and mental well-being. The material properties of archaeological objects imbue them with intrinsic value that inspires active thinking, imagination, and memory construction (Dodd – Jones 2014; Cobb – Croucher 2022). At the same time, heritage is inherently affective: it operates through emotions that shape both individual and collective identities, influencing how people connect with and interpret the past. Emotional engagement, rather than being secondary to cognition, often makes encounters with heritage meaningful and transformative. Yet affect is not neutral, it can foster empathy and inclusion but also perpetuate exclusion or legitimise specific narratives, raising ethical questions about how emotions are curated and experienced. Recent studies show that heritage- and arts-based activities in museums, hospitals, and care homes provide valuable cognitive and emotional stimulation, offering people meaningful occupations, learning, and promoting well-being (Sweetman – Hadfield 2018; Sweetman et al. 2020; Paddon et al. 2014; Ander et al. 2012). Museums such as the Egyptian Museum in Turin (Liberi di imparare project) and the Etruscan Museum of Villa Giulia in Rome (ParkinZone project) exemplify this potential through inclusive outreach programmes for hospitals, prisons, and marginalised communities. This session therefore seeks to address questions such as how do the physical and affective properties of heritage evoke empathy, curiosity, or healing? How can emotional engagement complement cognitive understanding? And how might heritage professionals navigate the ethical dimensions of affective interpretation to promote care, inclusion, and social connection?

CONTRIBUTION ABSTRACTS

104. Archaeological Heritage and Well-Being: Multisensory and Participatory Museum Practices

Authors: Laura Sarli (GAE Engineering)
Format: Oral

This paper offers a critical reflection on the evolving function of museums, according to the ICOM definition (2022), emphasising the role of cultural heritage in fostering individual and collective well-being. Drawing on the etymology of the term museum from the Greek Mouseion, the study highlights the museum's vocation as a space for inspiration, memory, and intellectual growth. The paper explores how participatory and multisensory engagement with heritage can enhance emotional, cognitive, and physical well-being by promoting memory retention, self-expression, and emotional responses. By actively engaging individuals in practices connected to heritage, museums can facilitate meaningful experiences that strengthen emotional connections to the past and present (Everill – Burnell 2022; Marinetti 2014). An increasing body of research highlights a positive correlation between engaging with cultural and archaeological heritage and improved mental and physical health. Engaging with heritage has been shown to reduce stress, improve mood, and foster a sense of purpose, with beneficial effects on overall health outcomes. (See, for example, the project L'arte cura, developed in collaboration with the Museo Egizio di Torino; the programme for visitors with dementia hosted by the Benaki Museum in Athens; the project Dance Well. Ricerca e movimento per il Parkinson, hosted by the Museo Etrusco di Villa Giulia in Rome). Finally, as part of the CARMEN project on Carmina Latina Epigraphica, the paper proposes a reflection on innovative strategies for presenting Latin verse inscriptions through interactive and participatory approaches. These methods would aim to communicate the epigraphic heritage while improving visitor understanding and accessibility to the Latin language and culture. They also take into account the potential of poetry to generate psychological and physical well-being and improve memory. Ultimately, the study conceptualises archaeological heritage as a dynamic and living process, through which ancient artistic and life expressions continue to inspire and enrich contemporary life.

1641. Sensing the Past: New Directions for Archaeology in Dementia Care

Authors: Alison Hadfield (Independent scholar | St Leonard's Associate, University of St Andrews)
Format: Oral

A broad range of geriatric and museological research indicates that artefact handling plays an important role in dementia care, offering multisensory stimulation, peer support, intellectual challenge and personally meaningful activity (D'Andrea et al, 2022; Camic et al, 2017). Until now, however, archaeological collections, have rarely been used as a stimulus, providing an impetus for my doctoral research, 'In Touch with the Past: A Sensory Approach to Objects, Memory and Wellbeing' (Hadfield, 2025). This asked whether archaeology might perform a unique therapeutic role, through its age, aura and unfamiliarity, when compared to the 20th century material which many museums rely upon for reminiscence. Drawing upon museum visitor studies and experimental psychology, it also sought to identify the advantages and disadvantages of physical and digital representations of the past from the perspective of people living with dementia and their carers. In this paper, I will present the findings of my experiments, conducted with 91 participants in Scottish memory groups and reflect upon the role of archaeology to connect their lives to much longer narratives of time and place. I will also discuss the practical challenges of interdisciplinary research, including the need to balance scientific rigour and ethical procedures with the delivery of engaging, person-centred activities. Finally, I will share insights gained by piloting my new observational tool which is aligned with the New Economic Foundation's Five Ways to Wellbeing Framework, offering an inobtrusive approach to evaluation.

1713. Spectacle, Affect, and Well-Being: Performing the Past at Archaeological Festivals in Poland

Authors: Michal Pawleta (Faculty of Archaeology, Adam Mickiewicz University in Poznań)
Format: Oral

Archaeological festivals - widespread in Poland and increasingly popular across Europe - constitute a distinctive form of heritage engagement and storytelling, in which the past is experienced through archaeology in ways that extend beyond traditional cognitive and discursive modes of interpretation. These events create immersive narrative environments structured around scenarios of past events, blending elements of fact and fiction, and presenting material culture through embodied, sensory, and affective experiences. Archaeological festivals rely heavily on visual imagery, performance, reenactment, staged demonstrations, and multisensory participation. In doing so, they activate emotional and affective responses - such as curiosity, excitement, empathy, and a sense of connection - that play a crucial role in how audiences engage with, interpret, and remember the past. Drawing on both existing literature and ethnographic research conducted during archaeological festivals in Biskupin and in Szwajcaria near Suwałki - including participant observation, in-depth interviews, and quantitative surveys with visitors and historical reenactors - this presentation explores how spectacle and performance function as powerful tools for public engagement with heritage. It is argued that archaeological festivals operate as performative spectacles, employing theatrical elements such as staging, actors, scenography, and props to construct emotionally resonant narratives of the past. These affective and embodied encounters foster social interaction, shared experiences, and a multisensory form of learning that can contribute to participants' sense of well-being and meaningful engagement with heritage. At the same time, the paper critically reflects on the ethical dimensions of such affective interpretations, examining how spectacle may privilege certain narratives of the past while marginalising others. By situating archaeological festivals within broader discussions on affect, emotion, and well-being in heritage practice, this contribution highlights both the potential and the challenges of using performative and affective strategies to promote inclusive, engaging, and socially meaningful connections with the past.

1211. "Sometimes, all you find is yourself" – Insights from the Danish Veterans in Archaeology Program

Authors: Thomas Mikkelsen – Christina Seehusen – Andres Dobat (Aarhus University)
Format: Oral

"Veterans in Archaeology" is a Danish community archaeology program that introduces military veterans suffering from psychological and moral injuries to amateur metal detecting, as a means of supporting mental- and physical wellbeing, personal empowerment, and social connectedness. The program consists of two tracks: 1) an intervention track focused on connecting participating veterans with a nationwide network of experienced volunteer "mentors" and 2) a research track that investigates the lived experiences of the veterans using qualitative ethnographic methods. The positive mental health benefits of intervention archaeology in general and avocational metal detecting specifically, are multifaceted and entangled, containing many elements that taken together contribute to increased mental wellbeing among the participating veterans. Metal detecting becomes an arena for flexible sociality with non-veterans, a concrete mindful practice that alleviates anxiety, stress and to a lesser extent the hyper-vigilance commonly associated with PTSD. While metal detecting does not cure PTSD, it becomes a strategy to manage symptoms and to regenerate. In the words of a participating veteran: "When I feel the pressure building up, my thoughts turning dark, I know I have to go detecting". Likewise, the veterans imbue the artifacts they find with multiple meanings and qualities. Some veterans feel shame and guilt because of what they did (or didn't) do as soldiers, others of their inability to participate in society, work and pay taxes. For some of those, found objects enter a moral economy, where finding, registering and handing them over to the local museums becomes almost a way of atonement, "paying back by contributing to our common history. I cannot do much, but I can do this". In short, psychologically injured veterans sometimes find more than just a stray object, or a site previously undescribed. They find a way to live with their injuries through the cocreation of shared heritage.

2589. Democratising Harm? Sexual Violence, Wellbeing, and the Digital Collection of the Rijksmuseum

Authors: Miyuki Kerkhof (Leiden University)
Format: Oral

Engagement with cultural heritage is often presented as beneficial for mental and physical wellbeing, and museums increasingly promote themselves as inclusive institutions. Yet digital heritage practices can unintentionally perpetuate inequalities and reproduce harm when sensitive subjects such as sexual violence are euphemised or recontextualised without care. This paper examines how the Dutch Rijksmuseum's digital collection mediates sexual violence through its cataloguing language, multilingual search functions, and visitor-generated content. Quantitative mapping of search results in Dutch and English was combined with qualitative interpretation of metadata descriptions, institutional tags, and interface pathways to analyse how depictions of sexual violence become visible or obscured. The results reveal systematic patterns, including euphemistic and sanitising language, inconsistent terminology across languages, and unmoderated visitor features that can expose users to triggering content. These patterns demonstrate how well-intentioned efforts to democratise digital heritage risk undermining inclusivity. This article proposes feminist ethics of care and trauma-informed approaches to digital heritage practices, prioritising non-euphemistic metadata, critical contextualisation of patriarchal structures, content warnings and points of pause, and community-based moderation of visitor features. Centring survivor wellbeing reframes digital heritage not as a neutral repository but as a care infrastructure, positioning museums as accountable to users and survivor communities.

1670. Playful Heritage: Engagement and Wellbeing through Minecraft Education

Authors: Francesco Ripanti (University of Birmingham)
Format: Oral

Archaeogaming enables diverse audiences to experience archaeological sites and artefacts in immersive and interactive ways, creating innovative opportunities to combine heritage interpretation with educational practice. Recent studies have shown that videogames function not only as digital playgrounds but also extend the possibilities of object-based learning and thematic storytelling. Examples such as the Discovery Tours part of the Assassins' Creed franchise and the RoMeinCraft project demonstrate the breadth of opportunities offered by videogames to foster collaborative participation and sustain public interest in archaeology. Building on these developments, this paper extends current discussions by exploring an emerging dimension of archaeogaming: its capacity to support wellbeing through playful, inclusive environments focusing on two cultural heritage landmarks. The Tower of Alaminos (Xeros River Valley, Cyprus) and the Vignale Castle (Tuscany, Italy), were recreated as independent worlds within Minecraft Education as accessible spaces for exploration, learning, and simple task-based interaction. In autumn 2024, the environments were embedded in a programme of activities tailored for diverse audiences, including primary schools, gaming sessions with university students and families, and workshops with members of a mental health service unit. Initial findings suggest that these Minecraft experiences not only enhanced outreach, but also contributed positively to participants' wellbeing, indicating a promising avenue for future research at the intersection of archaeology, digital heritage, and wellbeing. This work forms part of the Linking Community Archaeology and Wellbeing in the Mediterranean (LOGGIA) project, funded through a Marie Skłodowska-Curie Postdoctoral Fellowship by the European Union.

2218. Beyond the artefact: Relational archaeological heritage in contemporary museums

Authors: Alexandra Staniewska (Adam Mickiewicz University)
Format: Oral

Drawing on qualitative research conducted in Polish archaeological museums, I challenge object-centred understandings of archaeological heritage by foregrounding its processual, relational, and affective character. I examine how archaeological heritage should not be understood as artefacts carrying intrinsic meaning, but as something socially produced and sustained through narratives, interpersonal relations, and embodied experiences in everyday museum practice. I situate these considerations within broader challenges currently faced by museums, including declining visitor numbers and persistent difficulties in engaging new audiences. While many institutions respond to these challenges by adopting more narrative-driven or digitally mediated displays, this shift alone often proves insufficient. Based on interviews with museum professionals, I explore alternative strategies through which museums seek to sustain the social relevance of archaeological heritage, highlighting the role of emotional connection, embodied forms of engagement, and relational care in fostering long-term relationships between visitors and institutions. I argue that these practices are crucial for enabling the past to remain meaningful in the present.

1450. Experiencing the Past: Archaeological Imaginaries and Deliberative Heritage Making Today

Authors: Anja Mlakar (University of Maribor, Faculty of Tourism)
Format: Oral

This paper will explore contemporary processes of heritage making at archaeological and allegedly archaeological sites that are interpreted through spiritual and experiential terms. Focusing on archaeological imaginaries rather than empirical verification, the contribution will examine how certain places—ranging from archaeologically confirmed sites to perceived megalithic and so-called "energetic" locations—are experienced and described as sources of meaning, well-being, and healing in the present. Instead of approaching such interpretations as epistemic alternatives to archaeology, the paper will understand them within broader and inherently deliberative heritage-making processes, in which material remains, landscapes, bodily sensations, expert knowledge, and vernacular imaginaries all contribute to contemporary understandings of the past. Particular attention will be paid to how different actors negotiate and attribute heritage values to archaeological places. Empirically, the paper will be based on ongoing and exploratory research in Slovenia, especially in the Kozjansko region, where sites such as Rifnik combine archaeologically attested remains, contemporary religious practices, and vernacular spiritual interpretations, including narratives about megaliths and healing landscapes. Preliminary observations suggest that such practices respond to contemporary needs for stability, meaning, and well-being. At the same time, they reveal ongoing processes through which different understandings of the past are articulated, negotiated, and sometimes contested among heritage professionals, local communities, religious actors, and visitors. The paper will thus be based on an analytical distinction between epistemic validation and interpretive recognition. While archaeology retains authority over empirical claims about the past, other disciplines such as anthropology and heritage studies have a responsibility to analyse why and how alternative interpretations emerge, what social needs they address, and how they participate in broader deliberations over heritage values and meanings.

2746. Petroglyphs as Worldview: Prehistoric Visual Scenes and Alternative Ways of Knowing

Authors: Mariam Shakhmuradyan (Institute of Archaeology and Ethnography, Armenian Academy of Sciences)
Format: Oral

This paper draws on research into the Itsagir petroglyph corpus (Armenia) to examine how prehistoric petroglyphs articulate a coherent worldview grounded in direct engagement with landscape, animals, movement, and collective action. Rather than treating petroglyphs as art objects in a modern sense, the study approaches them as structured visual scenes and relational models through which past communities expressed how reality was understood, organised, and made meaningful. The paper contrasts these prehistoric visual worldviews with contemporary modes of perception shaped by mass media, digital circulation, and fragmented narratives. While modern images often mediate experience at a distance, the Itsagir petroglyphs emerge from embodied practice and shared communal knowledge. Through repeated scenes, conventionalised actions, and patterned compositions, they communicate values and priorities rooted in lived interaction rather than abstraction. Engaging with such petroglyphs today activates both cognitive and emotional processes, inviting slow observation, interpretation, and imaginative participation. This encounter offers not only historical insight but also an alternative way of relating to the world, with clear relevance for learning, reflection, and well-being. The paper also addresses the ethical responsibility of mediating these worldviews carefully, avoiding romanticisation while recognising their potential to challenge contemporary assumptions and foster deeper, more meaningful engagement with the past.

387. The Museum as a Medium for Facilitating Science Communication: From aDNA to Puppy Yoga

Authors: Povilas Blaževičius – Sigita Mikšaitė (National Museum of Lithuania) – Giedrė Piličiauskienė (Vilnius University)
Format: Oral

In contemporary society, the funding of scientific research—particularly in the humanities—is often met with skepticism, with its practical value frequently questioned. Archaeology, however, has moved beyond the traditional boundaries of the humanities and now operates as an inherently interdisciplinary field, integrating bioarchaeological, chemical, and genetic methods. As a result, archaeological research outcomes have the potential to engage diverse audiences beyond academic circles. Despite this shift, science communication in the museum context remains a significant challenge. How can complex research methods—such as stable isotope analysis, radiocarbon (^{14}C) dating, and ancient DNA (aDNA) studies—be presented in ways that are both scientifically accurate and accessible to non-specialist audiences? How can museums foster curiosity rather than alienation when addressing sensitive materials, such as human and animal remains? This presentation examines a case study from the Lithuanian National Museum exhibition dedicated to the history of dogs, focusing on the museum as an active mediator of science communication. It analyzes strategies for presenting archaeological materials and research results through a three-tiered communication model, tailored to different visitor groups according to their informational needs and levels of prior knowledge. The paper argues that structured, audience-oriented science communication within museum exhibitions enhances public engagement with scientific research and contributes to greater trust in its societal value.

422. Archaeological Heritage as a Tool for Social Integration: The Case of the Belginum Archaeological Park

Authors: Aura Piccioni (Universität Trier) – Laura Sarli (GAE Engineering)
Format: Oral

In recent decades, museums have increasingly engaged in critical self-reflection, adapting their roles and practices to the profound cultural, economic, demographic, and communicative transformations of contemporary society. This shift is reflected in the new definition of the museum adopted by the International Council of Museums (ICOM) in 2022, which recognises museums not only as institutions dedicated to research and heritage conservation, but also as participatory, ethical, inclusive, sustainable, and community-oriented spaces. Within this evolving framework, museums are called upon to actively contribute to social well-being and community development. This paper explores the Archaeological Park Belginum in Germany as a case study exemplifying the social, economic, and integrative potential of contemporary museums. Particular attention is given to a project focused on social integration and the generation of both economic and personal well-being for the local community. The analysis focuses on the temporary exhibition Soziale Arbeitsmarktpolitik im Dienste von Tourismusförderung und Archäologie, held in 2006, which foregrounded the social significance of the Belginum Archaeological Park and made visible its broader impact beyond cultural heritage preservation. Since 1999, the project Vicus Belginum – Development of Archaeological Excavations for Touristic Purposes, organised by the municipality of Morbach in collaboration with the Citizens' Service of Trier, has provided employment and professional training opportunities, particularly targeting individuals facing long-term unemployment and multiple barriers to labour market integration. By creating synergies between archaeological research, tourism development, and social labour market policies, the project demonstrates how heritage initiatives can function as tools for social inclusion. The exhibition and the project as a whole highlight the expanded role of museums and archaeological parks as active agents in fostering economic development, social cohesion, and improved quality of life, reinforcing their relevance within contemporary society.

1885. Places in the making: participatory approaches to cultural heritage-led sustainable development of rural places

Authors: Ulrika Soderstrom – Anna-Karin Karlsson (Kalmar County Museum)
Format: Oral

In Sweden, there are several communities and places in the countryside that are experiencing an ongoing decline in development due to manual industries and local businesses gradually being decreased or completely discontinued. When struggling to counteract problems connected to, among others, declining population and growth, municipalities have discovered the potential of using heritage and archaeology in place making processes. But, as development with heritage and archaeology as a resource places great demands on processes being adaptive and responsive to the varying needs of local communities, there is also a need to develop heritage practices and methods that promote carefully designed living environments, accessibility, attractiveness, long-term sustainability, and well-being for local communities. This presentation focuses on the project "Places in the making" (2023-2026) in which Kalmar County Museum have been exploring new methods to working with cultural heritage and archaeology as a resource to promote sustainable rural development and community well-being in Bergkvara, a small coastal area in south-east Sweden. The project is based on cross-sectoral collaboration between actors with different roles and mandates in development processes to promote rural development, placing local cultural heritage and community engagement, participation and well-being at the forefront. Here, we draw on the various practices explored and discuss the results and lessons learned along the way.

646. What happens when you can't take your archaeology with you? The complex issue of migrant immovable cultural heritage

Authors: Heather Gill-Frerking (Carleton University, Department of Law & Legal Studies)
Format: Oral

Conservative calculations suggest that fifty million people will face internal displacement related to climate causes by the year 2050 (Durrani 2025, 2), with some estimates reaching 500 million total climate migrants by 2050 (Clements 2024, 10287). Many of those migrants move to, or hope to settle in, Europe. Each of those migrants faces a significant loss of personal, family, and community cultural heritage due to migration. As part of this, imagine losing archaeological past – your burial places, your archaeological sites, your dreaming sites, and many other connections to your past. This paper explores the practical and legal aspects of the archaeological heritage of climate migrants. It will address whether migrants have any legal rights to the archaeological heritage that they are forced to leave behind. Furthermore, the paper will examine whether there are any practical ways for a community to transfer its archaeological heritage to new locations, particularly in a new country, or even on a new continent. References Clements, Paul. 2024. International Climate Migrant Policy and Estimates of Climate Migration. Sustainability 16:10287. Durrani, Sardar Usman. 2025. The Great Climate Migration: 50 Million Projected by 2050. Available at SSRN 5370117.

417. 2500 Years Later: Archaeology and the Making of National Identity in Greece and Persia. Part I: Introduction and Greece

Authors: Nicolas Nicolaides (Centre for Asia Minor Studies) – Ehsan Behbahani-Nia (University of Wisconsin–Madison)
Format: Oral

Greece and Persia are two civilizations that co-existed for many years and dominated the narratives of the mid–first millennium BC. Their conflicts and interactions have long been told by historians and studied through their material culture. This paper shifts the focus to the modern nations of Greece and Iran. It examines how, 2500 years later, archaeological heritage functions not as a passive remnant of the past but as an active tool in the making of national identity in both countries. Adopting a comparative framework, the joint project focuses on two key archaeological sites: the Athenian Agora in Greece and Pasargadae in Iran. It explores how today Greeks and Iranians have developed selective engagements with their material remains, contributing to collective identity and national narratives. In both cases, the paper examines two interrelated factors: (1) the attribution of value to particular archaeological layers while others are ignored, removed, or destroyed to privilege an idealized "golden age"; and (2) the use of archaeological landscapes as stages for political legitimacy. The Athenian Agora, where democracy was born in the 6 th century BC, was continuously inhabited from antiquity through the modern period. However, it acquired a new and highly curated meaning in the 1930s through excavations led by the American School of Classical Studies at Athens. These interventions privileged the Classical period as a democratic "golden age," marginalizing or removing Byzantine, Ottoman, and modern layers, thereby creating a narrative that assigns value to certain remains while stripping others of it. The Agora, as a material memory of Athens' glory days, has also been used as a stage for political legitimacy, from the reception of King Otto in 1833 to the signing of Greece's EU accession treaty in 2003.

419. 2500 Years Later: Archaeology and the Making of National Identity in Greece and Persia. Part II: Iran and Conclusion

Authors: Ehsan Behbahani-Nia (University of Wisconsin-Madison) – Nicolas Nicolaides (Centre for Asia Minor Studies)
Format: Oral

A parallel dynamic can be observed at Pasargadae, the first capital of the Achaemenid Empire (6th Century BC) and the burial

place of Cyrus the Great. Known as a just and generous ruler, Cyrus is widely regarded as a symbolic father of the Iranian people. Yet Pasargadae, like the Agora, experienced a long and complex post-antique history. Following the fall of the Persian Empire, the memory of Cyrus gradually diminished, and his tomb was reinterpreted as the Tomb of the Mother of Solomon and later transferred into a mosque during the Atabakan period in the 13th century CE. Reidentified as the tomb of Cyrus by early European travelers, the site was subsequently re-framed within a nationalist narrative. In the 1970s, Islamic architectural elements around the tomb were removed in order to foreground an idealized pre-Islamic past. Pasargadae also became a stage for political legitimacy, where during the opening ceremony of the 2500th anniversary of the Persian Empire, Mohammad Reza Shah Pahlavi paid tribute to Cyrus the Great. Taken together, the two case studies demonstrate how archaeology, through processes of selection, erasure, and political performance, actively produces national meaning rather than simply preserving the past. By placing Greece and Iran in comparative perspective, the paper highlights the shared factors through which archaeological heritage severs as modern notational identity building, despite different historical and political contexts.

2164. Rediscovering Vučedol: How Archaeological Heritage Shapes the Experiences and Impacts the Minds, Emotions and Social Lives of Older Adults (65+)

Authors: Mirna Šuljug – Mirela Hutinec – Petra Rajtarević (Vučedol Culture Museum)
Format: Poster

Since its opening in 2015, the Vučedol Culture Museum (Vukovar, Croatia) has attracted a broad audience and established itself as a frequently visited public institution located on the eponymous archaeological site. Based on archaeological and multidisciplinary research, the museum's permanent exhibition presents the Vučedol Culture of the Eneolithic period (3000 – 2500 BCE) one of the most significant prehistoric cultures in Croatia, but also in Europe. This paper places particular emphasis on visitors aged 65 and older, who account for nearly 10% of the museum's annual visitors. According to museum staff and survey data, the sophisticated storytelling in the permanent exhibition evokes positive emotional responses among this age group and fosters a sense of belonging, thereby reducing feelings of loneliness and social isolation, especially among individuals in residential care facilities. In addition, under controlled conditions, the museum offers specially designed educational programs at the archaeological site and in museum workshops, where interaction with original archaeological artefacts is permitted. In this way, through tactile and visual engagement with artefacts from the past, these programs stimulate curiosity, pride, a sense of belonging, and continuity of identity. They also encourage narrative thinking and facilitate the connection between personal experiences and the collective past. The museum further extends its activities to other institutions, such as homes for the elderly and for people with disabilities. Program content is carefully developed to stimulate a range of fine motor skills and cognitive processes, including memory, attention, verbal abilities, and executive functions. Another distinct visitor group consists primarily of highly educated senior citizens who, during retirement, enroll in specialized archaeology study programs adapted to their age. By engaging directly with archaeological heritage, these individuals not only fulfill long-cherished personal aspirations but also actively promote and contribute to their own active and healthy aging.

26 BURIALS AND CEMETERIES IN THE 12TH–13TH CENTURY AD EASTERN MEDITERRANEAN: PERSPECTIVES FROM ARCHAEOTHANATOLOGY AND BIOARCHAEOLOGY

Theme: 8. Beyond the Middle Sea: rethinking the Mediterranean in motion
Organisers: Yves Gleize (INRAP | UMR 5199 PACEA University of Bordeaux) – Natalie Milanese Branca (The Cyprus Institute) – Elise Mercier (University of Poitiers | HeRMA UR 15071)
Keywords: Funerary Archaeology, Biological Anthropology, ancient DNA, Isotopes, Middle Age, Eastern Mediterranean
Format: Regular session

SESSION ABSTRACT

The 12th and 13th centuries AD witnessed intense transformations across the Eastern Mediterranean, as the region was reshaped by the Crusades, shifting political powers, large-scale population movements, and evolving religious and cultural dynamics. These changes are reflected not only in written sources and material culture, but also in the ways communities treated their dead. Cemeteries and burial practices offer valuable insights into the identity, belief systems, social structure, health, and lived experiences of past populations. This session brings together researchers working on funerary contexts across the Eastern Mediterranean—from Anatolia and the Levant to Cyprus and the Aegean—dated to the 12th and 13th centuries. By combining archaeothanatological approaches with bioarchaeological data, contributors will explore how burial practices varied across regions and cultures, and what they reveal about the relationships between the living and the dead. Papers will address a range of themes, including funerary architecture and spatial organization, body treatment and positioning, evidence of disease or trauma, and ritual practices associated with death and commemoration. The session aims to foster interdisciplinary dialogue between specialists in human osteology, field archaeology, and cultural history. It highlights the methodological advances in archaeothanatology and bioarchaeology that allow for more nuanced reconstructions of past funerary behaviours, as well as broader interpretations of social identities, religious affiliations, and intercultural contacts in a time of significant geopolitical change. By focusing on the Eastern Mediterranean as a zone of

interaction, conflict, and coexistence, this session offers a comparative perspective on how different communities understood and navigated death and burial in the medieval world. Ultimately, it seeks to move beyond typological or descriptive studies, encouraging integrated analyses that place the human body at the centre of archaeological inquiry.

CONTRIBUTION ABSTRACTS

1424. At the Edge of the Sea: Coastal Erosion and the Atlit Medieval Cemetery

Authors: Mathilde Mura (Aix Marseille Université, CCJ, CNRS)
Format: Oral

The Medieval cemetery of Atlit (Israel), dated to the XIIIth century, is a key funerary assemblage for the study of Eastern Mediterranean populations during the Crusader period. Yet, beyond its archaeological significance, the site has been affected by major taphonomic processes and for at least a century by the evolution of the shoreline. Historical sources and early observations indicate that parts of the cemetery had already been destroyed by costal erosion as early as the 1960s, making erosion a long-term and enduring factor in the transformation and partial loss of this funerary landscape. This paper presents the results of a collaborative research conducted as part of the Patrimoine en Péril workshop, an optional workshop within the Master's program in Archaeology and Archaeological Sciences at Aix-Marseille University. The study focuses on documenting and assessing the impact of coastal erosion on the Atlit cemetery through a diachronic analysis of aerial photographs and satellite imagery. By constructing a temporal image series spanning several decades, the research reconstructs the evolution of the coastline adjacent to the cemetery and identifies phases of accelerated land loss. The spatial analysis highlights the progressive destruction and exposure of burial areas due to marine erosion, allowing the identification of zones most affected and those currently at highest risk. These results provide a clearer understanding of the scale and tempo of damage impacting the cemetery and contribute to the broader discussion of site formation, post-depositional processes as well as risk management and heritage protection. This approach offers an essential contextual framework. By documenting long-term taphonomic processes driven by coastal dynamics, this research emphasizes the necessity of integrating heritage risk assessment into the study of costal heritage sites in the Eastern Mediterranean and highlights the value of remote sensing and pedagogical collaboration for monitoring endangered sites.

735. The Extramuros Medieval Cemetery of Atlit: New Insights into Funerary Practices in the Latin Kingdom of Jerusalem (12th-13th c.)

Authors: Yves Gleize (INRAP) – Chloé Lacourarie (Service Archéologie Indre-et-Loire) – Elise Mercier (University of Poitiers) – Emeline Retournard (UR 1001 CHEC/TextrinArcheo) – Camille Bouffiès (Pôle Recherche de Nantes Métropole)
Format: Oral

The medieval cemetery of Atlit is an extensive extramural funerary area located on the Levantine coast of the eastern Mediterranean, in the vicinity of the Château Pèlerin, built in 1217–1218 and occupied by the Templars until 1291. This cemetery constitutes a key source for the study of funerary practices, cultural traditions, and populations of the Latin Kingdom of Jerusalem during the Crusader period. Since 2015, an interdisciplinary research programme combining archaeology, archaeothanatology, and bioarchaeology has been investigating this funerary space, providing substantial new data on burial practices at the site. This paper presents a synthesis of the results obtained on funerary practices. Numerous engraved grave markers attest to a clear intention to mark, perpetuate, and differentiate certain burials. However, the intensive use of the cemetery—apparently over a relatively short period of less than a century—led to the destruction of some surface markers and to the frequent intercutting of sepulchral pits. Archaeothanatological analysis makes it possible to specify the modes of body deposition, which predominantly involve covered pits and, more rarely, coffins or wooden formworks. Body positioning appears highly standardized across the cemetery. In addition, the presence of associated remains, such as ceramics and textile fibres, provides further insights into funerary gestures and practices. Considered at the scale of the entire site, these data contribute to a broader discussion on the organization, use, and social meaning of this imposing extramural cemetery within the Latin Kingdom of Jerusalem.

1363. Beyond the Pelvis: Sex Determination and Burial Population at the Medieval Cemetery of Atlit (12th–13th c.)

Authors: Chloé Lacourarie (Service Archéologique Départemental d'Indre-et-Loire) – Yves Gleize (INRAP) – Camille Bouffiès (Pôle Recherche de Nantes Métropole) – Fanny Mendisco – Marie-France Deguilloux (PACEA)
Format: Oral

The extramural cemetery of Atlit is contemporaneous with Château-Pèlerin, a Templar fortress built in 1217–1218, and the last Latin stronghold in the Levant before its abandonment in 1291. Since 2015, the cemetery has been investigated through an interdisciplinary research program combining archaeology, archaeothanatology, and bioarchaeology, providing an extensive dataset for the study of funerary practices in the Crusader Middle East. Bioarchaeological data are central to understanding the organization, identity, and burial population, defined here as the composition and selection of individuals interred in the cemetery. The generally good preservation of skeletal remains has allowed primary sex diagnosis for a substantial proportion of individuals, based on pelvic morphology and metric criteria. However, the intensive use of the cemetery over a relatively short time period, as indicated

by numerous overlapping burials, has resulted sometimes bones in secondary position and absence of pelvic bones, limiting the applicability of primary osteological methods. To address these limitations, complementary approaches have been progressively implemented. Secondary sex diagnosis, based on statistical models derived from metric data from other anatomical regions -particularly long bones- has significantly increased the number of individuals for whom sex could be estimated. In addition, genetic analyses conducted on selected skeletons have enabled the determination of genetic sex for individuals lacking both pelvic elements and sufficiently preserved long bones. This paper presents a synthesis of the results obtained through the combined use of primary osteological diagnosis, secondary metric approaches, and palaeogenomic analyses. These integrated data provide renewed perspectives on burial population at Atlit and, more broadly, on the role of Château-Pèlerin not only as a Crusader fortress, but also as a place of reception for pilgrims and a focal point for surrounding communities.

543. Diversity of Crusader settlements in the Latin East: Multi-isotopic analysis of human remains from the medieval necropolis at Atlit

Authors: Natalie Branca – Gwenaëlle Goude (CNRS, AMU, Minist. Culture, LAMPEA) – Aurélia Borvon (CNRS, UMR 7041 ArScAn & Oniris VetAgroBio) – Juliette Knockaert (CNRS, AMU, Minist. Culture, LAMPEA & CNRS, UPVM 3, UMR 5140 ASM) – Abel Guihou – Hélène Mariot – Pierre Deschamps (AMU, CNRS, IRD, CdF, INRAE, CEREGE) – Yves Gleize (Inrap, UMR 5199 PACEA, University of Bordeaux)
Format: Oral

The medieval necropolis of Atlit is the largest and best-preserved Crusader-period funerary site in the Latin East, estimated to contain over 1,900 graves. Located near the Templar fortress of Château Pèlerin (Pilgrim's Castle), which functioned as a Crusader stronghold during the 13th century (c. 80 years), the cemetery has traditionally been interpreted as a Frankish burial ground. However, more recent archaeological investigations by a team from the Inrap and the University of Bordeaux, with support from the Ministère de l'Europe et des Affaires Étrangères and the French Research Centre at Jerusalem, have revealed considerable variability in funerary practices and material culture, suggesting a more heterogeneous population than previously assumed. In this context, this paper presents the results of isotopic analyses as an additional line of evidence contributing to ongoing research at the site. Bone and tooth samples were analyzed for Carbon (C), Nitrogen (N), Sulfur (S), Strontium (Sr), and Oxygen (O) isotopes to investigate dietary practices and patterns of mobility. Modern and archaeological faunal remains were also analyzed to establish local isotopic baseline signatures, supplemented by paleoproteomic analysis of a single specimen enabling broad taxonomic classification. The first C, N, S results support recent reinterpretations of the site, highlighting population diversity and complex patterns of interaction. Future analysis of additional samples from Atlit, as well as from contemporaneous sites in the region, will further refine our understanding of Crusader interactions with local communities in settled regions. The medieval necropolis of Atlit, like many archaeological sites in the region, is currently threatened by climate change and regional political instability, and the multidisciplinary approach adopted in its investigation—beyond its timely nature—represents an effort to preserve the narrative of this cultural heritage site for future generations.

591. The Parish Church of Atlit (Israel) and its burials: An Archaeological reassessment of a late 13th century Latin Funerary Context.

Authors: Elise Mercier (University of Poitiers - UR 15071)
Format: Oral

In the second half of the thirteenth century, shortly before the fall of the Latin Kingdom of Jerusalem, the fortified town of Atlit offers a valuable case study of funerary practices in a period of political and military instability. Nevertheless, the parish church of Atlit, built late in a fortified suburb and never finished, received several burials in its cemetery, as well as one grave integrated into a floor of the nave, probably shortly before the abandonment of the site. Nearby, the castle church, which contained no burials but the relics of Saint Euphemia, formed an important and independent religious centre and seems to have influenced the funerary organization to the suburban church. This paper proposes an archaeological re-examination of the burials associated with the parish church previously mentioned, based on a data from excavations carried out in the 1930s. The study focuses on the body position, orientation, and the apparent absence of coffins, to reconstruct funerary gestures and the spatial organization of the graves, despite the limits of these early sources. Special attention is given to the burial in the church, whose orientation does not strictly follow the axis of the building and appears to establish a symbolic relationship with the nearby castle church. Comparisons with contemporary sites, such as Caesarea Cathedral and other Latin contexts from the late 13th century, place the tombs associated with the parish church in a larger reflection on the persistence and adaptation of preferred funerary practices. By placing the body at the centre of the analysis, this study highlights the contribution of archaeothanatology to a better understanding of medieval funerary practices in the eastern Mediterranean.

1764. Changes in repetition: Medieval burial practices at the Templar Church in Gora, Croatia

Authors: Juraj Belaj (Institute of Archaeology in Zagreb) – Filomena Sirovica (Archaeological Museum in Zagreb) – Željka Bedić (Institute for Anthropological Research) – Tea Kokotović – Sebastijan Stingl (Institute of Archaeology in Zagreb) – Marijana Belaj (Faculty of Humanities and Social Sciences, University of Zagreb)
Format: Poster

The Church of the Assumption of the Blessed Virgin Mary, situated in the village of Gora in Croatia, was constructed in the late 12th or early 13th century by the French members of the military order of the Knights Templar. Whether originating from France or the Eastern Mediterranean, upon their arrival, the Templars demolished an older church and erected a new knightly church. Archaeological excavation conducted around this church led to the excavation of numerous graves. The area was used as a cemetery from the beginning of the 11th until the end of the 18th century. Analysis of grave characteristics, which reveal clear shifts in funerary practice, has enabled the identification of five distinct burial phases, confirmed by numerous radiocarbon dates. Within this chronological framework, the appearance of graves in which larger stones were placed along their edges is a notable feature. This practice, well-documented in numerous medieval cemeteries across Central Europe, indicates the intentional, preconceived formation of the grave during interment. At Gora, this type of graves occur almost exclusively within the first two burial horizons. The first horizon spans the 11th and 12th centuries and is associated with an earlier Romanesque church, while the second corresponds to the 13th century, during which interments took place around the Templars' Gothic church. Although this was a period of attested socio-political changes, the recurrence of this practice persisted over three centuries. In both established burial phases, the practice is characterised by a general scarcity of grave goods. However, specific characteristics can be identified which testify to changes in certain customs. Based on an analysis of these finds and their correlation with the bioarchaeological data from the deceased, the authors explore the potential meanings and motivations behind this centuries-long practice and its enduring survival regardless of attested socio-political shifts.

2700. Ancient DNA on a cemetery level in Eastern Mediterranean: ancestry, relatedness, and potential

Authors: Zuzana Hofmanová (Masaryk university Brno)
Format: Oral

Practices related to reproductive behaviour have only recently become visible as a potential mechanism in the organisation of post-Roman societies. Recent systematic research on entire burial communities, integrating archaeological, anthropological, isotopic, historical and large-scale genetic information, offers multi-generational perspectives on Late Antique and Early Medieval communities. By its nature (especially for genetics), reproduction is intrinsically tied to these datasets, yet the long-term social role of reproduction (likely marriage) practices in shaping local identities has only begun to be explored. Archaeogenetic evidence suggests that formation of reproductive unions may have contributed to local identities in Central Europe. Relatedness analyses identified enduring relatedness units associated with specific cemeteries and settlement areas lasting up to 9 generations. At the same time, systematic exogamy appears to have regulated the incorporation of non-local individuals in some communities. Elsewhere, neighbouring communities remained genetically distinct despite close spatial proximity, a differentiation likely maintained through deliberate inclusion and exclusion within marriage networks. Relatedness links can be seen also over large distances showing the investment into marriage networks through the sheer space involved. At the same time, local upheavals in the communities could be associated to the shifts in paternal lineages, which may reflect local political realignment rather than any large population replacement. Reproductive networks seem to be heavily tied to markers of social status but interestingly not only linking individuals of the same status together but potentially even showcasing cases of deliberate construction of kinship for purposes of shaping social status. Reproduction and marriage unions between communities and social groups can be seen not as decisions of single individuals but as a communal social practice with long-term influence on cooperation, social and spatial boundaries and belonging. This approach invites further discussion on the analytical value and limits of integrating archaeogenetic data into interpretations of post-Roman Europe.

27 COLLECTIONS IN THE SHADOWS: PEOPLE, PLACES, POSSESSIONS AND PURPOSE IN DORMANT COLLECTIONS AND HERITAGE INFRASTRUCTURES

Theme: 3. Museums and cultural heritage in the era of 'permacrisis'
Organisers: Laura Thompson (University of Manchester) – Arianna Magyaricsová (University of Glasgow) – João Sequeira (University of Coimbra)
Keywords: Dormant Collections, Heritage Infrastructure, Responsibility and Ethics, Memory and Identity, Digital Reactivation, Cross-sector Perspectives
Format: Regular session

SESSION ABSTRACT

Archaeology is inherently political, with stories often told by those disconnected from their cultural contexts. As researchers, we hold a responsibility to the people, places, and things we study, but what happens when material culture becomes detached from those it belongs to? Across museums, universities, archives, and heritage sites worldwide, countless archaeological, ethnographic, natural history, teaching, and world cultures collections lie dormant, overlooked, or under-documented. Plagued by ethical, legal, financial, and moral considerations, these assemblages are more than residues of past practices; they are part of the hidden infrastructures of heritage that continue to shape research, teaching, institutional identity, and public engagement. Our session repositions such dormant collections and sites as active spaces for rethinking responsibility, memory, and relevance in the present, and invites

critical, inclusive, and imaginative approaches to material culture and built heritage. We invite contributions that explore: - Heritage infrastructures: Dormant collections as the unseen systems that underpin archaeological and heritage knowledge. - Ethics and responsibility: Institutional obligations towards forgotten holdings; issues of restitution, repatriation, and contested heritage in colonial, wartime, or extractive contexts; legal and policy challenges. - Institutions, memory, and identity: Forgotten collections as windows into disciplinary histories, biases, and silences, from teaching assemblages to national stores. - Digital reactivation: Digitisation, storytelling, and computational methods as strategies for rediscovering and reimagining dormant holdings, including collaborations with communities through digital archives. - Cross-sector perspectives: Insights from anthropology, art, natural history, and world cultures that broaden and challenge archaeological approaches. By bringing together archaeologists, museum and heritage professionals, policymakers, creative practitioners, and other stakeholders, this session seeks to highlight the significance of dormant collections as both challenge and opportunity. It asks how these dormant collections and hidden infrastructures can be ethically reactivated to shape more inclusive, responsible, and resilient futures for heritage.

CONTRIBUTION ABSTRACTS

2013. Stories of Gold and the Silent Archives

Authors: Mikael Eboskog – Roger Nyqvist (Bohusläns museum)
Format: Oral

Dreams of the past are powerful. Once formed, they tend to outlive both the contexts in which they emerged and the sources on which they were originally based. In archaeology, such dreams often solidify into narratives that are repeated until they are no longer questioned. The grave at Lilla Jored in Sweden is widely presented as one of the wealthiest burials. From the outset, the narrative of the grave was constructed around a small number of gold objects, which quickly came to stand in for its overall significance. Although the archival record preserves a rich and underutilised body of evidence capable of supporting a far more complex interpretation, attention has for more than two centuries remained fixed on the gold. Other elements of the burial - including grave construction, associated materials, and contextual observations - quickly disappeared from the story line. By re-examining the archival documentation, this paper demonstrates that the material and documentary record offers a substantially more nuanced understanding of the grave than that conveyed through its dominant representations. The continued emphasis on gold illustrates how visually and symbolically powerful objects can narrow archaeological storytelling, while the evidential possibilities preserved in archives remain largely unexploited. Using Lilla Jored as an example, the paper argues for the necessity of integrating archival research more fully into archaeological narratives, particularly within museum displays and public history formats, to produce interpretations that are both more complex and more source critical. This paper shows how archaeological narratives may become circumscribed by gold, allowing a small number of objects to define both meaning and value of the narrative, while the broader evidential possibilities preserved in archives remain unheard. Returning to these silent sources makes it possible to expand narratives that have been narrowed by repetition and visual appeal.

2435. Awakening a Dormant Collection of Ancient Art in National Museum in Poznań

Authors: Wojciech Jeneralek (The National Museum in Poznań)
Format: Oral

The archaeological collection of the National Museum in Poznań comprises approximately one thousand artefacts from the Mediterranean basin, assembled since 1899 following the establishment of the Kaiser Friedrich Museum in Poznań, under Prussian rule from 1793, produced a museum embedded in colonial and Kulturkampf politics. This Prussian provenance contributed to the collection's prolonged „dormancy" as an under-displayed assemblage. The Kaiser Friedrich Museum presented a linear art-historical narrative from Predynastic Egyptian art to modernity, positioning German culture as the inheritor of classical antiquity. Ancient material culture functioned ideologically within the museum's visual, architectural, and curatorial programmes, aligning with Germanisation policies in Greater Poland. After World War I the collections were incorporated into polish institution, yet Mediterranean artefacts remained peripheral. Although a Department of Ancient Art was established in 1945, the absence of permanent exhibition, stable curatorial posts, and sustained research infrastructure prolonged dormancy. A permanent display opened only in 2011 and closed in 2023. This paper examines the current phase preceding a new permanent Gallery of Ancient Art as a critical moment for rethinking on rethinking the new significance of this collection within the current programme of the National Museum in Poznań. The collection is now accessible via a study store with rotating displays and direct curator-visitor interaction, revealing hidden infrastructures of heritage production typically concealed from public view. This alternative mode of presenting a dormant collection - despite the absence of a permanent, conventional museum display provides full access to the material for scientific research and education, while simultaneously exposing the hidden infrastructures of archaeological knowledge production by allowing the public to engage directly with curators and volunteers in the Ancient Art Gallery. This approach makes visible the scholarly processes, institutional decisions, and ethical responsibilities that precede the formation of a permanent exhibition.

642. Discipline in Material Form: Re-activating the Postcolonial Afterlives of Wood and Water

Authors: Juewei Fan (University of Bristol)
Format: Oral

This research explores how wood and water, as material forms, reveal the ways in which colonial powers continue to discipline bodies and regulate behaviour. It examines how these materials, once dormant within colonial heritage, have resurfaced in contemporary contexts. This revival is not a neutral recovery of history. Instead, these formerly silent sites persist as politically charged spaces, where affective attachments and colonial ethics of order continue to provoke debates over authority and responsibility. The study investigates how such reactivations can be understood both as critical reflections on colonial legacies and as postcolonial forms of domestication, in which colonial governance continues through material practices, sensory regimes, and embodied conduct. The analysis juxtaposes two cases: woodcrafts of Shanghai Tushanwan Museum (formerly Tushanwan Catholic Orphanage) and water infrastructure of Beitou Hot Spring Museum in Taiwan. Wood facilitated shaping path, whereby missionary educational regimes moulded the moral subjectivities of marginalised orphans. Water underpinned regulatory training path, with hygiene and leisure infrastructures enforcing classed and gendered hierarchies, initially serving Japanese military elite before expanding into public sphere. After the collapse of colonial regimes, wood and water followed divergent historical trajectories. The narrative of wooden craftsmanship and related artefacts was interrupted by war and diaspora, receding from public visibility for nearly a century. Hot spring heritage, meanwhile, fell into dormancy through disuse, as its infrastructure was gradually marginalised by urban modernisation. In recent years, both have been re-excavated and re-coded through heritage revival, becoming re-articulated within local cultural narratives. Contemporary narratives frame wood as disciplined craft and water as fluid wellness, yet colonial logics persist not as overt forces but as haunting memories embedded in regimes of representation and perception. By repositioning these nearly forgotten collections as active interfaces of memory, the research contributes to pluralistic interpretations of postcolonial heritage and enriches urban heritage narratives.

976. From Storage to Significance: re-engaging dormant Museum collections in understanding past socio-political systems in northern Nigeria

Authors: Bolaji Owoseni – Abubakar Sule (Sainsbury Research Unit, University of East Anglia)
Format: Oral

This paper presents preliminary findings from British Academy Global Professorship research on early West Africa's socio-political development in northern Nigeria through the critical lens of museum collections. It examines how so called "dormant" archaeological and ethnographic holdings in Nigerian regional museums and the British Museum function as shadow heritage infrastructures; forgotten, rarely displayed, or community disconnected materials. They are seen as passive deposits of past research, where, when activated, they symbolise histories, responsibilities, and institutional power of historical negotiations. Drawing on archival sources and collaborative engagement with museum curators, the paper traces how objects from northern Nigeria have been classified, silenced, recontextualised, or confined to storage under the combined pressures of colonial legacies, postcolonial resource constraints, and shifting institutional priorities. These processes reveal the infrastructures: cataloguing systems, storage practices, funding regimes, and epistemological frameworks; that shape what can be known, taught, and remembered about West African pasts. The paper argues that re-engaging dormant collections requires both methodological innovation and a critical rethinking of museum authority, provenance, and community-centred heritage practice within global archaeology, offering a model for decolonial museum archaeological collaboration in West Africa. It concludes that by re engaging museum collections, new research offers opportunities to rethink archaeological responsibility, challenge extractive research traditions, and develop more inclusive modes of knowledge production, positioning the past northern Nigeria as a critical region in West African studies.

940. The Swelim-Omm Sety Letters: The Story of a Minor Step Pyramid, a British Egyptian High Priestess, and a Former Commodore

Authors: Courtney Crawford (The University of Alabama)
Format: Oral

In 1977, Dr. Nabil Swelim, a former Navy Commodore turned Egyptologist, discovered one of the seven minor step pyramids, Sinki, located 5.5 km southeast of Abydos. Although earlier scholars suggested the possibility of a site near Abydos, Sinki was not identified as a minor pyramid until Swelim. Throughout his career, Dr. Swelim developed a friendship with the well-known Omm Sety while traveling across Egypt. Although Omm Sety's beliefs were unconventional—she believed she was the reincarnation of a High Priestess of Pharaoh Sety I—many Egyptologists and the local Abydos community highly respected her. Her knowledge of Abydos and its surrounding areas helped Swelim interpret Sinki and understand its cultural significance to the modern Abydos community. The Swelim archival collection, housed in the Rare Books and Special Collections Library at the American University in Cairo, features personal letters exchanged between Swelim and Omm Sety, as well as photographs from her home in Abydos. Reviewing the collection reveals her importance in Swelim's early research and in the field of Egyptology. This study also references the letters to highlight the cultural significance of Sinki for modern Egyptians in the Abydos region. The letters describe Egyptian folklore and their interpretation of Sinki, emphasizing its cultural importance to their community. This paper highlights the significance of archival research in Egyptology and its role in the field's development. The Swelim-Omm Sety Letters and photographs offer context for how modern Egyptian communities connect with ancient sites. Furthermore, this collection documents Omm Sety, the eccentric British woman and Ancient Egyptian High Priestess who supported the work of Egyptian Egyptologists.

808. Waste Not, Want Not: Personal archives and unprovenanced collections as teaching and learning

tools in Higher Education

Authors: Laura Thompson (University of Manchester)
Format: Oral

How can you tell a story about the past when you don't even know where it starts? Sometimes we have to think outside the box... In 2023, The Museums Association declared the "clock is ticking" on archaeological archives with the demand for alternative uses for archival materials at the forefront of the UK heritage sector's agenda (Kendall, 2023). Three years on, we are still facing the same issues with unprovenanced and dormant collections remaining under-utilised and perceived as a burden. Concurrently, discussions around alternative teaching methods in archaeology have turned towards object-based learning and creative research skills proving the benefits of hands-on learning experiences (Wouter and Vansteenhuyse, 2025). The struggle comes in finding the learning materials and creating a meaningful way of interacting with them, embracing the stories of the archives and giving more autonomy to the learner. The Waste Not, Want Not project repositions these burdenous collections as an opportunity to re-excavate the archives and find new meaning in their mystery using the William Brice Archive housed at the University of Manchester, an under-explored multi-media map of the life and work of an ordinary man with an extraordinary story to share. To embrace the mysteries of this archive, I have developed four adaptable workshop frameworks using gamification and object-based learning methods in which participants can develop their creative research and interpretive skills using real stories and artefacts. With roughly two thousand largely unprovenanced artefacts ranging from prehistoric handaxes and pottery to 1940s newspapers, pressed flowers and colonial souvenirs, the William Brice Archive is an example of how creative uses of pedagogy can transform under-utilised dormant archives into valuable and unique teaching tools while sharing otherwise forgotten stories.

846. Dormant but not sleeping: archaeological collections in a XIXth Century sculpture museum

Authors: Nathalie Del Socorro (Musée Camille Claudel)
Format: Oral

According to the 2024 ICOM survey, 81% of museums in western Europe display less than 25% of their collections in permanent exhibitions. The majority of items in museum collections are rarely taken out of their storage. However, museums have the same obligations towards visible collections and those in storage: to preserve, interpret and promote the natural and cultural inheritance of humanity. The Camille Claudel Museum in France is a good example of this situation. Inaugurated in 2017, the permanent collection focuses on Camille Claudel and the sculptors of her time. Around 12 400 items remain in storage, over 8 000 of them belonging to the collection of archaeology. These items were excavated by a local archaeological society from the 1960s to the 1990s. Some were even exhibited in the permanent collections of the previous museum, until the early 2000s. Since the project of the new museum emerged, it became clear that choices had to be made to preserve a strong museographical identity. The archaeological collections could no longer be integrated in the narrative of the permanent exhibition. Ongoing efforts have been made by the museum in the past few years to finish documenting its dormant collections, registering items, assessing conservation and management issues. The scientific value of the archaeological collections has emerged, as well as reflections on alternative ways of communicating its existence to the public. Several projects were developed in order to re-create links with the local community, using the archaeological collection to give insights on everyday life in ancient periods.

886. The Unending Lives of Objects: Post-accession Biographies of the Tarsus Collection at Bryn Mawr College

Authors: Yusi Liu (Bryn Mawr College)
Format: Oral

In archaeology, object biographies have long facilitated historically and culturally contextualized interpretation of the past. More recently, this approach has gained prominence in the history of collecting, supporting the reconstruction of provenance and contributing to restitution efforts. However, comparatively little attention has been directed towards the post-acquisition phases of archaeological artifacts. In this paper, I address this gap by examining the biographies of the Tarsus Collection after its accession to the Bryn Mawr College Special Collections in the United States. My aim is to open new avenues for revitalizing the frequently dormant archaeological artifacts held in university collections. Comprising more than 1,684 objects, the Tarsus Collection consists largely of unassuming objects, such as vessels, figurines, and adornments, all fragmentary, as well as archaeological illustrations. This collection was donated to Bryn Mawr College in 1972 by Hetty Goldman, collected from her Tarsus-Gözlükule excavations in Türkiye during the early 20th century. While the scholarly focus has often been on either Goldman's pioneering role as one of the first female archaeologists to direct excavations or her discovery of significant Bronze and Iron Age settlements at the site, little has been discussed around the legacy of the artifacts she collected and later bequeathed to the college. To remedy this neglect, I draw from inherited institutional legacy data, archival documents, and historiographical analysis to demonstrate how the collection acquired a new pedagogical identity and became incorporated into the intellectual journey of both students and scholars. Goldman's donation helped Bryn Mawr build a diverse archaeological study collection of materials that enables students to work directly with artifacts, which continuously generates research projects for them. By illuminating the often-overlooked yet inspiring stories embedded in these artifacts, I demonstrate how their post-accession trajectories reshape our understanding of the ongoing roles between archaeological objects and academic and museological communities.

1289. Heritage scattered and hidden in the shadow of legal helplessness. Case of an academic Plaster Cast collection

Authors: Monika Dunajko-Ceglińska – Hubert Kowalski (Faculty of Archaeology of the University of Warsaw)
Format: Oral

The paper is devoted to the historical Warsaw Plaster Cast Collection and the present state of its dispersal. This is the oldest collection of this type in Poland and, at the same time, one of the most valuable in Europe. Its origins date back to the reign of the last King of Poland, Stanisław Augustus, and his educational collection comprising nearly 600 casts, primarily of ancient works of art. In 1817, the collection became the property of the University of Warsaw, whose professors ensured its systematic expansion through the acquisition of new casts produced in renowned European workshops. The collection included both works known for centuries (e.g. Laocoön Group) and casts of newly discovered monuments (e.g. sculptures from Olympia). The development of the collection was linked to the formation of classical archaeology in Warsaw. From its establishment until the outbreak of the Second World War, the collection was regarded as an essential teaching tool used in courses on the art and culture of ancient Greece and Rome. It is worth mentioning Kazimierz Michałowski, the last curator of the collection, who based his teaching on casts. The collection was brutally divided by the outbreak of the WWII. The figures, as well as the documentation related to them, fell victim to Nazi vandalism. Some objects were destroyed, while others were dispersed among various institutions and left forgotten in basements. The Collection was never resumed in the form in which it had functioned for over a hundred years. The paper presents an attempt to bring the collection out of the shadows through the analysis of archival documents, iconographic material, and the casts themselves. It discusses the legal and ethical issues involved, as well as the responsibility of institutions that, for over 80 years, have been unable to return fragments of the divided collection.

682. Humanizing Industrial Archaeology - Legal and Ethical Dilemmas in the Musealisation of Industrial Ghosts

Authors: João Sequeira (Universidade de Coimbra)
Format: Oral

This contribution explores the ethical, legal, and conceptual challenges when engaging with archaeological collections that are not only dormant but, in some cases, entirely absent. Using my own fieldwork from my PhD research on abandoned industrial sites, I reflect on the materialities that were never officially collected, thus left were they lay. I consider how fragments of the worker's life, like graffiti, tools, debris, posters and stickers, can be reimagined within museum frameworks, even when the physical objects belong to someone that is still alive somewhere. With my own incomplete archive, I often question what it means to work with the idea of a collection rather than its material certainty. What are the ethical implications of institutionalising traces of labour when former workers or their descendants might still claim ownership—emotional, symbolic, or legal—over these remnants? Could the hypothetical musealisation of such artefacts be contested as an act of appropriation, especially when the community ties to these objects remain unresolved? Rather than offering definitive answers, this presentation raises questions about visibility, absence, and the power dynamics inherent in curatorial authority. It asks whether dormant or lost collections can be mobilised not as static evidence of the past, but as catalysts for ethical reflection and institutional self-critique. With this reflection, I'll try to get to a broader rethinking of collecting practices in contexts marked by erasure, ambiguity, and living memory.

426. Dormant Collections and the Practice of Interpretation: Rethinking Storage, Significance, and Stewardship in Scottish Archaeology

Authors: Arianna Magyaricsova (University of Glasgow)
Format: Oral

This paper explores how dormant archaeological collections function as infrastructures of disciplinary knowledge, shaping what becomes visible, knowable, and narratable within archaeology. Focusing on the A. H. Bishop Collection at the Hunterian Museum, Glasgow, it argues that dormancy is not merely a logistical state of storage, but an epistemic condition produced through patterns of collection, classification, and institutional memory. To examine this, object itinerary theory is applied as both a methodological and theoretical tool. Rather than reconstructing linear life-histories, itinerary analysis traces artefacts through contingent transitions including acquisition, circulation, accession, and reclassification. Combining material analysis with stratigraphic reading of labels and packaging, alongside archival research into correspondence and registers, the paper charts how artefacts have moved physically and epistemically from farm fields to museum drawers, embedding them within layered social and institutional frameworks. By reframing dormant collections as relational and historically contingent assemblages, the paper positions them not as static archives but as active archives of intellectual history, social relations, and curatorial judgement. It demonstrates how dormant holdings can be mobilised as methodological and theoretical laboratories for rethinking interpretive authority, institutional responsibility, and the futures of archaeological stewardship.

28 ARCHAEOLOGY AS PERFORMANCE: EXCAVATING, DISPLAYING, AND REIMAGINING THE PAST

Theme: 1. Widening perspectives in material culture studies
Organisers: Claudia Pizzinato (University of Cà Foscari - Venice | Associazione Nazionale Archeologi) – Roberto Zancan (HEAD-Geneve HES-SO) – Raffaella Bortolin (Associazione Nazionale Archeologi)
Keywords: experience, Performance, Displaying, Reimagining, excavation site, narrative
Format: Regular session
Affiliation: Public Archaeology Community

SESSION ABSTRACT

Historically regarded as a discipline of collection, documentation, and interpretation, archaeology has increasingly embraced the embodied, spatial, and dramaturgical dimensions of its practice. Since the 1990s, performance archaeology has challenged traditional paradigms by conceiving the excavation site not merely as a source of data, but as a temporal and material stage where knowledge, presence, and representation intersect. This session explores how performative approaches to archaeology open new spaces for reflection and experimentation, renewing our relationship with existing structures, heritage sites, and historical objects. By engaging with immersive devices, situated narratives, in situ activation protocols, and contemporary technologies of capture and representation—such as moving images, sound, and 3D modeling—these practices transform excavation into a form of spatial storytelling and embodied knowledge. Stratigraphy, tools, and site protocols become scenographic elements that communicate research in real time, revealing the excavation as a performance that speaks as much to the present as to the past. The session aims to examine this performative turn in archaeological practice, foregrounding the convergence of excavation, scenography, and spatial design. It will interrogate key questions: How does a site become a space for narratives? How does an artifact acquire agency within contemporary debates? Which voices, memories, and experiences are excluded, and how might they be rendered tangible? We invite contributions that engage with these themes and propose innovative approaches to archaeology as an embodied, critical, and experimental field—one capable of reimagining memory, materiality, and narrative through performative methods and creative research.

CONTRIBUTION ABSTRACTS

675. Too Boring to Be Wrong: How Archaeological Exhibitions Perform Credibility

Authors: Ana Solter (Archaeologica museum in Zagreb)
Format: Oral

Archaeology is increasingly discussed as a performative discipline shaped by public visibility, narrative expectations, and design-driven communication. Yet archaeological exhibitions frequently stand in stark contrast to this trend. Many displays remain visually austere, densely textual, weakly contextualised, oriented primarily toward professional or specialist audiences, and deliberately indifferent to contemporary exhibition design standards. Despite growing expectations of accessibility and visitor-centred mediation, such exhibitions persist — and continue to be perceived as credible and authoritative within the discipline. This paper argues that the perceived "ugliness" of archaeological exhibitions is not a failure of communication but a productive form of disciplinary restraint. Drawing on examples of exhibitions characterised by minimal design, dense typological presentation, and limited mediation, the contribution explores how aesthetic restraint functions as a signal of seriousness, authenticity, and scientific credibility. For certain audiences, these qualities generate trust and authority precisely because they resist entertainment, emotionalisation, and spectacle. Rather than positioning restraint and performance as opposites, the paper examines restraint itself as a performative strategy through which archaeological authority is constructed and maintained. By analysing why restrained and "unattractive" exhibitions continue to work — and in some cases actively appeal — this contribution highlights a central paradox of contemporary archaeology: while public engagement is increasingly demanded, professional legitimacy often remains grounded in practices of exclusion and controlled accessibility, shaping what archaeology is — and who is allowed to engage with it.

813. Graves and Tombs: Archaeological Research as Performance, Memory, and Shared Experience

Authors: Ctibor Ostrý (Department of History, Masaryk University, Brno) – Michal Vágner (Department of Archaeology and Museology, Masaryk University, Brno) – Petr Vachůt (Brno City Museum) – Zdeněk Skokan (Department of Archaeology and Museology, Masaryk University, Brno)
Format: Oral

This paper presents the documentary-research project Graves and Tombs as a case study of performative archaeology, approaching archaeological investigation not as the production of finalized knowledge about the past, but as a situated, contemporary practice in which meanings are actively constructed. Excavation and post-excavation analysis are treated as temporally unfolding and materially grounded events, made visible through documentary film and process-based storytelling. The project follows archaeological, historical, and anthropological research into high-status medieval burials and the subsequent ceremonial reburial of human remains. Rather than presenting results retrospectively, the research process is exposed in real time through situated narrative and in situ activation of sites. Excavation areas, crypt interiors, and laboratory settings function as temporal and material stages

where methodological procedures, interpretive uncertainty, expert disagreement, ethical tensions, and even failure become visible as integral parts of knowledge production. Scientific protocols and analytical tools operate as communicative elements structuring how archaeological knowledge is produced and understood. The interpretive framework is further developed through widely known historical narratives associated with Emperor Sigismund of Luxembourg and Henry of Lipé, used as shared reference points for examining disrupted memory, fragmentary evidence, limits of interpretation, and the ethics of working with human remains. Burial sites whose historical memory has been interrupted become reactivated as lieux de mémoire through acts of identification and ritual deposition, where research turns into event and place becomes a renewed memory node. Methodologically, the project combines performative archaeology, memory studies, digital imaging technologies, and moving-image representation with a participatory communication model described as "underground science," in which public screenings and debates function as epistemic infrastructures rather than mere outreach. The paper argues that such performative and media-based approaches reframe archaeology as an embodied, reflexive, and socially shared practice of knowledge-making.

5. Understanding the past through a theater performance using Virtual Reality

Authors: Selma Rizvic (University of Sarajevo, Faculty of Electrical Engineering) – Bojan Mijatovic (Sarajevo School of Science and Technology) – Jelena Andjelkovic - Grasar (Archaeological Institute Belgrade)
Format: Oral

Stecaks are the medieval monumental gravestones, typical for the Western Balkan region and protected by UNESCO. The monuments as well as their decorations for decades are obtaining the special attention of scientists and heritage experts, but somehow among the wider audience the real meaning of the symbols and their significance remain without the interest or often is used for pseudo-science speculations. Through the Creative Europe StecakLand project, the team introduced the theater audience to these symbols through a performance displaying the physical reality of the stage and the virtual reality of an imagined land where the symbols "live". This is one of the very few theater performances using VR technology and the first one that uses it as part of scenography and aiming interaction between the actors and the audience. In this presentation, the authors will elaborate on the production process, technology challenges, and deeply emotional reactions of the audience. Further, we will present the work of an interdisciplinary team of historians, archaeologists, playwrights, visual artists, set and make-up designers, VR and theater directors, music and sound designers, actors, and VR developers on creating a unique experience for the theater audience. The main value of the project is that this concept can be replicated in other case studies, connecting the historical information with public perception and reception through state-of-the-art digital technology.

205. Experimental Archaeology as Performative Mediation: From Hypothesis Testing to Museum Scenography

Authors: Adina Amăriuței – Maria-Cristina Ciobanu – Analisa Foca – Elena-Camelia Pintilie – Bogdan-Ștefan Novac (Faculty of History, "Alexandru Ioan Cuza" University of Iași) – Felix-Adrian Tencariu (Institute of Interdisciplinary Research, "Al. I. Cuza" University of Iași)
Format: Oral

This paper explores experimental archaeology as performative translation system that fluidly connects archaeological evidence, hypothesis testing, and museum display. It is argued that experiments yield two complementary outcomes: (1) systematic scientific data that validate or invalidate reconstructive hypotheses, and (2) experiential, sensory expertise – a form of material familiarity – essential for translating prehistoric technologies into credible public narratives. Drawing on the ExArIS group projects, this study demonstrates how this cycle operates. Experimental work generated not only controlled measurements (such as the thermal efficiency of single-chambered structures or the fuel-to-temperature ratio in updraught firing) but also an accumulated empirical competence (e.g. understanding how clay responds to stress in both construction and ceramics, or how thermal regimes produce specific chromatic gradients on the kiln). This sensory competence became the primary tool during the "museification" phase. This process is exemplified through two installations, both preceded by outdoor field experiments: one built in the Museum of History in Piatra Neamț, Romania (2024) and the other in the National Székely Museum in Sfântu Gheorghe (2025). In this context, we do more than reconstruct models of ancient objects and structures – we also revive patterns of behaviour, crafting immersive experiences and sensations that bring the past closer. We combined authentic materials (clay, firewood), unfinished vessels and tournettes with concealed lighting, and used pigments and textures to simulate kiln scarring – "performing" much of the ceramic chaîne opératoire for visitors. The real materials are themselves performative, lending authenticity and introducing a degree of unpredictability. Ultimately, this approach transforms the experimenter's tacit knowledge into a stage where the invisible labour, skills, and techniques of the past become tangible and comprehensible. The museum exhibit thus transitions from a sterile model to a mediated reality, bridging the gap between abstract archaeological data and the public's sensory perception of prehistory.

1655. Reviving the Past: Costume Reconstruction Shows Based on Research in Early Modern Church Crypts

Authors: Danuta Greding – Mikołaj Dobek (Nicolaus Copernicus University in Toruń)
Format: Oral

Historical costume reconstructions are today widely used as tools for visualizing the past, appearing both in the activities of historical

reenactment groups and in film and theatrical productions. In dominant public perception, such reconstructions are often regarded as faithful representations of historical reality, shaping collective imaginaries of past epochs. Archaeological research and analyses of garments uncovered in Early Modern church crypts, however, demonstrate that many established reconstruction schemes rely on simplifications or erroneous assumptions, leading to the reproduction of inadequate narratives about the past. For over a decade, archaeologists from the Nicolaus Copernicus University in Toruń have been developing an alternative practice in which costume reconstruction becomes a form of performative communication of archaeological knowledge. Costume reconstruction shows, organized on the occasion of the completion of crypt excavations, exhibition openings and conferences, take the form of performative events in which archaeologists - acting simultaneously as researchers, reconstructors, and performers - present accurate replicas of garments created based on specific archaeological finds. In this context, the researcher's body becomes a medium through which artifacts acquire contemporary presence and agency. Drawing on tools from performance studies and cultural studies, the paper analyzes costume reconstruction shows organized by researchers from Toruń as practices situated at the intersection of archaeology and performance. Using cultural analytical methods, the study examines the role of such events, their structure, and modes of reception. The analysis demonstrates how archaeologists, through these performative practices, not only transmit knowledge but also actively shape contemporary historical consciousness, revealing the performative potential of archaeological research.

1571. The Use of ICTs with regard to Novel Ways of Displaying and Reimagining the Past in Museums

Authors: Evren Sertalp – Erge Bütün – Ali Büyükkarakaya (Hacettepe University | Human Behavioral Ecology and Archaeometry Laboratory - IDEA lab)
Format: Oral

New technologies are driving rapid change and diversification in public archaeology activities. Archaeologists, particularly in collaboration with local communities for museum exhibitions, excavations, and research projects, have discovered that the use of these technologies brings unprecedented benefits to archaeological processes. Such technologies not only increase the general public's interest in cultural heritage but also strengthen support for its preservation. Concurrently with these developments, archaeological information is being disseminated in various creative ways, primarily through the use of information and communication technologies (ICTs). Utilized in public archaeology events, ICTs used in storytelling contribute to increasing audience engagement and public awareness regarding cultural heritage, as well as boosting interest in the world of archaeology. The exhibition on the ancient city of Juliopolis and its excavations, recently held at the Museum of Anatolian Civilizations (Ankara, Türkiye), exemplified these new forms of relationship well through its performative environment. Within this context, the Faces of Juliopolis exhibition, which utilizes new digital techniques, storytelling methods, and original stories, is an example of a contemporary exhibition concept. In the exhibition titled Faces of Juliopolis, reconstructions of the faces of people who lived in the ancient city, based on their remains, have been combined with new digital techniques. Using original stories based on historical narratives and various storytelling methods, a contemporary exhibition concept has been brought to life within the museum. This study discusses the use of ICTs in the context of their impact on the transmission of cultural heritage in terms of new narrative approaches, examining both the implementation details of this exhibition concept and the reflections obtained from museum visitors through interviews following their visit to the exhibition and online surveys administered one and a half months after the exhibition.

1928. Designing Immersive History: Projects, Visitors, and Experience

Authors: Küllike Tint (Tallinn City Museum)
Format: Oral

Immersive historical experiences are becoming increasingly prominent due to the growing range of technological solutions available. In contrast to monuments connected with recent history, archaeological sites often stem from distant and abstract periods, making them harder for visitors to comprehend and relate to. Nevertheless, the accumulation of thousands of years of history contributes to the site's uniqueness. Broader audiences may prefer forms of engagement that allow them to touch objects or reconstructions, listen to narrated histories, or experience the past through immersive virtual reality, potentially creating an emotional connection with the past (Kurisoo et al. 2024). In this presentation, I will discuss immersive historical experiences. I will begin by introducing some of my own visual and audio projects, developed in cooperation with performance artists for museum and archaeological/historical sites, together with observations based on visitor responses. I will then move on to my own experiences as a visitor. The aim of this presentation is to offer ideas and to spark discussion about what constitutes an immersive historical experience, whether it is fully achievable, and how much immersion a project or exhibition should include before the experience becomes overwhelming.

945. Citizen storytelling in archaeology: facilitating co-creative engagement with the past through narrativization

Authors: Sebastian Gerberg Høstrup (Aarhus University) – Laura Ahlqvist (Museum Vest)
Format: Oral

This project investigates citizen storytelling as an archaeological method: how narrative construction can surface contemporary perspectives on the past while prompting professional reflexivity about interpretation and narrativization. Building on the existing community infrastructure of DIME (Digital Metal Detecting), the project expanded the possibilities of public participation beyond data contribution by inviting citizens to become co-creators of archaeological narratives. Participants produced stories multimodally (text, audio, video and visual elements), which had to be linked to objects they had found themselves. The narratives are planned to be curated and disseminated as an open-access digital exhibition on the DIME website. Recruitment initially relied on open calls within metal detecting communities but generated limited engagement, necessitating a shift to more direct, personal outreach and facilitation. This challenge suggests persistent societal boundaries around who is perceived as authorized to narrate the past and indicates that citizen involvement in archaeological storytelling remains strongly dependent on professional encouragement and enabling structures.

534. Instant sharing in archaeological surveillance: a challenge

Authors: Claudia Pizzinato (Freelance | University of Cà Foscari-Venice)
Format: Oral

75% of archaeologists in Italy work as freelancers, and the majority of them in the field of civil excavations linked to the construction of new works, both private and public, of various kinds, aimed both at renewing the building stock and at upgrading or building from scratch infrastructures and underground utilities. Works that involve excavations very often, or almost always, entail the involvement of the freelance archaeologist; and very often from these excavations emerge materials, structures, traces of more or less ancient human activities. In Italy, finds are by law the property of the state, therefore of everyone, and they should be made accessible and visible to all, as the Faro Convention also teaches us—by some accounts already outdated (adopted in 2005, ratified by Italy in 2020, in reality never applied). But how can a construction site where excavations are underway for purposes very different from archaeological ones be made accessible? How can the local community, and not only them, be made part of the operations taking place under their balconies or in front of their front door? How can a temporary exhibition be organized that, like temporary shops, will have a very limited duration, since the execution of civil works cannot undergo overly prolonged suspensions? And how can any visit be made pleasant and understandable? How can it be publicized? The ethically responsible archaeologist knows that the true and ultimate purpose of their work is to communicate it to the public, to the whole community, to humanity. It would be wonderful to be able to show it as well, at least to those who have the good fortune, the opportunity, the interest to witness live a discovery that will add new pieces to the history of the place.

31 FORTIFICATIONS AND FRONTIER NETWORKS IN THE MEDIEVAL AEGEAN: EXPLORING DEFENSIVE STRATEGIES, CONNECTIVITY, AND REGIONAL DYNAMICS ACROSS SHIFTING BOUNDARIES AND PERIODS

Theme: 8. Beyond the Middle Sea: rethinking the Mediterranean in motion
Organisers: Georgia Delli (National and Kapodistrian University of Athens) – Christianna Veloudaki (University of Edinburgh)
Keywords: Fortifications, Networks, Aegean, Settlements, Medieval
Format: Regular session

SESSION ABSTRACT

From the 7th to the 13th centuries, the Aegean region experienced significant political, military, and economic shifts that reshaped its landscape. Fortifications—ranging from isolated constructions to complex networks—were constructed, adapted, or repurposed in response to changing threats, including Arab, Latin, and Turkish raids, and later Latin occupation. These fortifications were not merely isolated structures but often functioned as part of broader defensive networks, strategically positioned to control key maritime routes, mountain passes, and fertile plains. Their location reveals a deep understanding of geography, visibility, and communication. Crucially, this fortified world fundamentally altered the human settlement fabric of the region. The need for security often dictated a shift from dispersed agricultural communities to centralized, defensible settlements, impacting demographic distribution, local economies, and land-use patterns. This session will explore the multilayered role of fortifications across the Aegean frontier during this period, focusing on four interconnected themes: (a) the reasons behind their construction (e.g., coastal defence, urban protection, control of trade routes, etc.), (b) their impact on settlements patterns, (c) the formation and function of regional fortification networks, and (d) the role of visibility and spatial connectivity in enhancing defence. Special attention will be given to how visual communication formed warning systems or coordinated military responses. We also invite discussion on how technological and architectural developments influenced fortification strategies and defence patterns, and how different polities (including the Byzantines, Latins, and emerging local powers) adapted to evolving threats and frontiers. By integrating archaeological data, GIS-based landscape analysis, aerial analysis techniques, and historical sources, this panel seeks to highlight the dynamic interplay between geography, power, and defence in the medieval Aegean, emphasizing the region's role not only as a contested frontier but also as a connective space between empires, islands, and peoples.

CONTRIBUTION ABSTRACTS

1249. Steadfastness and Resilience: The Defence of Early Medieval Kalymnos

Authors: Drosos Kardulias (University of Michigan Museum of Anthropological Archaeology)
Format: Oral

The Early Medieval (7th c. AD) Aegean, though largely devastated by raiding and warfare, was home to several pockets of dogged civilian resistance. Fortifications are the clearest sign of such efforts, and the island of Kalymnos' three 7th c. kastra represent an impressive allocation of effort and expertise in a rugged landscape. These fortifications are absent from historical texts, well-designed, and unlike the centrally-planned installations in wealthier regions. I argue that the transformation from a demilitarized and scattered Late Antique population to a concentrated and militarized Early Medieval one is best understood by comparison to ethnographic literature on asymmetrical warfare. To understand the island as a martial landscape, I apply analogous logics of deterrence and battlefield preparation, both from modern and premodern examples. Finally, I will demonstrate the extensive planning and militarized logic which produced a fortified Kalymnos from an unfortified predecessor, and examine the political mechanisms used to cultivate cultures of resistance and steadfastness in the face of existential threats.

134. From Refuge to Theme: The Development of a Fortification Network on Byzantine Samos

Authors: Georgia Delli (National and Kapodistrian University of Athens)
Format: Oral

In De Thematibus, Constantine Porphyrogenitus mentions the toponym of Samos as referring to a landscape dominated by high mountains, a defining characteristic that facilitated the development of the island's fortification network following the first Arab incursions in the second half of the seventh century. Archaeological evidence from the city of Samos, together with new data derived from recent research in the Samian topography by the present author, indicates a violent disruption of the island's previously peaceful settlement pattern and the emergence of new modified one. It remains uncertain whether the establishment of Samos' fortifications resulted from initiatives of the central Byzantine administration or from local responses to external threat. The evidence suggests that the island's inhabitants systematically exploited its natural topography to organise defensive installations and safeguard agricultural production. Considered collectively, the fifteen byzantine fortified sites identified on Samos, reveal a discernible pattern within the island's defensive system, comprising fortified settlements and smaller castles integrated into a coherent network. Part of this network was further developed in the ninth century, following the establishment of Samos as a Theme, when additional fortified sites were introduced. These later additions enhanced intervisibility, communication, and the transmission of signals, while also strengthening the surveillance and protection of the island as a whole. The analysis presented here constitutes the first systematic and integrated study of this fortification network, underscoring its significance for the administrative, defensive, and economic organisation of the Theme of Samos and offering a pioneering contribution to the study of Byzantine insular defence in the Aegean.

1244. Nodes of Defence: Oria Kastro on Kythnos and the transformation of the Cycladic settlement fabric (7th–13th c.)

Authors: Christianna Veloudaki (The University of Edinburgh)
Format: Oral

From the 7th century onwards, the Cycladic landscape underwent a radical transformation as ancient coastal cities were abandoned in favour of kastra—fortified settlements usually established on remote, defensible hilltops. While traditional scholarship has framed this shift as a desperate response to Arab maritime raids after 640 AD, emerging archaeological evidence suggests a more complex, state-driven metamorphosis. Equipped with at least one fortified site, the islands became deliberate nodes within a sophisticated Byzantine defensive and economic network. As many of these sites survived well into the Latin, Ottoman, and modern periods, later interventions have often obscured their early Byzantine foundations. This paper utilises Oria Kastro on Kythnos as a critical case study to interrogate these transitional dynamics. Perched atop a remote cliff on the northwest coast, Oria has long been considered the island's medieval capital and a 7th-century foundation. However, the extant remains reflect predominantly the Latin phase, as Kythnos was among the islands incorporated into the Aegean Duchy after 1204. After falling to the Ottomans in the late 16th century, the site was abandoned, rendering it a rare "fossil" of the original form and layout of such settlements. Its walls enclose an area of 1.32 ha and include various domestic, religious, and public structures. Combining literary sources with evidence from extensive field surveys, this study analyses the site's form, structure and strategic viewshed, seeking to contextualise Oria's function within both the local and wider Aegean landscapes across different historical periods.

1658. The Fortifications of Medieval Vodonitsa: Origins and Strategic Purpose

Authors: Aikaterini Vavaliou (University of Oxford)
Format: Oral

The fortifications of medieval Vodonitsa, modern-day Mendenitsa, stand on the northern slopes of Mount Kallidromo and overlook the coastal plain of modern-day Molos, as well as the strait of Artemisium between Euboea and the Thessalian coasts. As one

of the largest medieval castles of Eastern Central Greece (ECG), also associated with prominent historical figures of the 13th-14th centuries, Vodonitsa holds a central place in the historiography of the crusader states of the Aegean world. For more than a century, secondary literature has interpreted Vodonitsa as the medieval successor of Thermopylae, i.e., the northern gatekeeper of ECG. The same literature considers Vodonitsa's fortifications to be a Frankish foundation, built in the aftermath of the Fourth Crusade, on the site of an ancient acropolis. This interpretation of Vodonitsa was constructed on historiographical grounds but does not hold up to historiographical scrutiny. Topographical, archaeological, and architectural evidence also suggest a different story. My paper will first dismantle this century-old narrative by examining the historical geography of the region and juxtaposing the political history and defensive potential of Vodonitsa with that of neighbouring fortifications. It will put forward an alternative interpretation for the site's strategic role in regional politics and warfare, which also explains the extraordinary longevity of the Latin fief that was established there in the 13th century. I will then discuss in greater detail the architectural remains of Vodonitsa's fortifications. I have identified previously unknown construction phases and established a relative chronology for them. As the construction styles and the extent of the architectural interventions indicate a much longer construction history than suggested in secondary literature, I will offer new dating proposals for each of the major construction phases. Finally, my paper will demonstrate how my findings on Mendenitsa can unlock new interpretations for less studied fortifications on the same network.

1203. Maritime Defence in the Medieval Aegean: Venetian Crete and the Control of Ships, Ports, and Coastal Space (1344-1366)

Authors: Emre Kaymakçi (Niğde Ömer Halisdemir University)
Format: Oral

This paper examines maritime defence strategies and port activities in Venetian Crete between 1344 and 1366, with particular focus on the major coastal centres of Candia, Rethymno, and Chania. Following the establishment of Venetian rule on the island in 1211, the Republic of Venice faced persistent internal and external challenges, including conflicts with the Genoese and resistance from local Cretan elites. In response, Venetian authorities invested heavily in fortifications and port infrastructures, including arsenals, to secure their largest and most strategically important colony in the Aegean. However, rising pirate threats, climatic events, and growing Turkish maritime pressure prompted a significant shift in Venetian defensive thinking during the fourteenth century. Venetian authorities began to take a particular interest in the construction and regulation of ports and fortifications in Crete. This paper argues that maritime defence in Venetian Crete was not limited to military architecture but also relied on the regulation of port spaces, the movement and anchoring of ships, and the policing of maritime activities. Drawing on archival material from the Duca di Candia (Bandi) and Senato Misti series preserved in the Venetian State Archives, it analyses decrees, proclamations, and administrative orders that governed port use, shipping practices, and coastal security. Through a comparative reading of these documents, the paper demonstrates that administrative regulation functioned as a central defensive strategy, enabling Venice to maintain its authority in Crete and integrate the island into its broader Aegean and Mediterranean networks during a period of crisis.

32 PAST HUMAN PRACTICES AND PLANT DIVERSITY: ARCHAEOBOTANICAL PERSPECTIVES ON BIODIVERSITY

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Ayelen Delgado Orellana (Institute of Archaeology, University College London) – Anna Den Hollander (Institute of Archaeology, University College London | Museum of London Archaeology) – Yu-Chun Kan (Institute of Archaeology, University College London) – Antonio Peralta Gomez (Instituto de Historia, CSIC CCHS, Madrid)
Discussant: Meriel McClatchie (University College Dublin)
Keywords: Archaeobotany, Paleoethnobotany, Anthropic landscapes, Biodiversity, Cultural diversity
Format: Regular session

SESSION ABSTRACT

Climate change, global industrialisation and the development of capitalist economy, are driving species extinctions at historically unprecedented and accelerating rates. This rapid loss of biodiversity has been primarily addressed within the earth and environmental sciences. However, in the global context of the climate crisis, anthropological and archaeological data have revealed that many of today's most biodiverse ecosystems are not solely natural but shaped by centuries of human, particularly Indigenous, management. Human activity influences all current biodiversity hotspots, with anthropogenic pressures such as habitat loss, pollution, and resource extraction accelerating species decline. Yet, not all human impacts are destructive: interdisciplinary approaches increasingly highlight the critical role of long-standing indigenous stewardship and traditional ecological knowledge in restoration and conservation efforts. Biodiversity is thus inseparable from diverse cultural practices, both now and in the past. Archaeobotany presents a unique opportunity to understand these relationships between past social practices and diversity of plant uses. Unlike broader paleoenvironmental approaches, archaeobotanical data offers a more precise and temporarily bounded dataset, directly tied to specific social groups and their surrounding landscape. As such, archaeobotanical datasets can reveal detailed information about past environmental conditions, species distribution, and past human-plant interactions. Integrating different lines of archaeobotanical evidence allows for a long-term temporal perspective on key topics such as shifts in the structure of plant communities, the introduction and adoption of allochthonous species, the replacement of cultivated plants, and the possible extinction of certain

varieties. These ecological changes directly impact food availability, dietary practices, and the spatial dynamics of resource procurement. These factors can drive resilience strategies or, conversely, lead to the abandonment of territories. We welcome a variety of topics, not limited to: landscape management, indigenous practices, stewardship, food practices, and (agri)cultural diversity. We appreciate contributions from different archaeobotanical methodologies (anthracology, pollen, and phytoliths), as well as ethnoarchaeological aproaches.

CONTRIBUTION ABSTRACTS

1700. Fuelwood collection practices in shifting environments: The case of Late Upper Palaeolithic in NE Iberian Peninsula

Authors: Tomás Fernández Iriarte (UIB | Iphes) – Ethel Allué (Iphes) – Llorenç Gelabert (UIB) – Bàrbara Mas (CEPAM)
Format: Oral

The Late Palaeolithic occurred during an environmental context characterised by a progressive increase in temperatures since the last glacial maximum (ca 19 Kyrs). This resulted in a change in the landscape that involved the expansion of forests in areas that were previously characterized by open steppes. The diversity and type of plant species also changed, with deciduous species gaining ground (or "being expansive in their proportion"). These expansions were sometimes facilitated by the preservation of species in climate refuges specially in the Mediterranean Peninsulas. The anthracological study of archaeological sites allows us to characterize the vegetation landscape immediate to the areas occupied by humans. In this work, we will compare the anthracological record of sites from different ecological zones in the northeast of the Iberian Peninsula in the period between 15 Kyrs and 11500 Kyrs BP. The analysis of anthracological data contained in the database created by the PALFUEL project allows comparing sites and biogeographical regions, answering questions related to fuel management and species diversity both within the sites (intra-site) and between sites (inter-site). These questions inquire about the variability in anthracological assemblages in contexts of higher and lesser diversity, the human-environment relationship and what this can tell us about fuelwood gathering practices. Furthermore, this anthracological dataset allows to discuss the relationship between the increase of biodiversity in certain ecological context and energy practices among Late Upper Palaeolithic hunter-gatherer groups.

644. Enhanced biodiversity in a human shaped environment: The Late Neolithic pile dwelling sites in Salzkammergut (Austria)

Authors: Thorsten Jakobitsch (Austrian Archaeological Institute, Austrian Academy of Sciences)
Format: Oral

Pile dwelling sites are well known for their excellent preservation of organic materials in the archaeological sediments due to waterlogged conditions. They offer a wealth of insights into the daily life of the inhabitants, their food, agricultural practices, domestic animals, and the diversity of plants and their habitats around the settlements. Recent investigations of some pile dwelling sites in Austria's Salzkammergut at the lakes Mondsee and Attersee have shown, that humans had transformed the landscape into a mosaic of habitats, ranging from dense and damp forests, to modified open forests and hedges, lakeshore vegetation, semi-natural grasslands, and agricultural land. Especially animal husbandry activities, such as fodder harvest and forest-grazing, created open landscapes and provided a habitat for species, which otherwise would not thrive in this area. In addition, bringing crops into formerly non-agrarian regions introduced species which co-lived on the fields of cultivation with the crops. With the example of different plant species found in the macroremain assemblage of three Late Neolithic sites, the study will demonstrate how diverse the flora has been due to human intervention.

1310. Biodiversity as Practice: Harvesting and Crop Processing in Eneolithic (4th millennium BC) loess area of the Rzeszów Foothills (SE Poland)

Authors: Dariusz Król (Rzeszów University, Institute of Archaeology) – Agata Sady-Bugajska (Agata Sady-Bugajska Botanical Analysis Laboratory) – Iwona Sobkowiak-Tabaka – Alicja Kruszewska (Adam Mickiewicz University, Faculty of Archaeology) – Aleksandra Sznajdrowska-Pondel (Aleksandra Sznajdrowska-Pondel Archaeological Services)
Format: Oral

The paper presents observations from three Eneolithic Funnel Beaker culture settlements located in the Rzeszów Foothills (SE Poland): Orły, Hnatkowice, and Skołoszów. The study combines archaeobotanical evidence, plant impressions preserved in daub and use-wear observations on flint tools. We examine everyday practices related to crop cultivation and how these activities influenced the plant remains found at the sites. Radiocarbon evidence places all three settlements within the horizon of c. 3600–3300 BC. At all sites, hulled wheats - emmer (Triticum dicoccon) and einkorn (Triticum monococcum) - dominate the assemblages, accompanied by a small set of arable weeds such as Fallopia convolvulus and Chenopodium spp. Impressions in daub consist mainly of spikelet forks and glumes, while fragments of straw are less frequent. The prevalence of ear elements over straw suggests that the organic temper added to clay came mostly from the upper parts of threshed wheats. This raises a question about harvesting practices: were cereals cut just below the ear, with straw collected separately for other purposes? Use-wear traces on flint artefacts and phytolith analysis indicate cutting of plant materials and confirm that harvesting formed part of routine activities. The evidence does not permit a direct statement on cutting height or field organization, yet it provides insight into post-harvest routines shared

across the region. GIS-based assessment of terrain and soils is used to outline possible locations of cultivation plots around the settlements. The archaeological context, the structure of processing waste and the character of tools suggest that agrobiodiversity resulted from practical choices made during reaping and crop processing. The analyzed sites show that Eneolithic agrobiodiversity developed through everyday decisions, technical habits and the organization of space around settlements, allowing consideration of possible cultivation zones in the local landscape.

645. Adapting to Change: Archaeobotanical Evidence on Plant Use and Subsistence Strategies during the Early Bronze Age in Upper Thrace

Authors: Hanna Aleksandrova (National Archaeological Institute with Museum, Bulgarian Academy of Sciences)
Format: Oral

This study provides a synthesis of plant subsistence strategies in Upper Thrace during the Early Bronze Age, based on archaeobotanical data from key archaeological sites in the region. The materials derive predominantly from well-defined stratigraphic contexts, including storage facilities, hearths, construction elements, etc. This dataset enables an assessment of plant biodiversity, subsistence practices, and the organisation of plant-based economies within a key prehistoric landscape during a period of socio-cultural transformations and climatic change. The evidence indicates that Early Bronze Age communities employed flexible strategies integrating the cultivation of cereals and pulses with the exploitation of wild plant resources. Hulled wheats - einkorn and emmer - and barley constituted the principal staple crops, supplemented by pulses such as lentil and bitter vetch. From the later phases of the Early Bronze Age, the increasing presence of millet and free-threshing wheats reflects gradual diversification. Weed assemblages, comprising approximately fifty taxa, provide insights into cultivation intensity, land management, and soil utilisation, while chaff and straw in construction materials indicate systematic use of agricultural by-products. Plant remains bearing traces of technological processing were analysed to reconstruct food preparation. Scanning electron microscopy (SEM) revealed features associated with grinding, crushing, and the preparation of cereal-based foods, possibly including flatbread-like products, supporting the reconstruction of chaîne opératoire – from harvest to the final product. Wood charcoal analysis complements these data, reconstructing local vegetation and woodland management, and indicating a mosaic landscape of deciduous forests, riparian zones, and open agricultural areas. Selective use of wood taxa reflects strategic choices for fuel, construction, and technical purposes. Evidence for wild plant gathering emphasizes the economic and cultural dimensions of plant exploitation. This integrated archaeobotanical and interdisciplinary approach provides a comprehensive framework for understanding biodiversity, plant use and subsistence organisation in Early Bronze Age Upper Thrace.

2186. Exploring diversity and specialization in Neolithic and Early Bronze Age Dikili Tash through charred plant remains

Authors: Evangelia Brachou – Soultana-Maria Valamoti (School of History and Archaeology, Aristotle University of Thessaloniki | LIRA, School of History and Archaeology, Aristotle University of Thessaloniki | PlantCult Laboratory, CIRI, Aristotle University of Thessaloniki)
Format: Oral

Dikili Tash is a prehistoric settlement in eastern Macedonia in northern Greece. It is a mound that rises up to 15 meters above the current ground surface. Prehistoric occupation at the site is attested from the Early Neolithic up to the Late Bronze Age. The archaeobotanical work conducted over the past decades has revealed numerous plant remains, providing valuable insights into the daily life of the prehistoric inhabitants, particularly during the Neolithic period. This paper aims to enrich the archaeobotanical knowledge gathered so far, focusing on continuity and change as regards the range of field crops and associated weed floras as well as the use of fruit crops and wild plants during the Neolithic and the Early Bronze Age at the site of Dikili Tash. We compare the archaeobotanical assemblages from a neolithic house and four Early Bronze Age pits and explore aspects of biodiversity changes as regards plant food choices and vegetation management though cultivation and wild plant food procurement. The evidence from Dikili Tash is discussed within the wider context of crop choices and vegetation management, based on published archaeobotanical evidence.

905. CORNUS SANGUINEA: Archaeobotanical discovery that reveals new insights both from the past and for the future

Authors: Tjaša Tolar (ZRC SAZU, Institute of Archaeology)
Format: Oral

Although Neolithic communities rely extensively on wild plant resources, the use of wild plants remains poorly understood in archaeobotanical research. In particular, non-edible and potentially toxic wild fruits are rarely discussed, as their archaeological traces are difficult to identify and seldom preserved. It is reasonable to assume that the remains of such plants may often been discarded outside settlement areas – locations that are rarely archaeologically investigated – rather than within the cultural layers. Off-site sampling is therefore important. Nevertheless, it is certain that prehistoric communities skillfully exploited natural resources for different purposes, and that many substances used in modern chemistry and pharmacy are ultimately derived from plant-based knowledge with the origins in the distant prehistory. This study presents exceptional evidence from the Late Neolithic pile-dwelling site of Strojanova voda in Slovenia, where ca. 6,000-year-old processed remains of fruit stones of Cornus sanguinea (red dogwood) were recovered. These finds provide clear proof of the intentional use of a nutritionally insignificant wild fruit and suggest that its

importance in prehistory (and history) has been substantially underestimated. Comparable remains have been sporadically identified at other European sites, but their rarity has so far prevented broader scholarly interest. By integrating archaeobotanical data with experimental archaeology, ethnobotanical parallels, and chemical analyses, we demonstrate that C. sanguinea fruits were once far more valued than previously assumed. The Strojanova voda assemblage offers rare insight into complex non-dietary plant use in prehistory and highlights the need for a broader research framework. We aim to identify similar case study evidences elsewhere in Europe and to initiate a large-scale ERC project on wild fruit use in prehistory. Such a project idea may also contribute to future sustainable practices, such as the green transition and the reduction of carbon emissions, what is also well aligned with Horizon Europe priorities.

226. Comparison and validation of analysis methodologies in the detection of forest management and arboriculture practices for archaeobotanical study

Authors: Eva Maria López Castillo (Universitat Autònoma de Barcelona) – Oriol López Bultó (Museu d'Arqueologia de Catalunya) – Pere Castanyer Masoliver (Grup de Recerca Arqueològica del Pla de l'Estany) – Raquel Piqué Huerta (Universitat Autònoma de Barcelona)
Format: Oral

The aim of the research is to study the forest management and arboriculture practices in the north-east of the Iberian Peninsula during the Roman and Late Antiquity periods by analysing carbonised wooden archaeological remains from two settlements: Vilauba (Camós, Girona) and Can Ring (Besalú, Girona). The Roman agricultural uilla of Vilauba dates from the 2nd century BC to the 7th century AD and presents carbonised and organic archaeobotanical material inside one well and other archaeological contexts. The Roman uilla of Can Ring was occupied from the 1st to 3rd centuries BC and has only yielded charcoal remains. The methods used to determine the arboriculture practices varied according to the typology of the woody remains. In the case of wet material, we applied the Roundwood method (Out et al., 2013, 2018, 2020, 2023). For the carbonized remains we used the Eco-anatomical method (Limier et al., 2018; Terral et al., 1996, 1999, 2006). These methods, tested and validated by other researchers and other tree species, will be applied to a group that has never been tested before, the Prunaceae. To this end, a reference collection of both managed and unmanaged modern and initial tests was being carried out on modern fruit trees, such as Prunus avium/cerasus, Prunus domestica/spinosa and Prunus persica/armeniaca/amigdalus/dulcis. First standardisation over those species is being carried out in order to obtain the necessary reference to compare both archaeological and modern remains and infer which typology of practices had been applied on them, such as irrigation and pruning/coppicing activities. Thus, we contribute to the knowledge about what would have been the relationships between fruit-bearing trees and local communities, in this case, as allochthonous species introduced in the territory but also what the wild and natural resources were exploited, taking advantage of new arboriculture techniques and biodiversity.

1808. Shaping medieval agriculture: Biodiversity and Crop Introductions in Al-Andalus

Authors: Antonio Peralta-Gómez (Instituto de Historia, CSIC | University of Granada) – Leonor Peña-Chocarro – Carlos López De Calle Cámara (Instituto de Historia, CSIC)
Format: Oral

This paper examines the impact of human practices on plant diversity in Al-Andalus, the region of the Iberian Peninsula under Muslim rule from 711 CE, through an integrated archaeobotanical perspective. Drawing on plant remains recovered from both urban centers and rural settlements, the study highlights how the introduction of new species from the 8th century onward, coupled with innovative agricultural techniques, irrigation systems, and cultivation methods, profoundly reshaped local foodways, economies, and landscapes. Archaeobotanical evidence, reveals the adoption of a diverse array of crops that transformed diets, farming strategies, and market networks. By documenting both cultivated and wild plant species, the research underscores the remarkable botanical diversity present in Al-Andalus and illustrates the complex ways in which human agency and ecological conditions interacted to produce multifaceted agro-ecological systems. Ultimately, this study illuminates the dynamic interplay between human communities, environmental management, and plant diversity, offering nuanced insights into how cultural practices, technological innovations, and ecological factors collectively shaped the social and natural landscapes of medieval Iberia.

1884. The archaeobotanical record of woody plants in Southern Chile: archaeology and biodiversity in the temperate forest of South America

Authors: Ayelen Delgado Orellana (Institute of Archaeology, University College London)
Format: Oral

The temperate forests of South America, globally known for its biodiversity, host a significant percentage of endemic woody plants. Since as early as the Pleistocene-Holocene Transition, human groups consumed the forest woody species not only as food but also for their medicinal properties. Although most of the traditional forest knowledge comes mainly from the ethnographic and ethnobotany studies among indigenous Mapuche people (19th century onwards), today forest resources are still collected, traded, and consumed in broader scales than just local communities. This paper discusses published and original archaeobotanical data from Southern Chile (36°-42°S), area considered marginal in relation to the pre-Hispanic domestication processes of the Americas implying that for most of the Holocene humans depended on wild resources. Trought the comparison of wood charcoal and charred seed

analysis, the paper aims to first, offer a complementary view of the native woody species and the potential use in the past as food, fuel, medicine, and others. And second, discuss until what extend the archaeobotanical data can inform of the biodiversity of woody species in the past. As interpretative framework, this paper is critical in relation to the simplistic environmental views that still describe the temperate forests as pristine landscapes. On the contrary, based on the ethnographic and ecological studies, the data will be discussing understanding that there is a link between indigenous environmental management and biodiversity enhancement. Due to the rapid habitat fragmentation, wildfires and loss of native forest coverage observed in the last decades in Southern Chile, the paper also offers a novel approach to current bigger environmental and conservation issues.

1511. 'Forgotten seeds' under the Colonial Ground: archaeobotanical evidence, long-term indigenous knowledge, and biodiversity in Taiwan

Authors: Yu-Chun Kan (Institute of Archaeology, University College London)
Format: Oral

In academic literature and school textbooks, significant agricultural breakthroughs in Taiwan are often linked to foreign colonial powers while indigenous farming practices, if not entirely overlooked, were portrayed as 'simple' and 'static' since the early Neolithic. Historical sources emphasized that multiple kinds of cereal, fruits, and agrarian regimes were introduced by Dutch and Han Chinese immigrants. Not to mention the Japanese breeding entrepreneur of Penglai rice (or Hōrai rice) by Iso Eikichi, the renowned 'father of Taiwanese rice farming', was deemed as innovative, with far-reaching legacies. Contrary to the banal picture of prehistory, the latest evidence from archaeology, ethnobotany and plant DNA analysis implied a more complex and dynamic human-plant relationship. More than clinging to the original agricultural 'package' carried by early Austronesian settlers, people have long been engaged with new varieties of crops and horticultural technologies for thousands of years. While cultivars like Djulis (Chenopodium formosanum) or Taiwan oil millet (Spodiopogon formosanus) may have been products of local secondary domestication, diverse landraces of rice (Oryza Sativa), finger millets (eleusine coracana) and pigeon peas (Cajanus cajan) were probably derived from long-term inter-island encounters. Many of these important aboriginal grains had long been obliterated from public memories, and the indigenous practice and its contribution to biodiversity are overlooked. Here by providing a systematic review of recent archaeobotanical results, some of the 'forgotten crops' in prehistory will be addressed, challenging the colonial discourses of farming history in Taiwan and shedding light on indigenous knowledge of maintaining biodiversity.

476. People and Changing landscapes: Palynological and Archaeological Analysis of Landscape Change in the Scottish Highlands, 1250 AD-present

Authors: Phil Gould (University of Stirling)
Format: Oral

This project investigates the cultural, ecological and social effects of the 'Little Ice Age' in the Northwest Highlands in Scotland. Land managers are making decisions around the future management plans for northern Scotland, with the aim of increasing the resilience of areas of conservation value, increasing biodiversity, supporting rural economies and cultural heritage retention. Intergenerational/indigenous knowledge and relationships to landscape have been historically undervalued in these landscapes; and the ecological legacy of the Improvements and the Clearances are under investigated. Palynological and archaeological investigations of landscapes can reveal detailed information of past adaptation, change, and resilience to climate pressures. This will explore how Scottish 'wilderness' has been fundamentally altered by capitalism and industrialisation over the past 500 years. The methods proposed include: generating new high-resolution vegetation change (pollen records) in poorly researched areas; analysis of new and existing pollen records to assess community continuity and threshold response to climatic and social change; evaluate the archaeological and historical records of the landscape to assess how relationships to landscape have changed; suggesting baselines and potential for increasing biodiversity; and highlight challenging legacies of places connected to the cultural and ecological impact of the Clearances. By taking an interdisciplinary approach, this project aims to present localised frameworks for conservation and management of landscape, integrating cultural knowledge and pasts with future landscape management to the benefit of local communities, supporting intention to increase biodiversity by presenting past landscapes to imagine future potential, and furthering deep place knowledge, place attachment and sense of belonging in the landscape.

1379. Etnoarchaeology of fuels: Observing short-term transformations in changing environments throughout Traditional Ecological Knowledge

Authors: Ethel Allué (IPHES) – Llorenç Picornell Gelabert – Tomas Fernadez Iriarte – Nina Laming Lopez (UIB) – Aitor Burguet Coca – Isabel Exposito (IPHES) – Narmada Hansani (University of Peradeniya) – Canisius Kayombo (Tengeru Insitute of Community Development) – Mhoza Felix (Forestry Training Institute) – Rmm Chandraratne (University of Peradeniya)
Format: Oral

Ethnoarchaeological approaches to the study of fuel have been developed for a few decades. Specific studies on contexts from different areas and different cultural traditions have provided data on fuel gathering and management practices (see Picornell-Gelabert 2020). These studies and other ethnographic sources suggest that women oversee these activities and that fuel and energy consumption in domestic contexts constitutes an important social activity. In this presentation we are sharing the methodological approach

for ethnoarchaeology of fuels in two different groups, the Maasai in Tanzania and the Vedda in Sri Lanka. The Maasai from the Longido district in northern Tanzania are pastoralists groups living in an open savannah with important environmental challenges due to drought; challenges that include the eventual need of longer trips to collect firewood. The Vedda community, former hunter-gatherers' group in Sri Lanka, currently live as settled agriculturalists with available wood in the tropical rainforest. For the past two years we have been carrying out semi-directed interviews design to questioning Maasai and Vedda women about fuel and energy practices. The semi-directed interviews include a range of questions that gather to get as much information as possible regarding the past, present and future of these practices among each community. The voices of these women are recorded in phone devices enable to revise their explanations and preserve their knowledge. Although these communities have gone through important sociocultural and economic changes and been affected by climate changes, firewood-related practices seem to be steady through time. This fact allows us to use this information to question the theoretical and methodological approaches to past practices to reach an informative and critical archaeological approach to energy issues. Picornell-Gelabert, L. (2020). Journal of Archaeological Science: Reports, 34, 102591.

1531. Archaeomycology: An Exploration of Mushrooms in Palaeodiet

Authors: Jenna Deep (University of Oxford)
Format: Oral

I aim to explore the role of fungi in archaeological human diets. Foraged goods have been overlooked in favor of domesticates and agricultural transitions, which has led to a major mycological gap in human dietary research. Ignoring the potential role of fungi obscures the importance of non-domesticates in subsistence. Though research has been done on fungi in pig diets, human consumption of edible mushrooms has not been addressed. To investigate the potential importance of fungi in ancient human diets, I use legacy data from prehistoric British sites like Must Farm and Star Carr. While these sites are temporally and spatially different, there is underexplored evidence at both sites which suggest human preparation of fungi. The mushrooms at these sites have been charred and waterlogged, leading to their excellent preservation. However, such conditions are rare, and I advocate for alternative methods to exploring fungi archaeologically. While spores are frequently found in pollen samples, they are not treated as subsistence, but rather as environmental proxies. Though identifying what mushrooms may have been around a site is useful, it is not necessarily evidence that they were being consumed. Lipid residue analysis may provide an avenue by which archaeological fungi can be better identified and understood. According to mycological and archaeological studies mushrooms may also be visible isotopically. I intend to explore the potentials and pitfalls of these methods of identification while positing the roles fungi may have played in past societies. To best explore these ideas, a social lens must be applied to food. This encompasses concepts of taste, knowledge, taboo, preference, incorporation, and identity. While mushrooms may be a complicated and thus far poorly understood subsistence item, careful study, creative new methods, and an emphasis on the social meanings imbued in food will enable more holistic studies of past subsistence practices.

1256. Wild plant resources at Early Neolithic sites in Southern and South-Eastern Poland: Archaeobotanical evidence

Authors: Magda Kapcia – Gabriela Juźwińska (W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków) – Maria Lityńska-Zając (Institute of Archaeology and Ethnology, Polish Academy of Sciences, Kraków) – Magdalena Moskal Del-Hoyo (W. Szafer Institute of Botany, Polish Academy of Sciences, Kraków) – Paweł Jarosz – Anita Szczepanek (Institute of Archaeology and Ethnology, Polish Academy of Sciences, Kraków) – Kamila Peschel (Atia-archeologia prace archeologiczne) – Wojciech Tabaszewski (Independent researcher) – Maciej Dębiec (Institute of Archaeology, University of Rzeszów)
Format: Poster

Even after the advent of animal husbandry and agriculture, strategies such as foraging for wild plants remained reliable methods of food sourcing. The exploitation of wild plant resources complemented cultivated crops and provided dietary diversity, as well as materials for everyday economic practices. Evidence for these activities is primarily derived from archaeobotanical analyses of plant macro-remains recovered from settlement contexts. This study presents the results of archaeobotanical research from four Early Neolithic sites in southern and south-eastern Poland: Łańcut site 3, Zwięczyca site 3, Morawica site 18, and Kraków-Chełm site 2, associated with the Linear Pottery Culture (LBK). The identified taxa are interpreted as evidence for the exploitation of wild plant resources from various habitats such as arable fields, grasslands, ruderal and woodland environments. In addition, the assemblages provide indirect information on the vegetation and landscape surrounding LBK settlements. The archaeobotanical data on wild plants and fruits show a regular presence of Chenopodium album (white goosefoot), Fallopia convolvulus (black bindweed), and Bromus sp. (brome grass). Additionally, remains of Corylus avellana (common hazel) were identified, a species of economic significance to prehistoric communities. Seeds of goosefoot, including white goosefoot, are traditionally regarded as edible, similarly to black bindweed. The gathering of wild plants was crucial for food diversity during the Neolithic, as evidenced by finds from Early Neolithic sites. However, wild plants were also likely used for different purposes; for example, Phleum pratense (timothy grass), a perennial species with rigid culms, was well suited for use after drying, for example, as animal bedding or insulation material. This research was funded by two grants from the National Science Centre, Poland (grant nos. 2024/53/N/HS3/03915 and 2025/57/N/HS3/04567).

1392. Between the desert and the sea: plant management in the Bronze Age site of Umm an-Nar Island, Abu Dhabi (UAE)

Authors: Filipe Vaz (Department of Culture and Tourism - Abu Dhabi) – Lucas Proctor (Dartmouth College)
Format: Poster

The site of Umm an-Nar island (Abu Dhabi, UAE) is one of the largest and most significant Bronze Age archaeological sites identified along the shores of the Arabian Gulf. The typical Umm an-Nar period tombs and the adjacent settlement excavated revealed evidence of trading networks that connected Arabia, Bahrain, Mesopotamia, Baluchistan, and the Indus Valley. Following excavations conducted between 1959 and 1965 by a Danish team and between 1970 and 1975 by an Iraqi team, the Department of Culture and Tourism Abu Dhabi (DCT) initiated a new four-year excavation program (2021-2023), primarily focused on the Early Bronze Age settlement, its detailed stratigraphy and nature of habitation. During this new project, over 100 sediment samples were recovered from targeted contexts for archaeobotanical analysis, marking the first systematic study of its kind conducted at this important site. This presentation will explore the results of archaeobotanical analysis, focusing on the management and use of local and regional wood resources in domestic and functional contexts and structures. This is particularly relevant in an area with extremely scarce sources of firewood and other combustible plant materials, allowing us a rare glimpse into past biodiversity in the coastal areas of the Gulf of Arabia. Despite the limitations in preservation, the carpological remains identified will also shed light on the food consumption habits of these communities.

33 TRAVELLING GODS AND HEROES: RESONANT PATHWAYS IN THE ANCIENT WORLD

Theme: 1. Widening perspectives in material culture studies
Organisers: Ioannis Nikou Filaretos – Paraskevi Motsiou (National and Kapodistrian University of Athens) – Adrien Delahaye (Université de Montpellier Paul-Valéry)
Keywords: ancient religion and ritual, ancient mythistory, gods and heroes, cultural mobility and interaction, cross-cultural studies, material culture
Format: Regular session

SESSION ABSTRACT

Over the long course of archaeologically recorded human mythistory, travel has been a universal key-element of interaction and association of groups and individuals within and between cultures worldwide through the ages. The vast array of literature and rich excavation material on the topic is clear evidence that, alongside mere mortals, various powerful gods and illustrious heroes have constantly been portrayed, among others, as great adventurers and masterly travellers in 'real' or 'symbolic' journeys of utmost importance in the ancient world on a local, (inter)regional, or global scale; by land, sea or air, through space and time, across cultures, realms and dimensions. Either as inspirers and orchestrators of unprecedented missions and trials or being themselves the actual advocates and protagonists of legendary voyages and quests, travelling gods and heroes in myth and folklore emerge as dominant figures who navigated, traversed, and transcended earthly and cosmic realities by every possible means of conveyance, to fulfill a personal task, for private gain or for the common good. Eventually consolidated as patrons of merchants, sailors, heralds, pilgrims, commuters, passengers, wanderers, thieves, pirates, as protectors of roads and borders, guides over a specified route or terrain, crossers of boundaries, liminal entities who presided over thresholds, gates or doorways in the mundane sphere and the Beyond, as divine messengers and transporters, or as hyper-explorers and pathfinders, expedition leaders, conquerors or defenders, pioneers of progress and enlightenment, they were envisioned as civilizers, founders of cities and institutions, liaisons between men and gods, who radically influenced the evolution of humanity in meaningful ways. This session assesses the nature, role, and impact of divine/heroic travellers on cultural activity, their intellectual and emotional resonance in antiquity and today, discusses possible cross-cultural affinities, and highlights their value to understanding the past, challenging the present, and shaping the future of human societies.

CONTRIBUTION ABSTRACTS

80. From Hellenistic Figure to East Asian Efficacy: Why Certain Greek Deities "Traveled" into 5th-6th Century China

Authors: Mengyi Li (Ludwig-Maximilians-Universität München)
Format: Oral

This presentation examines the selective reception of Greek gods and heroes in East Asia, focusing on 5th-century visual culture in northwestern China, an early phase of Eurasian cross-cultural exchange in material and artistic forms. While scholarship has long emphasized the "Hellenistic" features of Buddhist imagery (e.g., drapery, naturalism, and figural types) transmitted through Gandhāra and the Serindian corridor, less attention has been paid to which mythic figures were adopted, why they were preferred, and how they were re-coded within local religious and funerary regimes. Drawing on a corpus of Dunhuang murals (early phases), funerary goods and tomb imagery from northwest China, and comparable Central Asian visual templates, I argue that the appearance

of Greek-derived figures (e.g., Heracles-type protectors, winged Victory/Nike motifs, Erotes-like attendants, Dionysus, and solar/astral personifications in some contexts) reflects not a diffuse "Hellenization," but a mechanism of iconographic filtering. This filtering operated through (1) transmission bottlenecks (workshop repertoires, portable objects, and merchant-mediated models), (2) functional compatibility (apotropaic protection, auspicious victory, escort/attendant roles, and astral order), and (3) semantic docking with indigenous categories (guardians, martial protectors, immortality/afterlife aspirations, and star cults). By tracing how these figures were visually stabilized, selectively replicated, and ultimately transformed into efficacious images within Buddhist and mortuary settings, the paper proposes a resonance-based model for "travelling gods and heroes": imported divinities endured when their forms could be mapped onto local ritual needs and cosmologies, producing new hybrid agents of protection and transcendence in early middle ages East Asian art.

1665. The Depiction of Dionysus in Indian Art: A Syncretism of Mediterranean and Indian Arts

Authors: Sujit Yadav (Banaras Hindu University)
Format: Oral

The Greek god Dionysus is known for his associations with wine, ecstasy, fertility and theater. He occupies a fascinating image in the Indian art, primarily through Greco-Buddhist syncretism. This fusion emerged with Alexander the Great's conquests in Asia which introduced Hellenistic elements in the northwestern parts of the Indian subcontinent. The depiction of Dionysus in Indian art is most evident in the Gandharan school of art which flourished under Kushan rule. Greek gods were reimagined in Buddhist contexts, blending iconography to create hybrid figures. Dionysus appears as a standalone deity and was also integrated into friezes and reliefs that adorn stupas and monasteries. Panels from Gandhara show Dionysian processions featuring the god riding a panther or chariot. Syncretism extends to potential identifications with Indian deities. Some scholars link Dionysus to Hindu God Shiva, due to shared attributes like ecstatic dance, association with mountains. In Buddhist reliefs, Dionysian elements shows didactic purposes, the god's journey paralleled the Buddha's path to enlightenment, where wine symbolizing the nectar of wisdom. Dionysian depictions captivate with their dynamic compositions. One iconic Gandharan panel shows a bearded, ivy-crowned figure harvesting grapes, evoking Dionysus's viticultural legacy. Another relief captures the triumphal procession, with elephants and satyrs blending Greek realism with Indianization. The portrayal of Dionysus in Indian art exemplifies the profound Hellenistic impact on Indian aesthetics, a cross-cultural narrative of conquest, fertility and spiritual revelry. This legacy endures as a testament to ancient globalization where a Greek god found new life in Buddhist stone.

254. Resonant Pathways of the Dharma: Excavating the Buddha and Travelling Hero-Gods

Authors: Lidu Yi (Florida International University)
Format: Oral

In recent years, new archaeological discoveries have continued to reshape our understanding of early Chinese Buddhist art. Each unearthed object brings with it fresh evidence that challenges long-held assumptions and invites us to rethink established art-historical and archaeological frameworks. This paper focuses on one such discovery—a newly excavated Buddhist stele commissioned by an individual named Tanfu. The devotional stele bears a lengthy inscription on its reverse side, offering invaluable clues for understanding its religious, social, and cultural significance. Iconographically, the central Buddha is flanked by protector figures, whose artistic display shows striking similarities with Gandharan images, suggesting a direct stylistic resonance that traveled across the ancient world. These deities act as "Travelling Hero-Gods," representing a transregional transmission of Buddhist motifs. Through a typological analysis of this stele, I explore how material culture and religious belief circulated and transformed across resonant pathways between civilizations. In particular, I examine the cultural exchanges between the major capitals of the Northern Dynasties and the intricate ways in which Buddhist and secular worlds intertwined within these urban centers.

1652. Tracking the Gods of the Ancient World: A Study of the Dynamics of Levantine Polytheism

Authors: Andrzej Szotek (Doctoral School of Humanities University of Warsaw | The Museum of the University of Warsaw)
Format: Oral

With the end of the Bronze Age, the Mediterranean world underwent profound political and cultural transformations. Old empires collapsed, new political entities emerged, and populations moved across the Mediterranean. Along with these movements, religious beliefs and deities also spread beyond their original homelands. Population mobility and expanding trade networks became major drivers of religious syncretism in the ancient world. This process is particularly visible in the Phoenician kingdoms of the Levant, whose deities of Canaanite origin gradually spread throughout the Mediterranean during the Iron Age—from their earliest attestations in Cyprus and Egypt to the westernmost regions of the Phoenician expansion, including present-day Cádiz and the Atlantic coast of Morocco. Understanding how these cults expanded and evolved requires a methodology capable of tracing both their geographical distribution and their chronological development. Such research depends on reliable archaeological evidence that provides secure dating, provenance, and contextual information. For this reason, this study draws on the database developed within the MAP – Mapping Ancient Polytheisms project, led by Professor Corinne Bonnet. The structure of this database makes it possible to analyse the occurrence of Levantine deities—including Baal, Melqart, Resheph, and others—not only as individual divine names but also as elements of broader religious and cultural networks across different regions and periods. This paper argues that combining the analysis of divine onomastic sequences preserved in inscriptions and papyri with statistical and demographic methods offers

an effective approach to reconstructing the dynamics of Levantine religious cults in antiquity. By integrating epigraphic evidence with quantitative analysis, the study seeks to reveal patterns in the diffusion, persistence, and transformation of Levantine polytheistic traditions throughout the Mediterranean world.

518. Travelling Gods, Locomotive Mythscapes: Apollo's Hyperborean Horizons and the Archaeology of Sacred Elsewhere

Authors: Ioannis Nikou Filaretos (National and Kapodistrian University of Athens)
Format: Oral

Apollo's mythic journey to the enigmatic land of Hyperborea stands amongst the most evocative and enduring ancient narratives of divine mobility and transcendence in Greek religious thought. Year after year, the god leaves the centre of the world. He abandons Delphi and goes to a place no map can hold, a distant and idealized realm, a sacred elsewhere beyond the limits of empirical space, yet vital to ritual time, cosmological array, and the sacred mind. Far from a mere literary conceit consistently recounted in written sources, or just a peripheral or ornamental tale, this bold cyclical pattern of Apollo's seasonal withdrawal from and return to the inhabited world, seen as a course back and forth to a quasi-utopian 'supernorth' terra incognita, numinous yet elusive, at the edges of the known and the remembered ecumene, is here understood as an essential structuring principle of Apolline cult, both literally and conceptually. At once familiar and remote, perhaps virtually unreachable but still historically sensitive and culturally productive, it sets the third pole in a meaningful religious triangle between Delphi, Delos, and Hyperborea, offering a compelling insight into why and how ancient communities constructed or interpreted sacred topography and ritual enactment within and beyond the ordinary or direct human access. Drawing upon resonant pathways in literary tradition alongside archaeological evidence, this study foregrounds Apollo's itinerant dynamic as a constituent force that articulates religious experience. Rather than being treated as a poetic fantasy, failed geography, ethnographic speculation, or purely symbolic, hence a marginal curiosity, Hyperborea is addressed as a religiously operative locomotive mythscape, a relational horizon sanctified via the authority of divine occurrence and performance, consecrated by mythic lore, ritual observance, and material practice. Thus, questioning how archaeology can engage with spatial alterity, imagined geographies, and uncharted territories that are nonetheless materially and ritually consequential.

536. Apollo on the Move: Cult, Connectivity, and Dedications in Olbia Pontica

Authors: Iryna Chechulina (The Institute of Archaeology of the National Academy of Science of Ukraine | Taras Shevchenko National University of Kyiv)
Format: Oral

The cult of Apollo played a central role in the religious and civic life of Olbia Pontica, one of the key Greek poleis of the Northern Black Sea region. From its foundation, Apollo functioned not only as the principal civic deity but also as a symbol of mobility, mediation, and connectivity between the Greek world and the Pontic frontier. This paper examines the specific characteristics of Apollo's cult in Olbia through an integrated analysis of architectural remains, coinage, and ceramic evidence, with particular attention to Attic black-figured and black-glazed pottery dedicated to the god. The sanctuary of Apollo, together with numerous votive offerings and coin issues bearing Apolline imagery, reflects the god's role as protector of maritime routes, guarantor of order, and patron of colonial identity. Imported Attic vessels, especially black-glazed and black-figured wares, constitute an important group of dedications, shedding light on ritual practices within the sanctuary and on Olbia's involvement in long-distance exchange networks. Travelling across the Aegean and Pontic seas, these objects illustrate the transregional character of Apollo's cult and demonstrate how religious ideas moved alongside goods and people. By situating ceramic dedications within the broader cultic landscape of Olbia, this paper explores how Apollo's cult acquired local features while remaining closely connected to wider Greek religious traditions, highlighting the role of material culture in expressing the mobility of divine power at the northern edge of the Greek world.

862. Travelling Isis: Insights into the goddess of the open sea and of sailors in the ancient Greco-Roman world

Authors: Stamatis Fritzilas (Research Center of Antiquity, Academy of Athens)
Format: Oral

This presentation examines the depiction of Isis as Mistress of the Sea, a role attested to since Hellenistic times. Evidence of her presence as a sea goddess can be found on coins, gems and statues. She is often depicted holding a sail, and her role as a protector of sailor's dates to Hellenistic and Roman times. Her symbolism, including the cornucopia and the rudder, is associated with good fortune for seafarers. As mistress of the open sea and protector of sailors, Isis is also associated with the Egyptian triad. Statues of Isis holding a sail can be found in many shrines and sites. Evidence of Isis's connection to sea voyages dates back to Hellenistic times and has been found at various sites across the Mediterranean, including in Greece and the coastal cities of Asia Minor and the Near East. She is known by various titles, including Euploia, Pelagia, Pharia, and Goddess of the Seas or of Good Sailing. The following essay will explore the iconography of the Wandering Goddess and her role as a sailor's protector. The worship of Egyptian deities in Greece reached its peak in Roman times. There is a close relationship between statues of Isis, the goddess of seafaring, and inscriptions related to navigation found on some Greek islands and along the coast. Her role was important not only for travellers, but also for the wider community whose economy depended on trading routes. Consequently, cultic expressions and dedications emphasise Isis' significance as a protector of navigation and sailors. Her status as mistress of the sea is emphasised in numerous

literary texts and aretalogies.

1021. Cults in Circulation: Eastern Gods, Rites, and Temples in the Levantine Ports of the Iberian Peninsula

Authors: Marcos Esteban Barbieri (University of Alicante)
Format: Oral

The presence of deities, ritual practices, and cultic spaces originating in the eastern Mediterranean in the ports along the eastern coasts of the Iberian Peninsula constitutes one of the most significant indicators of human and cultural mobility in the ancient western Mediterranean. This paper analyses the implantation and development of eastern religious elements in port contexts along the Iberian Levantine littoral, understood as privileged nodes of contact, transit, and identity negotiation. Based on the combined study of archaeological (temples, coastal sanctuaries, votive offerings, iconography), epigraphic, and literary evidence, it is proposed that these cults were not merely exogenous or residual manifestations, but rather structural components in the configuration of eastern communities stably settled in these enclaves. In this context, certain gods from the eastern Mediterranean associated with the sea, commerce, and the protection of movement acted as identity markers and symbolic mediators between local and foreign populations, facilitating processes of integration, adaptation, and cultural re-signification. The objectives of this study are framed within the theoretical approaches of religious mobility and port sacred landscapes, highlighting the role of these cults as material expressions of long-distance Mediterranean networks. The paper seeks to reflect on how these gods and their cultic spaces embody shared trajectories, intercultural resonances, and dynamics of circulation that allow for a better understanding of the construction of a broad sector of the ancient western Mediterranean.

1184. Heracles on the Move: Mobility, Exchange and Supra-civic Spaces in the Tyrrhenian Mediterranean

Authors: Tommasina Matrone (Kiel University)
Format: Oral

Within the long mythistorical tradition of travelling gods and heroes, Hercules emerges as one of the most emblematic figures of mobility, boundary-crossing, and cultural mediation. In the ancient Mediterranean, his journeys were not only mythic narratives of heroic trials, but also symbolic frameworks through which communities articulated political, economic, and territorial claims. This paper focuses on Heracles as a genuinely Italic deity who also functioned as a trans-cultural and highly intelligible divine figure, capable of mediating shared meanings across different cultural and political contexts. In Campania, Heracles was deeply embedded in local mythologies and landscapes that preserve his name and memory, such as Herculaneum and the islet of Rovigliano (Petra Herculis). These sites define a sacred geography that consistently places Heracles in liminal and connective spaces, including coastal zones, river mouths, and areas of economic interaction. Beyond Campania, similar patterns appear along the Tyrrhenian seaboard, from southern Etruria to Latium and Magna Graecia, where Heracles occurs in sanctuaries near ports, emporia, river crossings, and commercial corridors. In all these contexts, he is consistently associated with Athena/Minerva, a pairing attested exclusively in Italy, suggesting a shared symbolic language through which communities articulated mobility, protection, and exchange. In several cases, Heracles' cult is linked to salt production and exchange routes, highlighting the god's connection with a strategic economic resource. The paper tests the hypothesis that, between the 6th and 4th centuries BCE, Heracles functioned as a divine guarantor of exchange, or as a symbolic vector for the temporary suspension of local norms within supra-civic spaces of interaction, such as the Forum Boarium in Rome. This spatial and cultural coherence suggests that Heracles acted as a recognisable Tyrrhenian trans-cultural marker, mediating political, economic, and cultural connectivity across the region.

2558. A Travelling God or Hero of the Nordic Bronze Age? - The Kallerup Figurines in a Mythological Context

Authors: Niels Møller (Museum Thy)
Format: Oral

During the 11th to 6th centuries BC, the societies of southern Scandinavia developed a highly informative iconography expressed in rock art, bronze figurines and detailed motifs on bronze artifacts. Much of the iconography depicts scenes of a mythological nature merging natural forms into hybrid supernatural beings in combination with a recursive set of symbols depicting amongst others the sun's journey across the sky helped by various animals and a solar barge. Related to the sun's journey, but less well understood, are pairs of warriors with horned helmets and axes, by some scholars interpreted as divine twins with a root in Proto-Indo-European beliefs, but often associated with horses, ships and travel. A recent find of a group of figurines from Kallerup in Northwestern Jutland, Denmark complicate the interpretation of horned warriors. In the Kallerup-deposit the normal pair of warriors are merged into one man with two faces and two pairs of horns on his helmet and related to horses and a ship. The figurine, a depiction of a hybrid and highly supernatural creature, has contemporary parallels in the Western Mediterranean. Whether he is to be interpreted as a guardian presiding over thresholds, not unlike the somewhat later gods Culsans and Janus, or understood as a travelling hero, he and the rest of the Kallerup-deposit is an example of long-distance exchange of ideas between the Western Mediterranean and the Nordic Bronce Age. This paper will discuss the nature of the bi-faced man from Kallerup in his iconographic and cosmological context and thus discuss the hybrid nature of both the mythological creatures and the Late Bronze Age cosmology in which they are embedded.

250. Heroic journeys of Dardanos and the epic foundations across the Eastern Mediterranean

Authors: Arianit Buqinca (Institute of Albanology in Prishtina | Kosova Council for Cultural Heritage)
Format: Oral

The mythic itineraries of Dardanos, the eponymous ancestor of the Dardanians, are examined in this contribution, which is transmitted in Greek and Roman literary traditions and is interwoven with ancient notions of geography and movement. Ancient sources situate Dardanos within a divine framework as son of Zeus and Electra, thereby integrating him into a network of heroic and divine affiliations extending from Arcadia, Etruria, and Phoenicia to Samothrace, the Troad, and Phrygia. Diodorus describes Dardanos as a man of great undertakings (μεγαλεπίβολος), recounting his passage from Samothrace to the Troad on a waterskin and the subsequent migration of his people beyond Thrace into Illyria. Kallimachus preserves the archaic designation of Samothrace as "Dardania" a tradition corroborated by Pausanias, while Virgil and the First Vatican Mythographer propose alternative origins of Dardanos in Etruria or Corinth, resonant with historical Corinthian migrations to Italy. The wanderings of Dardanos also bear a cultic dimension: Diodorus records the role of Dardanos, accompanied by Cybele and Corybas, in transmitting the cult of the "Mother of the Gods" into Phrygia. The mythical frameworks for the founding of cities, the legitimacy of genealogies, and the weaving of cultural exchange were created through these narratives of heroic movement, maritime crossings, territorial migrations, and religious transmissions. By foregrounding these interconnected trajectories, our contribution argues that the "wanderings of Dardanos" were not merely episodes of mythic migration of heroes and deities, but probably symbolic narratives of wanderings and establishments of communities, reinforcing genealogical legitimacy through heroic and religious affinities across diverse regions of the ancient Mediterranean.

50. The travels of Demeter along the North Aegean Coast: Cult mobility in the Classical Antiquity

Authors: Paraskevi Motsiou (National and Kapodistrian University of Athens)
Format: Oral

This paper investigates the travels of the cult of Demeter as a deliberate and practical strategy in the establishment and stabilization of Greek colonies along the North Aegean coast during Classical Antiquity. The study emphasizes the functional role of Demeter's worship in -symbolically as well as politically- securing agricultural prosperity, territorial protection, and long-term colonial sustainability. The early transfer of Demeter's cult and the foundation of rural-oriented sanctuaries emerge as key mechanisms through which newly founded colonies sought divine favor over fertile land and productive resources. Particular attention is given to Abdera, an Ionian colony established on the coasts of ancient Thrace, where the location and character of Demeter's sanctuaries suggest a conscious integration of cult practice into the agricultural, economic and political foundations of the colony. Through a comparative analysis of sanctuary topography and architectural settings in metropolitan centers and their colonies, the paper explores how Demeter's cult was adapted to new environments. Differences in spatial organization, ritual practices, votive offerings and the emphasized attributes of the goddess reveal significant shifts in cultic character between metropolis and colony. These variations reflect local priorities and environmental conditions, highlighting the flexibility of Demeter's worship as a tool for colonial consolidation in the North Aegean.

1174. Across the Aegean and the Black Sea: Colonists, Heroes and Cults in Abdera and Phanagoria

Authors: Antigoni-Maria Mastorakou (National and Kapodistrian University of Athens)
Format: Oral

Abdera and Phanagoria, in Thrace and the Asian Bosporus respectively, are two colonies of Teos. They are both associated with the forced flight of the population of their metropolis during the Persian siege around 545 BC. The presentation examines the cults that developed in these two cities during the turbulent period of their founding for the purpose of validating rights to the new land. A mythical colonist was invented and honored in Abdera, Abderos—a beloved friend of Herakles—associated with the already known labors of the hero in Thrace. On the other hand, in Phanagoria, the colonist was probably a historical yet enigmatic figure named Phanagoras, the man who seems to have undertaken the difficult task of safely transporting the settlers to the distant colony. Finally, indicative for the case of Phanagoria is the cult of Aphrodite Apatouros, a deity who is also associated with the process of colonization and the role of the water element.

266. A couple of Greek Travelling Deities in Sicily: Cybele and Velchanos

Authors: Paolo Scirpo (National and Kapodistrian University of Athens | Società Siracusana di Storia Patria)
Format: Oral

Throughout Antiquity, the Mediterranean basin was traversed by people from its shores, bringing with them not only hopes for a better future but also the beliefs of their homeland. The same phenomenon was observed during the first and second Greek colonizations, when the Mediterranean was dotted with new Hellenic settlements. In these settlements, the pantheon of the apoikia played a fundamental role in the growth of the new poleitic community, as it assumed the burden of maintaining the fragile social equilibrium. Among the many examples of traveling deities, this contribution briefly examines the cases of two very ancient cults, traces

of which can be glimpsed in the varied and complex religious stratigraphy of the Sicilian poleis. The cult of the Mother Goddess "Cybele" and that of Velchanos, originating respectively in Phrygia and Crete, spread through the colonial movements that swept across the Aegean to two of the islands at the extremes of the Greek world: Sicily and Cyprus.

249. The Travelling Founders of Metapontum: Myth, Mobility, and Colonial Origins

Authors: Fryni Grevenioti (National and Kapodistrian University of Athens)
Format: Oral

This paper explores the role of travelling heroes and narratives of failed nostos in the foundation traditions of Metapontum, an ancient Greek colony in southern Italy, located in the Gulf of Taras and traditionally founded by Achaean settlers in the late 7th century BC. Literary sources associate the origins of the city with post-Trojan War journeys undertaken by Pylians, particularly the heroic figures of Nestor and Epeios, whose unsuccessful return home led to prolonged sea wanderings and the establishment of a new settlement. These mythic narratives are examined as retrospective constructions that connected the historical Achaean foundation of Metapontum with a prestigious heroic past, while also evoking memories of Mycenaean presence in the region. Alternative traditions attribute the foundation to Leukippos, an Achaean leader who secured the territory through deception against the neighbouring Spartan colony of Taras and was subsequently recognised as the city's founder. His foundational role is materially attested by his depiction on Metapontine coinage of the mid-4th century B.C. By combining literary evidence with archaeological data, the paper investigates how travelling heroes operated as agents of mobility, memory, and legitimation in colonial contexts. It argues that heroic journeys functioned as powerful narrative frameworks through which displacement was transformed into origin, continuity, and collective identity in the ancient Greek colonial world.

416. Travel as Mythic Strategy: Aeneas and the Making of Civic Identity in the Mediterranean

Authors: Cecilia Perinelli (St Andrews)
Format: Oral

Travel played a constitutive role in ancient myth, not merely as a narrative framework but as a strategy through which communities articulated identity, authority, and belonging. The figure of Aeneas offers a privileged vantage point for exploring this dynamic, yet his role as a travelling hero has rarely been examined comparatively across regions, media, and political contexts. This paper argues that Aeneas' mobility functioned as an operative cultural strategy through which communities negotiated civic identity and affiliation, both before and under Roman power. Rather than a fixed legendary figure, Aeneas emerges as a mobile founder whose authority was generated through repeated local reactivation in response to shifting historical and political conditions. Through a comparative analysis of selected sites associated with Aeneas' travels, including Aineia on the Chalkidic peninsula, Orkomenos in Arcadia, and Segesta in Sicily, the paper brings together poetic sources, fragmentary historiography, archaeological evidence, cult practices, and coinage. The case of Aineia illustrates a pre-Roman use of Aeneas as heros ktistes, materialized through cult and coinage to anchor civic identity. By contrast, Orkomenos and Segesta, though very distant from each other (Arkadia, Sicily) demonstrate how claims of Trojan descent were reactivated under Roman rule as strategies for negotiating status, legitimacy, and continuity within an imperial framework. Ancient authors already reflected on this phenomenon: Dionysius of Halicarnassus observed that the many tombs of Aeneas scattered across the Mediterranean were not contradictions, but monuments erected by different communities in recognition of the benefits received from an itinerant founder. By foregrounding travel as a productive force rather than a narrative backdrop, this paper rethinks the relationship between mobility, myth, and power. It shows that itinerant heroes did not merely connect places, but actively generated frameworks of belonging capable of absorbing political change while sustaining claims to shared origins across the Mediterranean.

35 ILLUSTRATING THE PAST: GENDER REPRESENTATIONS IN PREHISTORY AND PROTOHISTORY

Theme: 2. Crossing the divide. Archaeology and the open world
Organisers: Matteo Colombini (Massa Marittima Museums - Zoe Cultural Cooperative) – Francesca Fulminante (Oxford and Cambridge Universities, Continuing Education | Bristol University | University Roma Tre)
Keywords: Gender Representations, Science Communication, Didactic representations, Pre- and Protohistory, Antiquity
Format: Regular session
Affiliation: Archaeology and Gender in Europe - AGE

SESSION ABSTRACT

Visual representations displayed in museums, interpretive centers, school textbooks, popular science books, and outreach activities related to Pre- and Protohistory are powerful instruments in shaping historical consciousness. Yet, a recurring question persists: do these images still reproduce stereotypical views, with men associated with public and creative activities, while women are relegated to domestic and private spheres? This session invites a critical discussion on strategies of representing past human communities, particularly in educational and scientific communication contexts. While archaeological research increasingly raises new questions and produces data that challenge traditional assumptions, visual and didactic representations often remain bound to outdated narratives. How do archaeologists engage with the images used in outreach? To what extent does science communication reflect contemporary debates on gender, the critique of binary categories, and the influence of modern Western biases? Moreover, how are recent developments—such as the archaeology of childhood and care practices—impacting visual and discursive representations of past societies? We welcome case studies, theoretical reflections, and proposals for action that critically examine representations of human beings in Pre- and Protohistoric contexts and other historical periods, as well, for the purpose of comparison or contrast. Contributions addressing the intersections between archaeology and other research fields, such as heritage studies, science communication, gender studies, education and visual studies, are particularly encouraged.

CONTRIBUTION ABSTRACTS

2680. Enthrone, dethrone, rethrone: Interpreting Matrilineal Kinship in Aegean Prehistory

Authors: Sabina Cvecek (Field Museum of Natural History | Austrian Academy of Sciences | University of Illinois Chicago)
Format: Oral

Matrilineal kinship in Aegean prehistory has often been proposed as a form of social organization for Neolithic communities and selected Bronze Age contexts. In many cases, claims for matrilineality have been inferred from the prominence of figurines interpreted as female within particular archaeological settings. Drawing on archaeological, bioarchaeological, and comparative anthropological evidence, this paper traces how matrilineal kinship in Aegean prehistory has been repeatedly enthroned, dethroned, and more recently rethroned within scholarly interpretation. By placing kinship theory in dialogue with Neolithic and Bronze Age imaginaries, it highlights how shifts in interpretive frameworks—rather than new data alone—have shaped understandings of gender, descent, and social organization. The paper argues that matrilineal kinship is better understood not as a singular or dominant model, nor as a speculative alternative to patrilineal social structures, but as one of several possible ways in which Neolithic and Bronze Age societies may have organized social relations. Moreover, based on ethnographic record, matrilineal kinship represents many rather than one form of social organization. This presentation is based on the article published in Archaeological Dialogues (2025), "Enthrone, Dethrone, Rethrone? The Multiple Lives of Matrilineal Kinship in Aegean Prehistory."

2282. Representing physical or symbolic gender differentiation in the Neolithic – reflections of reality, transition, liminality and ambiguity?

Authors: Christina Marangou (Independent scholar)
Format: Oral

Neolithic representations may have belonged to various semiotic systems, with variety, polysemy and multifunctionality probably constituting promising interpretative directions. Besides embodying physical reality, images may reflect a mental, social or intangible entity in the real world, and even materialize fiction, alluding to symbolic, imaginary realms. If what seems to have been everyday life routine is often represented, some common situations may be rarely materialized, even constitute exceptional themes. Moreover, images may be distinguished into categories that might define gender, not only physical, but also social. In a larger sense, they might also imply conceptual or ritual status or expertise of individuals, either in reality or in imagination. In other cases, any obvious gender indication is absent, apparently deliberately. Besides, even their role and function as material objects may have contributed to differentiate symbolic meanings of images. The present paper considers examples of Neolithic representations insinuating gender (in the large sense) categorization, mainly from Greece and neighbouring regions, including in a socio-archaeological approach.

1866. From "Man the Artist" to Plural Artists: Gender, Evidence, and New Visual Narratives in the Study of Prehistoric Art

Authors: Ines Domingo Sanz (ICREA | Universitat de Barcelona)
Format: Oral

For over a century, both archaeological research and popular illustrations have reinforced the mistaken idea that only men created art in prehistoric times. This "man the artist" model, rooted in nineteenth-century evolutionary thought, androcentric scientific traditions, and male-centered ethnographic accounts, cast women as models, muses, or passive observers, despite having no solid evidence. Recent research is challenging these views. Biometric and morphometric analyses of hand stencils and fingerprints show participation by individuals of different ages and possibly sexes. Archaeological contexts, including footprints and burials associated with decorated spaces, suggest intergenerational and mixed-gender involvement. Ethnographic studies document women's and children's active roles in art production and transmission. Reassessing prehistoric imagery also highlights female figures and questions the automatic gendering of ambiguous representations. Together, these insights support a more inclusive understanding of prehistoric creativity and art reshaping how we visualize the past. Museums, textbooks and media now increasingly depict women as artists, hunters, and decision-makers, and men in caregiving or collaborative roles. By challenging outdated stereotypes, these new narratives empower women, recognize all humans as active agents, and help us reconstruct a more accurate, diverse vision of the past. This presentation reviews the origins of the old "man the artist" theory and provides an updated and critical view that reflects new evidence and more inclusive interpretations of prehistoric art.

2028. Making Gender Visible at Lake Accesa (Massa Marittima, Italy): From Archaeological Evidence to Public Narrative

Authors: Matteo Colombini (Massa Marittima Museum) – Francesca Fulminante (Bristol University, Oxford University, Università di Roma Tre)
Format: Oral

The Etruscan settlement at Lake Accesa was discovered in the early twentieth century and has been intensively investigated by the University of Florence since 1980. The site is located on the southern side of the Metalliferous Hills, 20 km northeast of the Etruscan city of Vetulonia (Tuscany, Italy). Excavations have revealed a four-quarter town occupied from at least the late eighth to the late sixth centuries BCE. Material culture from elite graves and houses provides evidence of an aristocracy whose wealth was based on the exploitation of mineral resources, agriculture, fishing, and animal husbandry. Traditional archaeological interpretations have often divided this elite into two gendered categories: men as warriors wielding political power, and women as household keepers and weavers. The Massa Marittima Museums, in collaboration with the Universities of Bristol, Durham, and Siena, and supported by the British Academy (2023-24, SRG2324\241025), have developed a new approach combining material culture analysis, spatial analysis, anthropological study, and archaeometry to bridge this gap and deconstruct gender stereotypes. This contribution presents preliminary results based on the analysis of tombs 6, 33, and 37, alongside the communication strategy implemented in the museum to disseminate research findings to diverse audiences.

2583. The marginalization of women within sculpture- Classical Civilization A Level

Authors: Olivia Naylor- Allison (Clifton College)
Format: Oral

This presentation aims to target the gendered imbalance of compulsory sculpture within the Classical Civilization A Level course, with a particular focus on the contrasting depictions of male and female statues. It will interrogate the thematic structure and assessment limitations which enable a more diverse illustration of male figures, which are frequently depicted as more dynamic and artistically innovative while outlining female sculpture as somewhat underdeveloped or simply less stylistically commendable in comparison, meaning the course offers a less academically rigorous exploration of female statues. A more balanced juxtaposition of gendered art would easily reveal a rich and enrapturing depiction of women through sculpture and material culture. The discussion will centre around how prescribed male statues, which are frequently explored through a broad variety of lenses, further exemplify how the mandatory female statues tend to fall into narrow categories. This limits interpretive range and reinforces a reductive visual impression without a full consideration of equal thematic development. Finally, the analysis will reflect upon the historical context of male archaeologists shaping representations of women within classical research. It will consider whether our modern curriculum still echoes this androcentrism, which is perpetuated through selective emphasis and leads us to question the consequences of these decisions on the student and their understanding of the classical world. This paper will aim to demonstrate how biases within the A-level Greet Art curriculum parallel the selection and study of prehistoric archaeology, where scholars have noted the projection of a possibly more reductive or docile lens when studying female roles and women through material culture.

2765. The exceptional and the erased: A critique of gender representation in A-Level Latin and Greek

Authors: Elizabeth Laredo (Clifton College)
Format: Oral

This presentation will examine a pattern I find troubling in Classical education (A Level OCR). Everything we learn about women is through the lens of male authors who only ever promote women of high status or women with noble connections. However, the lived realities of ordinary ancient women remain absent from our curricula. Drawing on my own experience of the Latin and Greek syllabus, I want to argue that prioritising exceptional women creates the illusion of gender-inclusive teaching while actually obscuring the structural inequalities that defined most women's lives in antiquity. I aim to challenge classical educators to move beyond tokenistic inclusion of famous women and instead centre questions of marriage law, bodily autonomy, labour exploitation and more. Additionally, I will suggest what seem to be the most appropriate solutions. Ultimately, I believe that by examining what our curriculum forgets, we could allow and encourage classical studies to engage with gender as a fundamental force shaping ancient societies.

232. Gendered Representation and Reconstructions of Prehistory and Protohistory in Museum Displays and Course-books in Europe: Are Binary Perspectives Still Prevailing?

Authors: Francesca Fulminante (Bristol University | Institute of Continuing Education, Oxford and Cambridge | University Roma Tre)
Format: Poster

Two years ago, an EAA session, 'To gender or not to gender' organised by Bisserka Gaydarska, Katharina Rebay-Salisbury, Paz Ramirez-Valiente and Jana Esther Friez, challenged the then dominating view of gender development and symbolism in Euro-Mediterranean Antiquity, as elaborated by Robb and Harris (1990s-2020s). According to the latter, Neolithic gender representation

is ambiguous and blurred, with a transition occurring in the Copper-Bronze Age towards greater distinction in the Iron Age-Archaic Period, of an emerging binary ideology which related men to the 'martial warrior' and female to the 'beautiful weaver' (Robb 1994, 1997; Robb and Harris 2017). Still the visual and performative representation of men and women in Museums/Archaeological sites and book iconographic representations across Italy and UK with reference to Pre-Roman population maintains to date this standard dichotomy. Males are always represented in posters and illustrations associated with weapons and females are always associated with textile tools. I will present older and more recent Museums displays and objects present in Museums for interacting activities, as well as archaeological site reconstructions and various publications from a few decades ago and from more recent times to show that nothing has changed even in more recent years. Instead the 2020 EAA session turned our focus to the association between gender and biological sex, with a number of studies now revealing that the interplay between indicators of different personhood and identity aspects, such as age, status, class and even ethnicity, is much more complex than the old binary suggests, including now the emergence of different genders in the prehistoric data. But how long will it take before the new gender identifications and perspectives will be hosted in Museum displays and/or popular illustrations?

1431. Gendered narratives of the Prehistoric past in commercial board games

Authors: Victor Jimenez-Jaimez (University of Malaga)
Format: Poster

Contemporary games—digital and analog—have become influential media for shaping public understandings of the past. Their immersive and participatory nature often makes them more impactful than traditional academic publications, granting them a broad societal reach. Despite their narrative potential, representations of Prehistory in tabletop games frequently reproduce outdated and stereotypical images of early human communities. In particular, many commercially successful board games portraying the Paleolithic period continue to associate men with creativity, leadership, and outdoor activities, while women are depicted in auxiliary or domestic roles. This paper focuses on the visual and discursive strategies through which gendered roles are communicated in a few selected cases that are exceptions to the dominant discourse, or that provide more nuanced stories about the Prehistoric past. To this end, I analyze artwork, rulebooks, mechanics, and marketing materials to explore how these elements collectively shape historical consciousness. Comparing these representations with current archaeological debates holds great potential, particularly as regards important issues such as binary categories, care and cooperation, and the expanding archaeology of childhood.

2728. The representation of women in protohistory in school textbooks: a look at the reality in Portugal

Authors: Ana Cristina Martins (IHC-Universidade de Évora / IN2PAST)
Format: Poster

Though traditionally dominated by male figures and roles that reinforce conventional stereotypes, efforts are increasing to bring in more inclusive perspectives. Studies show that women are less frequently represented in text and images, often mainly in relation to men. Usually, there is numerical underrepresentation, where women appear in smaller numbers than men in textbooks and images, suggesting that their historical participation was less significant. Women are often portrayed as participating in domestic, family, or social activities, while men are commonly depicted in public positions, leadership roles, hunting, or taking part in conflicts. Besides, they are rarely portrayed as active agents in cultural development or in positions of power, unlike men who dominate leadership roles. Frequently, women's achievements are overlooked, and the focus shifts to their connections with men, such as husbands or fathers, rather than to their personal successes. In Portugal, recent initiatives and developments are taking place, with academic researchers and gender equality organisations advocating for the revision of curricula and teaching materials. Additionally, gender archaeology critically addresses the traditional acceptance of gender roles. Analysing Portuguese schools' textbooks published between the totalitarian regime 'New State' (1927-1974), and nowadays, we aim to understand how women are being depicted, evaluating their role in the perpetuation or renovation of traditional gender roles.

36 SEAFARING MODELLING AS PART OF INTER- AND INTRADISCIPLINARY INQUIRY

Theme: 7. Interaction, connectivity and mobility
Organisers: Wesa Perttola – Elisabeth Holmqvist-Sipilä (University of Helsinki) – Ermioni Vereketi (National and Kapodistrian University of Athens)
Keywords: Seafaring Models, Maritime Movement, Connectivity, Interdisciplinarity, Trade And Exchange
Format: Regular session

SESSION ABSTRACT

Seafaring represents the interplay of human endeavour, wind, and water, while seafaring models seek to computationally simulate these intricate relationships. Consequently, such models are inherently, and by necessity, inter- and intradisciplinary (i.e. involving multiple fields or subfields, hereafter IID) efforts, combining data from fields such as archaeology, history, GIS, and the environmental sciences. The maritime connections they simulate did not operate in isolation but functioned often as integral components

of past societies, which makes it possible to utilise seafaring models as tools for other forms of scientific inquiry, further amplifying their IID character. This session aims to bring together scholars who explore seafaring and maritimity — encompassing seas, rivers, lakes, and other aquatic landscapes — to showcase the diverse ways in which seafaring models can shed light on human interactions and/or the environmental conditions that underpin them. The reconstructed maritime connections are viewed as components of wider social, economic, and cultural networks, and by situating modelling within these contexts, the session will examine both its interpretative and methodological dimensions. Particularly welcomed are submissions that look beyond the technical aspects of modelling and examine how seafaring models are used to build interpretative narratives within IID frameworks. The wide range of topics to be addressed in this session includes seafaring modelling in conjunction with, for example, artefact provenancing, maritime dispersal of humans and other species alongside them, trade networks, and economic calendars, among others. Papers that combine maritime and terrestrial mobility are also encouraged to submit. Overall, the session will highlight how seafaring modelling contributes IID perspectives to the current archaeological discourse in Europe and beyond.

CONTRIBUTION ABSTRACTS

220. Identities Beyond the "Warrior": Modelling Maritime Agency in Western Greece

Authors: Ermioni Vereketi (National and Kapodistrian University)
Format: Oral

During the post-palatial period (LH IIIC), Western Greece flourished as a node of connectivity while the wider Eastern Mediterranean faced turbulence. This phenomenon is epitomized by the wealthy "warrior burials" of the Ionian Islands, which contain foreign bronzes and Italian-influenced imports. This paper employs seafaring modelling as a primary tool of interdisciplinary inquiry to reevaluate the social identities of these individuals. Moving beyond static distribution maps, this study integrates archaeological data with environmental variables, such as wind patterns and sea currents, using Circuit Theory to simulate maritime mobility. Unlike standard route analyses, this approach models the seascape as a surface of conductivity, identifying high-probability corridors, where environmental factors influenced maritime traffic. The results highlight that, specific areas between the Ionian Islands served as unavoidable bottlenecks for seasonal maritime flows. The strong correlation between these strategic nodes and the location of weapon burials supports a reevaluation of the deceased's social identity. These individuals, rather than being strictly classified as "warriors", may have served as gatekeepers, merchants, or pirates and their status was associated with controlling or obscuring the flow of goods along these key passages. The study highlights how modeling environmental factors can enhance our understanding of complex social associations within the dispersed networks of the 12th century BC.

400. The Voyage of the Isis Revisited

Authors: David Gal (University of Haifa)
Format: Oral

While the existence of maritime links in Antiquity is well supported by archaeological evidence, there is a gap in the evidence regarding how these links were conducted. One of the few existing seafaring resources is a handful of sailing-voyage narratives found in the textual evidence. One of these is the account of the sailing of the Isis, an Alexandrian grain ship bound for Rome. This narrative is part of the work of fiction Navigium by Lucian of Samosata, but even as a work of fiction, the description of the voyage and its parameters has been widely referred to by scholars in analyses of seafaring. The University of Haifa model for investigating potential sailing mobility was applied to elements of Isis's sailing, with the objective of gaining new insights into events that have eluded previous scholars. One of the contested issues is the cause of the excursion as far eastward as Sidon. In the study, new understandings and discoveries have unravelled, as in a detective story, through the application of the new quantitative sailing mobility model to investigate this voyage. The multidisciplinary outcomes illuminate regional and seasonal wind patterns, seasonal routing preferences of the Alexandrian grain fleet, seafaring practices of the period, and new perspectives on the textual source and its translation.

139. Modelling seafaring: connecting Viking Age insular and maritime north-west Europe

Authors: Stephen Dickinson (Independent researcher)
Format: Oral

Since the 1990's archaeologists have been aware of a large number of small finds relating to Britain and Ireland in the early medieval period, which occur in numerous archaeological contexts in Scandinavia. These call into question the natures of artefact chronology and provenancing, trade, raids, settlement, and, in particular, pre-Viking and Viking Age ship and human transportation, terrestrial mobility, and the political and territorial organisation of early kingdoms around the North and the Irish Seas. Modelling seafaring for such transportation has occurred at the same time as a rise in pre-Viking and Viking Age ship reconstruction and voyaging. These pragmatic solutions to understanding the realities of seafaring over a thousand years ago rarely form part of the technical aspects of computer modelling of transportation in the Viking Age. A new monumental Viking Age ship burial find in West Cumbria, UK has highlighted, in particular, the nature of narratives relating to the understanding of the formation of Viking Age kingdoms around the Irish Sea, Eastern England, Scotland and SW Norway. A significant Viking Age silver hoard found in 2014 near, (and relating to) this burial has reignited the debate around the extent of Viking Age trade and market networks affecting these areas, which were, it is suggested, part of both a highly connected terrestrial and maritime transportation system. A new

IID interpretative narrative encompassing both reconstructed and modelled voyages by both sea and land is suggested connecting Ireland, Britain and Scandinavia in the late eighth to the early 10th centuries AD.

1722. Currents of Clay: Integrating Viking Age Ceramic Compositional Data Patterns with Sailing Simulations in the Northern Baltic Region

Authors: Elisabeth Holmqvist-Sipilä – Wesa Perttola (University of Helsinki) – Greer Jarrett (Lund University)
Format: Oral

Before, during and after the Viking Age (c. 800–1050 CE) the Baltic Sea was a major maritime thoroughfare, along which ships routinely sailed transporting people and goods across the region and beyond. One of the goods being circulated was pottery: archaeometric compositional analysis (XRF, SEM-EDS) of Viking Age ceramics sampled from sites in Finland, Sweden, Estonia and Russia suggests inter-regional and cross-Baltic Sea contacts between communities. Similarities in ceramic traditions have been explained by trading, cultural assimilation and relocating individuals or groups (e.g. women). However, as information about Viking Age routes in the northern Baltic is scarce, and the region has received less attention from recent scholars of seafaring than other parts of the Viking world, sailing modelling offers a means of gaining insight into this essential facet of life. The Baltic Sea is a small, shallow, semi-enclosed sea, with brackish water, extensive archipelagos, isostatic land uplift, negligible tides, air temperatures ranging from –30 to +30 °C, and daylight from 6 to 19 hours at mid-latitudes. These are some of the characteristics that contribute to its status as a highly distinctive marine basin on a global scale. The extensive work done on Viking ship reconstructions and their sea trials, and the good availability of high-resolution environmental data make it a compelling target for sailing simulations. Nevertheless, even with the rising popularity of this methodology, the Northern Baltic Sea has so far remained a white spot on the map in this regard. Here, we draw together results from these two sources of information to form a picture of Viking Age ceramics connection network, what it took to transport wares across the sea, and what kind of environment the sailors would face. Ultimately, our aim is to move from ceramic sourcing to the practical logistics of movement across a challenging seascape.

986. All aboard, participative maritime experimental archaeology and computational approaches dialogue : an example for Martinique (F.W.I.)

Authors: Benoit Berard (Université des Antilles | UMR 8096 "Archéologie des Amériques") – Slayton Emma (Carnegie Melon University) – Alvaro Montenegro (Ohio State University)
Format: Oral

A comprehensive understanding of the navigational capabilities of pre-Columbian populations in the Antilles is imperative to our comprehension of these island societies, for whom maritimity was of paramount importance. For several years, significant efforts have been made in the region to address this issue. These efforts have combined traditional archaeological and historical approaches, work with communities of descendants, experimental maritime archaeology projects, and computational approaches. This work has been part of a paradigm shift from the notion of insularity to that of archipelagicity. The objective of this presentation is twofold: first, to assess the predominant issues currently surrounding the maritime practices of the indigenous societies of the Caribbean, and second, to explore potential solutions to these issues. The presentation of a research program carried out in Martinique (F.W.I.) in 2025 will provide a detailed example of a multidisciplinary practice. This practice is based on a dialogue between experimental maritime archaeology, participatory archaeology, and computational approaches. Beyond the methodological dimension, an effort will be made to illustrate how this type of approach is now essential to the construction of an interpretative narrative that can inform all the issues associated with knowledge of the indigenous societies of the Caribbean archipelago.

1721. Where was the monsoon when Angkor fell? Sailing modelling using palaeoclimate simulations in the 14th and 15th century Southeast Asia

Authors: Wesa Perttola (University of Helsinki) – Marko Kallio (Aalto University) – Marisa Borreggine (Harvard University)
Format: Oral

During the mid-14th and early 15th centuries CE, Mainland Southeast Asia experienced two megadrought events, the impacts of which extended as far as India and central China. Among their most significant and well-documented consequences was their contribution to the fall of Angkor: one of the largest urban centres of its time was largely abandoned and lost its status as the capital of the Khmer Empire. While the terrestrial effects of these climatic extremes have been widely studied, their potential influence on maritime trade networks remains poorly understood. Because modern, instrument-based, high-resolution wind datasets cover less than a hundred years, this question must be addressed using palaeoenvironmental simulations. In this presentation, we will introduce the results of a 200-year long (1300–1499 CE) series of weekly sailing simulations between Quanzhou, China and the mouth of the Mekong River, Vietnam. The simulations were conducted with Digital Navigator — a sequential least-cost path model — using wind data from a run from Last Millennium Ensemble (LME). Like other palaeoclimate models, the LME is stochastic in nature, and individual events —such as megadroughts — do not necessarily align chronologically with their historical counterparts. Nevertheless, they represent the current best understanding of past climate dynamics and provide a suitable framework for exploring interconnections between large-scale climatic processes and human mobility. Therefore, we compare the simulated sailing durations to climate metrics such as Oceanic Niño Index (ONI), Palmer Drought Severity Index (PDSI), Intertropical Convergence Zone (ITCZ) position, and the onset and withdrawal of the South China Sea Summer Monsoon, to assess whether sailing conditions

differed markedly in the 14th and 15th centuries. Additionally, our results are also useful for estimating if modern winds can be utilised as a proxy for this time period.

958. Maritime connections in the Baltic Sea in the Early Iron Age – "Bornholm – the island in the middle"

Authors: Tine Trolle (Aarhus University) – Piotr Luczkiewicz (Maria Curie-Sklodowska University) – Aneta Kuziola (Adam Mickiewicz University) – Michal Grygiel (Nicolaus Copernicus University)
Format: Poster

The project "Bornholm – the island in the middle" aims to shed light on societies, contacts and alliance systems in the Baltic Sea region in the Early Iron Age (500 BC – 400 AD). It-is based on material from Bornholm's largest cremation ground, Store Frigård with 1250 graves. With its central geographical location in the middle of the Baltic Sea, the island of Bornholm has always been an obvious link and a treasured "stepping stone" between the Continent and Scandinavia. The project's scientific analyses therefore include exploring the interactions of the Bornholm community, maritime connections and seafaring patterns in the Iron Age. Store Frigård with its 900-year continuous history offers an obvious material for investigating the dynamics of long-distance exchange – and thus implicitly seafaring – in a 'longue duree'. A picture emerges of local centres in the Baltic Sea region in the Early Iron Age, where people interacted exchanging ideas, knowledge and objects, and Bornholm communities were connected to the European networks. The unique material consists of clothing, jewelry, tools, weapons and pottery as well as cremated bones. The research work uses methods from both archaeology, natural sciences, sociology and ethnography. Several of the natural science methods are aimed at determining provenance of raw material or persons, including metal, glass, ICP- and isotope analyses - carried out on a larger scale and unique for the period at Bornholm. The analyses help to clarify interactions such as trade, exchange, mobility, migration and thus the maritime connections with the island. For the studies of the overseas exchange networks we have used a theoretical model developed by Feugnet et. al. (2021) on the economic and social exchanges between the Greco-Roman culture and the Celtic world in the 3rd-1st century BC.

37 RESONANT LANDSCAPES: SACRED PLACES, MATERIAL AFFORDANCES, AND COSMOLOGICAL ORIENTATIONS IN THE ANCIENT MEDITERRANEAN

Theme: 7. Interaction, connectivity and mobility
Organisers: Silvia Fogliazza (International study Center of Ancient Religions CRA, Ca' Foscari) – Ilaria Cristofaro (University of Peloponnese)
Keywords: Sacred landscapes, Material religion, Cosmology, Temporality, Ritual practice
Format: Regular session

SESSION ABSTRACT

The panel 'Resonant Landscapes' aims to bring together scholars interested in natural places and built environments as contact zones between humans and the "sacred". The geographical and chronological focus spans the wider Mediterranean basin, from the Bronze Age to the Late Antiquity. The session focuses on five thematic pillars: 1. Sense of place, agency and power of sites: how natural places (caves, hill top, hills, rivers, sea, astral elements) and artificially built environments (sanctuaries, altars, temples) may produce ritual experiences, bringing in communication different cosmological levels. This topic is well represented by the concepts of landscape, seascape, skyscape and other -scapes approaches. 2. Material religion and sacred architecture: how objects, materials, built environments, and bodies may act as mediator of the sacred—facilitating or obstructing the connection between humans and the extra-ordinary. 3. Affordances and performativity: how the intrinsic material and sensory properties of places (echoes, light, stones, water, soils depth, visibility of the sky) shaped gestures, perceptions, and ritual actions. Rather than passive backdrops, these environments invited and shaped performative engagements that could trigger or amplify divine manifestations (epiphanies). 4. Stratified cosmologies: the focus is on the material traces on the relationship between the celestial, terrestrial, and subterranean worlds; 'verticality', astral and sacred orientations (mountains, caves, sun, stars, temples); how ritual acts might have reverberated echoing major cosmic systems. 5. Temporal resonances: continuity and discontinuity on the re-use of specific places for 'religious' and 'ceremonial' aims, given the same affordances as prompter of the sacred experience (landscapes of memory, ritual movements, processions, festivity, periodicity, cycles of ritual frequentation of sites, and seasonality). In summary, the panel integrates landscape archaeology, history of religion, sacred architecture, inviting specific case studies or methodological contributions aiming to unveil the role of 'place' as resonant element in the sacred experiences of ancient Mediterranean cultures.

CONTRIBUTION ABSTRACTS

466. Ritual Reflections of the Land-, Sea and Sky-scape of the Minoan Peak Sanctuary at Ayios Yeoryios sto Vouno, Kythera

Authors: Emilia Banou (University of the Peloponnese)
Format: Oral

The Minoan peak sanctuary at Ayios Yeoryios sto Vouno, Kythera, came to light by the late Y. Sakellarakis (1992-1994); excavation at the site was resumed later on (2011-1015) by the speaker. The sanctuary is situated on the 356 m. high western edge of a 1 km. long ridge named Vigla, after a ruined tower of probably Venetian origin visible on its eastern end, and it is named after one of the two Byzantine churches built on its top. The site commands a wide view of the southeastern shore and the central hinterland of Kythera, and of the bay of Neapolis in southwestern Laconia; it also offers a panoramic view to the southern Aegean, including the Cretan mountains. The sanctuary was founded in MMIB and reached its acme in the Neopalatial period, especially in MMIIIB-LMIA. Among categories of votives well known from peak sanctuaries in Crete, like clay human and animal figurines, votive limbs, and stone vessels, the Kytherean sanctuary yielded an unexpectedly great number of bronze statuettes of Minoan adorants together with a variety of other metal finds, a considerable number of clay buildings, as well as some finds not known from other peak sanctuaries, like clay and bronze figurines of scorpions. The paper focuses on the natural setting of the peak sanctuary as reflected on ritual activities, namely: a) on its visual and natural relation to the settlement of Kastri in connection with probable processions from the settlement to the sanctuary; b) on its visit by Minoan elite members involved in metal trade by sea, as implied by relative votives, especially bronze finds and clay building models; and c) its frequency by seafarers, related to its function as a landmark as well as a place suitable for possible navigational observations, as indicated by the dedication of scorpion figurines.

850. High Places, Living Memory: Mountain Affordances and Ritual Action in the Piacenza Apennines

Authors: Silvia Fogliazza (International Study Center of Ancient Religions CRA, Ca' Foscari)
Format: Oral

Accidental finds and archaeological investigations conducted in selected areas of the Piacenza Apennines have revealed material traces of ritual activities connected to mountain tops and dating from the Iron Age to the Roman conquest and early Imperial period. These data offer an opportunity to reflect on the role of high places as ritual locations and on their function in the construction and transmission of cultural memory within local communities. Drawing on the concept of sense of place, developed in ethnobotany and cultural ecology to describe a culturally mediated attachment between people and specific landscapes, this paper explores mountain environments as active agents in shaping ritual experience and collective identity. Particular attention is given to the affordances of the Apennine landscape—such as elevation, visibility, intervisibility, liminality, and exposure—which structured ritual practices in antiquity by enabling specific gestures and movements. The paper further examines a contemporary collective rite still practiced in several villages of the Piacenza Apennines at the end of winter, involving the ignition of large wood piles on mountain summits. The ritual sequence—characterised by shared gestures, the use of aromatic woods (pine and juniper), sound signals, and augural readings—follows an internal logic linked to seasonal transition, purification, and renewal of the agrarian cycle. While historically and culturally distant from ancient cult practices, this modern rite engages the same landscape affordances, revealing the enduring ritual agency of mountain spaces. This contribution argues that the long-term resonance of mountain rituality lies in the performative efficacy of place itself. The Apennine peaks emerge as resonant landscapes, where material and sensory properties enable the repeated reactivation of memory, identity, and collective engagement across different historical contexts.

2241. Into the Deep Water: Rituals of Immersion, Deposition, and the Agency of Thermal Waters at San Casciano dei Bagni

Authors: Edoardo Vanni – Jacopo Tabolli (University for Foreigners of Siena)
Format: Oral

The sacred thermal complex of San Casciano dei Bagni (ancient Etruria) provides an exceptional case for investigating the role of water as a privileged medium for ritual deposition and controlled disappearance. At the core of the sanctuary lies the Bagno Grande, a monumental basin fed by hot mineral springs, whose continuity of use from the late Republican period to Late Antiquity structured both ritual practices and architectural choices. Archaeological evidence demonstrates that the basin was not a neutral container but the central focus of cult activity. Over centuries, since Etruscan-Roman age, offerings—including bronze statues, anatomical votives, coins, and organic materials—were intentionally immersed in the thermal waters. The long-term respect for the basin, even during major architectural renovations, and its final sealing in the early 5th century AD through the deliberate collapse of architectural elements, reveal a conscious management of deposition and closure rather than accidental loss or simple disposal. The physical properties of the water—heat, mineral opacity, continuous flow, and depth—played an active role in shaping depositional practices. Water functioned simultaneously as a purifying agent, a medium of communication with divine powers, and a mechanism for removing objects from human circulation while preserving them within a sacred domain. Notably, faunal remains associated with sacrifice and consumption were largely excluded from the basin, suggesting a clear conceptual boundary between ritual deposition and both sacred and quotidian waste. By focusing on the relationship between a built thermal installation and the material practices enacted within it, this paper addresses questions of agency: did water itself "receive" offerings, or was agency located in the regulated act of immersion performed by worshippers? Finally, the basin emerges as a spatial device that actively produced sacred space, transforming immersion into a ritual act that negotiated visibility, absence, and permanence.

327. The evening star Venus, Aeneas, and the Orientation of Altars at Castrum Inui Sanctuary (Ardea, Latium)

Authors: Ilaria Cristofaro (Laboratory of Archaeometry, University of Peloponnese)
Format: Oral

The ancient historian Dionysius of Halicarnassus (1st cent. BC) described the arrival of Aeneas on the Latium coast and his offerings of thanks to the god for the fresh spring water, sacred to the Sun, he found there. Nearby stood two altars, one oriented to the east and the other to the west (Dion. Hal. Ant. Rom., 1.55.1–2). This description closely corresponds with the archaeological features of Castrum Inui (Ardea, Latium), where a spring–well and two altars facing opposite directions have been identified (Torelli 2011, Di Mario 2016). The sanctuary started to be structured in the Archaic period near the mouth of a river, in a marshy watery dunes landscape. Although previous studies have acknowledged the dedication to the Sun and the general east–west orientation of the altars, a realistic celestial analysis of their alignment remains lacking (Moser 2014). The present study aims to address this gap by conducting a skyscape archaeology analysis to provide new insights into the topography of the sanctuary and the cultic significance of the local solar god Inuus, Aeneas, and his mythical mother Venus. Beyond the orientation to winter solstice sunrise for the 3rd cent. in–antis altar, the primal Archaic cult seems to have been connected with the westerly vespertine phase of Venus, astral goddess who led the hero to the Latium coast. The astral cult was kept resonant and vivid by a monolith inscribed with the letter 'V' (Marcattili 2024), later buried in the Temple A of the sanctuary, and explicit by the orientation of Temple B and the rectangular altar. As for other Tyrrhenian costal emporia such as Pyrgi, the astral cult of Venus clearly indicates the importance of the observation of this astral body for the maritime life and seafaring journeys across the Mediterranean Sea in the Archaic period.

707. Comparing the Class Dynamics of Religious Hybridization in Urban Landscapes in Hellenistic and post-Hellenistic Bactria and Gandhara

Authors: Christos Nikolaou (University of Cambridge)
Format: Oral

The project investigates how the political agendas of different classes of people affected the religious hybridization that took place in the regions of Bactria and Gandhara during the Hellenistic (defined as Graeco-Bactrian and Indo-Greek) and Post-Hellenistic (defined as Indo-Scythian, Indo-Parthian, and Early Kushan) Periods. The thesis proposes that these class dynamics were the main factor in the religious change of the period and that this affected the urban landscapes and their surrounding regions. The thesis advances the view that the development of Bactrian and Gandharan cityscapes was the result of cultural (counter-)hegemony projects by both elite and subaltern classes, as well as religious traditions like Buddhism and Mazdaeism in their respective attempts at propagation. The material configuration of individual shrines within cities is thought to have produced religious hybridisation hierarchies through the investment of patrons into specific cults. These investments, driven by class agendas, impacted the primary affiliation and symbolic language of individual cults. When combined, the disparate cults within a city formed a cityscape that reflected the practices and class tensions of its inhabitants. Shifts in the configuration of different streams of patronage produced shifts in existing cityscapes. Individual urban sites and shrines are investigated through the use of basic statistical and distribution analysis to understand how class relations patronised specific shrines to understand how specific religions could assimilate others within their own iconographic vogues. In addition, qualitative analysis is used to understand the possible agendas of the patrons and audience that consumed the art. The thesis proposes some models of how different religious traditions and imagery (collectively called 'religious ecosystems') affected urbanism in different sites. It also links the survival, competition, and co-existence of various cults in urban landscapes to the political economy of Bactria and Gandhara in general, as well as the urban sites in particular.

73. Sacred architecture in the Sicilian megalithic archaeological landscape. The cultic acropolis of the megalithic site of Pietra Tara (Palermo)

Authors: Francesca Mercadante (Studio GeoArchPa)
Format: Oral

The coastal megalithic site of Pietra Tara, located on the northernmost slope of western Sicily, on the coast of Monte Gallo, Palermo, facing the Tyrrhenian Sea, is the only known site in Sicily with megalithic/cyclopean structures still intact, with landslide carbonate blocks adapted for megaliths and/or menhirs/totems. (Calibrated dating 3183 ± 100 BP). The area was divided into two portions: a Lower Zone, from the coastline up to 60 meters above sea level, and an Upper Zone, from 60 meters above sea level to below the cliff of the mountain. The funerary architecture is widespread and connected with the structures throughout the site, primarily with the intramural dolmen hypogea. From an altitude of 50 meters above sea level, The slope becomes steep (30-40% gradient), with the presence of some reliefs of groundwater debris and accumulations of stone material along the steep slopes. In July 2023, a drone flight was carried out which highlighted a small acropolis with megalithic constructions in the Upper Zone. The acropolis has different architectural landscape characteristics from the underlying Zone B, featuring a polygonal enclosure formed by cyclopean blocks, with double-faced walls. It is a secluded area, whose complex Sacred Architectural Landscape System is determined by cyclopean constructions and megaliths (ZA.2 and ZA.3) connected to a cult/funerary space with the presence of tumuli, in which Megalith ZA.2 takes on the condition of an "anthropomorphic monolith" as a reference to the female Goddess, while the second ZA.3, behind it, serves as a funerary hypogeum. The cult/funerary system features a ritual path flanked by megalithic epiphanies with connections between man and the divine and places the site as the first intact megalithic archaeological landscape of the second millennium of the Mediterranean.

222. Facilitated Porosity of Ground in South Italian Funerary Monuments

Authors: Savannah Marquardt (Yale University)
Format: Oral

On a fourth-century BCE Metapontine pseudo-panathenaic amphora attributed to the Brooklyn Budapest Painter, Orestes and Electra meet at the funerary monument of Agamemnon (MANN inv. 81735). Between them, a stele is transformed by grave goods into a semi-figural composite body, the eerie enduring presence of the dead king. This scene appears to take place on the surface of the grave. But considered in relation to heterogenous funerary cultures of turn-of-the-fourth-century BCE Southern Italy, this vase troubles the seemingly straightforward division between the earth's surface and its interior. How, and to what ends, do depictions of grave sites in Southern Italy describe a vertical cosmology in which divisions between the "real" world and the underworld are governed by facilitated porosity? How does the surface of the earth break down? This paper examines depictions the funerary monuments in South Italian vase painting, contextualizing these images within archaeological evidence of funerary rites from select Greek and Italic sites of their potential production and deposition. I argue that the depiction of grave goods we might expect to be interred (such as bronze armor or pseudo-panathenaic amphorae) instead incorporated into an external monument visualizes the desired effects of funerary rites—the real co-presence of the tomb's interior and the surface world of the living. The enduring presence of the deceased at/in their grave is dependent on the recognition that ground is not a conceptual void. When the dead are physically mixed with the ground, the apparent barrier of the earth's surface instead becomes the means by which the living and the dead continue to coexist. This argument has implications for the materiality of personal eschatology. Ritual action at the tomb is not merely social performance. It could be received by the persistent dead.

77. The astral cults in Bronze Age Europe

Authors: Anna Biondi (Postgraduate School in Archaeological Heritage Or.Sa)
Format: Poster

This study aims to analyze the archaeological evidence and the earliest representations of astral cults in Europe during the Period from the Early Bronze Age to the Late Bronze Age, seeking to outline their centres of dissemination and spread across the entire European continent. Through the study and comparison between the artefacts (contestualization, typological analysis, functional use, decorations.....) and the most ancient representations it will be possible to reconstruct the belief system that characterised some of the most ancient European cultures of the Bronze Age, comparing this system with that of contemporary societies that had a written production (Egypt and ancient Near East). The study of the social organization of European Bronze Age communities, based on the earliest evidence of astronomical knowledge and the movement of the stars, has also made It possibile to develop new hyphotheses on the use of ritual objects both in the funerary contexts and in the daily Life. The study of Nebra sun disk and the golden disks of Roca and Gualdo Tadino proved to be particularly interesting. An effort will also be made to highlight the conceptual similarities and differences that these objects could have held among the various populations of the European continent. In particular, the transmission of astral cults that characterized the funerary and religious sphere of Early Bronze Age societies will be examined, as well as the sacred spaces within which these cults were practiced.

38 RETHINKING THE LONG HOUSE–MATRILOCALITY NEXUS: CROSS-CULTURAL COMPARISONS AND ARCHAEOLOGICAL EVIDENCE

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Sabina Cvecek (Austrian Archaeological Institute | Field Museum of Natural History) – Stella Souvatzi (University of Thessaly)
Keywords: long house, matrilocality, postmarital residence, kinship, gender, household and social organization
Format: Discussion session
Affiliation: Archaeology and Gender in Europe - AGE

SESSION ABSTRACT

The association between long houses and matrilocal residence has long attracted attention in both ethnographic (Morgan 1851; Loeb & Broek 1947; Ember 1973; Divale 1977; Metcalf 2010; Cveček 2025) and archaeological research (Hayden 1968; Milisaukas 1986; Ehrnberg 1989; O'Gorman 2010; Creese 2016, Souvatzi 2017). Ethnography has often emphasized the matrilocal character of long houses, where women and their kin formed the enduring core of household groups and architectural continuity (Ember 1973; Divale 1977). Yet archaeological evidence suggests that this relationship was neither universal nor static: long houses across different regions and periods point to a diversity of residential arrangements, descent systems, and household dynamics that challenge simple one-to-one correspondences between built form and kinship. At the same time, smaller domestic dwellings may not only be associated with patrilocal but also bilateral or matrilocal groups, suggesting that the same architectural arrangements could host a diversity of social practices. This session brings together scholars to revisit the long house–matrilocality nexus by comparing ethnographic cases with new archaeological findings. We ask: how do architectural forms intersect with kinship and residence practices?

What kinds of archaeological, bioarchaeological, and ethnographic data allow us to trace household organization and descent? And how do long houses operate not only as material structures but also as lived environments and social institutions that shape gender, relatedness, and social reproduction? The session welcomes contributions from archaeologists, ethnographers, geneticists, specialists in stable isotope analysis, and others whose research can shed light on residence, kinship, and household organization in long houses and beyond. By critically assessing both the strengths and the limits of linking architectural forms to kinship practices, and by considering the variability between long houses and "small" houses, the session aims to refine our understanding of households, gendered space, and the constitution of relatedness across time and space.

CONTRIBUTION ABSTRACTS

1228. Rethinking the relationship between architecture, kinship and household in the Neolithic

Authors: Stella Souvatzi (University of Thessaly)
Format: Oral

While kinship finally receives attention in prehistoric archaeology and, indeed, it is becoming an active field, it remains considerably under-theorised. There is still often a reluctance to define what kinship is and even in the studies where kinship terms are used, they remain loosely defined, if not confused. This paper aims to prompt the need for improved conceptualisation as well as to argue that rather than merely borrowing models and analogies from ethnography, archaeology needs to evaluate them against its own data and disciplinary experience to develop its own distinctive theory and practice. Drawing on material and spatial archaeological data from the Neolithic of Greece and Türkiye (8th-4th millennium BC), I employ a practice-based methodology to trace forms of kinship, household and (co)residence and to explore their relationship. I argue against automatic associations of house types with family types and show that rather than cross-cultural homogeneity of residential arrangements and residential groups, there is instead considerable diversity across space and over time.

2376. Violence and the LBK long house

Authors: Mark Golitko (University of Notre Dame)
Format: Oral

Longhouses are one of the characteristic features of the Neolithic Linearbandkeramik (LBK, ~5650-4900 calBC) archaeological culture. These ancient longhouses have been extensively compared to the global ethnographic record, resulting in a number of plausible models related to their internal structure and the relationships between those who occupied them. Genetic and isotopic evidence suggests that LBK communities primarily practiced patrilocality, however, other aspects of Neolithic society are less well reconstructed, including patterns of descent, family structure, and degrees of social and political inequality. Longhouses may also have served as productive units for both foodstuffs and other goods, however, numerous studies suggest that production, trade, and decision making were likely not only situated within the longhouse as a physical and social entity, but also encompassed broader social networks in which longhouses were situated. These networks have been modeled as a form of risk mitigation along an expanding agricultural frontier, however, to date, these models have primarily focused on ecological and environmental risk. Given the high rates of violence that existed at times and places during the Neolithic, it is worth asking how the institution of the longhouse functioned in the context of social risk, including how increasing violence may impact residence patterns, descent structures, and the organization of production and exchange. Drawing on a number of ethnographic examples, I examine the role of the longhouse in the context of a sometimes-dangerous social world, focusing particularly on a case study of LBK communities in the Hesbaye region of eastern Belgium.

1064. Matrilocality Without Long Houses: Ethnographic Insights from the Khasi of Northeast India

Authors: Lenka Zahradkova (Charles University, Dept of Ethnology and Cultural Anthropology)
Format: Oral

Matrilocal residence has frequently been linked to the long house model, which correlates social expansion with linear architectural growth under a single roof. Drawing on ethnographic research among the matrilineal and matrilocal Khasi of Northeast India, this paper challenges this paradigm. While the monumental Iing Sad in Smit, one of the ritual and political centers of the region, approaches long house-like proportions to accommodate ceremonies, the standard domestic reality follows a different spatial logic. Traditional Khasi housing consists of smaller domestic units rather than a single extended structure. Houses are typically arranged in clusters around a natal ancestral house, which is inherited by the youngest daughter (ka khadduh) and carries additional symbolic and ritual significance. Moreover, the size and organization of these domestic units vary across the Khasi-inhabited areas, indicating significant internal diversity in both architectural form and residential patterns. Centering the analysis on archaeologically detectable features of domestic space, the paper further explores the role of the sacred central pillar, ritualized restrictions on the use of iron, and megalithic monuments within domestic landscapes as material anchors of clan belonging. By decoupling matrilocality from the necessity of long house architecture, this paper offers an alternative interpretative framework for understanding matrilineal and matrilocal social organization that foregrounds symbolic, ritual, and relational dimensions often invisible in archaeological contexts.

1583. Why and when does the average house size correlate with post-marital residence?

Authors: Aleksandr Diachenko (National Academy of Sciences of Ukraine, Institute of Archaeology)
Format: Oral

Over the decades, a number of archaeological and anthropological studies questioned a correspondence between the house size and post-marital residence patterns. A seminal paper by Melvin Ember (1973) and follow-up research have found that the average living floor area or house floor area in matrilocal societies is substantially larger than in patrilocal groups. Bringing together the ethnographic evidence (not limited to matri- or patrilocality), archaeological data on "small" houses, and simple simulations grounded on McGuire and Schiffer's theory of architectural design, this paper questions the intersection between architectural forms and residence practices. The obtained results contribute to the explanations of the positive correlation between house size and post-marital residence previously offered in the literature. The simulation outcomes also make possible the discussion of issues and limitations in identifying post-marital resident patterns from the distribution of archaeological dwelling size, as well as the consideration of equifinality among various factors that cause variability in house floor area.

1614. Are longhouses matrilocal? Questions from the ethnographic record

Authors: Peter Whiteley (American Museum of Natural History)
Format: Oral

The hypothesis that longhouses are associated with matrilocality requires substantive testing against empirically reported ethnographic phenomena. Does the association represent a conceptually robust, causal correlation—from the perspective either of matrilocality, or of longhouses cross-culturally. The concepts must be interrogated. What is matrilocality? How does it interdigitate with descent and/or kinship terminology? To what extent and under what circumstances is matrilocality separable from matriliny (or avunculocality)? Where separable, what are the implications for social structure (in "harmonic" vs. "dysharmonic" regimes)? Moreover, when is a residential structure a longhouse and when is it not? Is a longhouse a "house" in the Lévi-Straussian sense? If so, how are "houses" related to matrilocality (given that Lévi-Strauss predicated his concept on non-kinship social forms)? This paper examines these questions both with regard to kinship theory in sociocultural anthropology and vis-à-vis the ethnographic record, especially for those areas of Native North America where longhouses and/or great houses have been identified as characteristic (Northwest Coast, Eastern Woodlands, and Southwest). The aim is to critically evaluate the correlation of matrilocality and longhouses to see whether the pattern identified is a genuine phenomenon cross-culturally or merely the fortuitous result of selected cases.

39 MACROLITHIC TOOLS IN LATE PREHISTORIC EURASIA: DISTRIBUTION, CONTEXT, AND CULTURAL PRACTICES

Theme: 1. Widening perspectives in material culture studies
Organisers: Ana Rosa (UNIARQ - Centro de Arqueologia de Lisboa | Faculdade de Letras da Universidade de Lisboa) – Marcin Szydłowski (University of Szczecin)
Keywords: Ground stone tools, Eurasia, Late Prehistory
Format: Regular session

SESSION ABSTRACT

Macrolithic tools were integral to the material culture of late prehistoric communities throughout Eurasia. Many of these tools show a multifunctional character and were employed in both everyday and more specialized tasks, particularly those related to food and craft production. As such, they provide valuable insights into the evolution of agro-pastoral economies, the introduction of new technologies, and the changing technical skills and socio-cultural dynamics that transpired across this broad geographical area during the Neolithic–Bronze Age. Despite their significance for everyday subsistence and technological development, macrolithic tools have long received insufficient attention compared to other artefact classes. They rarely constitute the main research focus, and transregional narratives are particularly lacking. This session seeks to widen perspectives in material culture studies by integrating macrolithic tools into broader archaeological debates on the Neolithic–Bronze Age periods in Europe, the Caucasus, and Southwest Asia. Investigating the contextual settings of macrolithics, as well as their technology and functions allows us to explore the cultural practices surrounding their procurement, production, use, and discard. We particularly welcome contributions that address: - contextual analyses and distribution patterns; - procurement strategies, production techniques, and technological innovation; - the role of macrolithic tools in exchange networks and intercultural interaction, and processes of social and economic change; - functional and symbolic aspects in cultural and funerary contexts; - case studies highlighting local versus imported materials, regionality, and interregional connections; - interdisciplinary and methodological approaches. By bringing together specialists from different regions, the session aims to connect distributional data and build a comparative framework to explore the economic, social, and symbolic value of these tools within the changing economies of late prehistoric Eurasia. The goal is to trace broader transregional and cross-cultural trends and innovations in macrolithic technologies and related practices.

41. More Than Form: Function, Value and Meaning of Stone Objects in Late Neolithic–Early Bronze Age Poland

Authors: Marcin Szydlowski (University of Szczecin)
Format: Oral

This paper presents a use-wear (traceological) approach to stone artefacts, focusing on how microscopic and macroscopic surface modifications can be used to reconstruct past practices. By documenting edge damage, rounding, striations, polish development and their spatial distribution, traceology allows us to distinguish functional categories such as cutting, scraping, drilling, grinding or percussion, and to evaluate intensity and direction of motion as well as worked materials. Importantly, the study treats "absence of use-wear" not as a negative result but as an analytically meaningful observation. Objects that retain fresh surfaces, sharp edges, or only manufacturing traces may have circulated with limited or no utilitarian use. Such patterns can indicate alternative biographies and roles, including insignia of status, tokens of identity, exchange valuables, or items embedded in ritual and belief systems. Integrating wear analysis with technological and contextual data therefore enables a more nuanced interpretation of stone objects—one that moves beyond form and function toward broader questions of value, meaning and social practice.

144. Surveying the Stones of Daily Life: Grinding Stone Production at the Bronze Age Citadel of Kaymakçı in western Anatolia

Authors: Kristina Doležalová (Institute of Classical Archaeology, Faculty of Arts, Charles University | Institute of archaeology of the CAS, Prague) – Christina Luke (Department of Archaeology and History of Art, Koç University) – Christopher Roosevelt (Department of Archaeology and History of Art, Koç University | Research Center for Anatolian Civilizations, ANAMED, Koç University)
Format: Oral

The production of grinding stones was a multi-phase process that varied regionally and temporally, particularly with regard to the stage at which artefacts were transported from their sources to settlements. Tracing grinding stone production at Bronze Age settlements is methodologically challenging for several reasons. Production was generally not conducted on a large scale, and final shaping and finishing generated only minimal waste. In addition, semi-finished artefacts can be difficult to distinguish from finished tools. This paper aims to assess the representation of different grinding stone production phases at the Bronze Age site of Kaymakçı in western Anatolia. The grinding stone assemblage from excavations at Kaymakçı, comprising more than 400 artefacts, has so far provided no unequivocal evidence for on-site production. The tools were made predominantly of volcanic rock, which must have been transported to the settlement from considerable distances (approximately 100 km). However, it has remained unclear whether this material was brought to the site as raw material, semi-finished products, or finished tools, and whether grinding stones were produced locally. Kaymakçı therefore represents an ideal case study for testing the potential and limitations of a systematic surface survey designed to address these questions. Approximately 25% of the site was surveyed using a 10 m grid over a period of fifteen days, during which the production stage and technological characteristics of all grinding stone finds were recorded. The results of the survey suggest that grinding stone production did take place at Kaymakçı. All three final stages of the production sequence for upper grinding stones were identified. Nevertheless, the scale of production, the quantities involved, and the specific settlement phases during which production occurred remain uncertain.

1604. Polished stone from the Chalcolithic settlement of Vila Nova de São Pedro (Portugal): typology and functionality of axes under discussion

Authors: Ana Rosa (Uniarq-FLUL/FCT) – Mariana Diniz (Uniarq-FLUL) – César Neves (AAP/Uniarq-FLUL)
Format: Oral

The archaeological interventions carried out during the 20th century and into the 21st century at the site of Vila Nova de São Pedro (Portugal) made it possible to identify a fortified settlement covering an area of more than 1 hectare, which was intensively occupied throughout the 3rd millennium cal BC. From this occupation, an exceptionally large and diverse assemblage of artefacts has been preserved, displaying wide techno-typological and functional variability. This assemblage includes more than 600 polished stone tools which, unlike other artefact categories, have only recently been the subject of detailed study, forming the topic of the doctoral thesis of one of the authors (AR). The lesser attention given to one of the fundamental elements of agro-pastoral systems - namely polished stone tools, essential for working the land and wood, as well as for processing stone for construction - has contributed to a limited understanding of the relationship between typology and function of these artefacts. They are often classified into broad categories - axes, adzes, gouges, hammers - without greater precision regarding the meaning and function of each type. Taking the collection from VNSP as its starting point, this study aims to characterise the category of axes from a technical, morphological, and functional perspective, and to discuss their role in the Chalcolithic economy of the western Iberian Peninsula.

1897. Stone Tools from the Late Bronze Age and Iron Age Settlement at the Present-Day Town of Sisak

(Central Croatia)

Authors: Ivan Drnic – Ana Đukić (Archaeological museum in Zagreb)
Format: Oral

The Late Bronze Age and Iron Age settlement located at the confluence of the three rivers—the Sava, Kupa, and Odra—in the present-day town of Sisak in central Croatia is one of the best-researched settlements of the 1st millennium BC in the region. In addition to settlement structures, large assemblages of diverse archaeological finds have been unearthed during recent excavations, with pottery and animal bones being the most numerous. A somewhat smaller assemblage is represented by stone artefacts, such as querns, whetstones, and spindle whorls. There are currently no standalone, regionally focused studies of Late Bronze Age– Iron Age stone tools in Croatia or the wider Adriatic area. Existing publications include stone artefacts primarily as catalogue items, settlement inventories, appendices, or unanalyzed finds, reflecting their limited typological precision and low chronological sensitivity compared to metal or ceramic material. While these characteristics have contributed to their marginalization, the authors argue that stone tools remain analytically valuable when approached beyond typology-based dating. Drawing on object biography, and craft and household archaeology, stone artefacts are treated as contextual archaeological data rather than residual material. The analysis is conducted across multiple scales: artefact-level attributes (use-wear, modification, fragmentation), contextual associations (type of site, feature type, assemblage composition), site-scale spatial patterning. Through correlations with well-defined and dated contexts (such as those from Sisak-Pogorelac), this approach demonstrates how stone tools can meaningfully contribute to reconstructions of everyday practices, craft activities, and technological organization in Late Bronze–Iron Age communities.

307. A Peculiar Chalcolithic rotational Basalt Vessel from Northern Israel: Reassessment and new interpretation

Authors: Marina Bekker Shamir (The Hebrew University | Israel Antiquities Authority)
Format: Oral

2001. Macrolithic industries at settlement sites in Corsica from the Bronze Age to the Iron Age: the example of I Casteddi

Authors: Maelly Durox (Independent researcher) – Hélène Paolini-Saez (Laboratoire régional d'archéologie-Corse - LRA | UMR 5608, TRACES, Université Toulouse Jean Jaurès) – Elisabeth Pereira (Università di Corsica Pasquale Paoli | Laboratoire Sciences Pour l'Environnement - UMR CNRS 6134 SPE)
Format: Poster

This paper proposes a reflection on macrolithic tool assemblages in Corsican habitation sites between the end of the Neolithic and the Iron Age, based on the study of the hilltop site of I Casteddi (Tavera, southern Corsica), deriving from a master's research project. Long set aside in protohistoric contexts, macrolithic tools nonetheless constitute a significant indicator of technical, domestic, and specialized production activities, as well as of the ways lithic resources were managed within these societies. This research is based on a detailed analysis of the entire macrolithic assemblage uncovered at I Casteddi during excavation campaigns conducted between 2014 and 2023, complemented by an inventory of macrolithic remains recorded on Corsican habitation sites occupied from the Neolithic to the Iron Age. This dual approach aims to place the I Casteddi assemblage within a broader regional framework and to question its representativeness within insular dynamics. The methodology of this study relies on a morpho-technological analysis based on macroscopic observation of the supports, shaping techniques, and active surfaces, in order to identify the main functional categories of macrolithic tools (percussion, grinding and milling, abrasion and polishing). The study also seeks to examine issues related to raw material procurement, practices of tool re-use, and the massive presence of natural pebbles in hilltop settlements. Through the example of I Casteddi, this paper proposes to integrate Corsican macrolithic tools more systematically into the analysis of domestic economies, by questioning the modalities of use, management, and re-use of these tools within insular protohistoric habitats of the western Mediterranean.

2531. Tools and rocks from Gumelnița Eneolithic tell sites in south-eastern Romania

Authors: Constantin Haita (National Museum of Romania History)
Format: Poster

The proposed paper presents data of the petrographic analysis of the macrolithic tools recovered from two Eneolithic tell sites attributed to the Gumelnița culture, in south-eastern Romania. The studied inventories come from Hârşova Tell and Bordușani Popină, and the comparative analysis takes into account the proximity of the settlements, as well as the different geomorphological background.The site from Bordușani Popină is located in the floodplain of Balta Ialomiței and consists of a mound with about nine meters of Eneolithic deposits, on an erosional remnant. The tell from Hârşova is situated on the gentle slope of the lower Danube terrace, with about 12 meters of Eneolithic stratigraphy. Their deposits consist of stratigraphic sequences interpreted as built spaces, passage areas, and waste zones. These tell-type settlements are attributed to the Kodjadermen - Gumelnița - Karanovo VI complex, and dated to the second half of the Vth millennium BC. The lithic assemblage includes a variety of tools, including

grinders, abraders, sharpeners, polishers, hammers, and chisels, as the main types. The types of tools were analysed in close relation to the rock types of support and their physical properties. Special attention was given to identifying possible source areas and their locations within the Dobrudja province.

40 THE DISTRIBUTION OF POWER AND INCLUSIVENESS ACROSS DEEP TIME: ARCHAEOLOGICAL, HISTORICAL, AND COMPARATIVE PERSPECTIVES ON GOVERNANCE AND WELL-BEING

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Francesca Fulminante (Oxford and Cambridge Universities, Continuing Education | Bristol University | University Roma Tre) – Jacob Holland-Lulewicz (The Pennsylvania State University) – Gary Feinman (Social Science Field Museum of Natural History, Chicago)
Keywords: Governance, Well-being, Power, Evolution, Comparative Research
Format: Regular session

SESSION ABSTRACT

Recent work by the international team of the Working Group on Human Governing and Well-Being with the Coalition for Archaeological Synthesis has begun to question entrenched viewpoints about the origins and evolution of democratic institutions. In assessing governance along an empirical collective-autocratic axis, the results of their emerging quantitative, global synthetic study have destabilized and challenged traditional narratives, assumptions, and generalizing "grand theories" concerning the evolution, character, underpinnings, and outcomes of different forms of governance. More specifically, this work has illuminated and decoupled variation across two key dimensions of governance: the concentration of power and citizen inclusiveness. The papers included in this session build on these synthetic findings through specific case studies that center questions about the mechanics and processes associated with how power becomes concentrated or distributed and how inclusivity or exclusivity emerges or is facilitated. Through the interrogation of these key axes, contributors deconstruct long-reproduced nomothetic narratives and empirically evaluate how particular characteristics of governance articulate with other crucial variables including scale, complexity, economics and financing, subsistence, bureaucratic structure, ritual, and socioeconomic inequality, to name a few. The substantive contributions of this session are (1) to underscore the diversity and persistence of collective governance across varying regions and eras, illustrating a scalable methodological framework for continued and future comparative research, and (2) to reframe historical narratives about the development of democratic institutions globally.

CONTRIBUTION ABSTRACTS

215. Decoupling the concentration of power from polity scale and hierarchy: why and how

Authors: Gary Feinman – Linda Nicholas (Field Museum of Natural History)
Format: Oral

Comparative approaches to governance have traditionally presumed that prior to modernity rulers were despotic, tyrannical with power concentrated in the hands of a few. Building on prior studies by Blanton and Fargher and Feinman and Carballo, we, in conjunction with 11 colleagues, synthesized archaeological and textual data from 40 case observations across 31 polities, to develop a quantitative framework (an autocracy index) to assess governance along a collective–autocratic axis, defined by two key dimensions: concentration of power and citizen inclusiveness. We then examined the index in relation to population size, hierarchical complexity, geographic region, modes of fiscal financing, bureaucratic structure, ritual practices, and socioeconomic inequality. The findings from this sample illustrate that neither polity population nor geographic region tightly correlates with the collective–autocratic axis of governance, challenging extant models. Instead, the strongest associations for autocratic governance are with external financing, patrimonial bureaucracy, spectacular ritual, and high inequality. The study underscores the diversity and persistence of collective governance across regions and eras, offering a scalable methodology for future comparative research and reframing historical narratives about democracy's development.

229. The long-term dynamics of Power and Inclusiveness in Rome, Italy and the Empire, compared with Rank-Size Analysis. Continuity and Change

Authors: Francesca Fulminante (Bristol University | Institute of Continuing Education, Oxford and Cambridge | University Roma Tre)
Format: Oral

The evolution of Rome from a small pre-proto-history village in Latium Vetus, to the principal city of Republican Italy and then the centre of an Empire, offers a unique point of view to study variation and diachronicity in modes of governance, by observing dynamics of power and different level of inclusiveness and how they combine in different chronological and environmental settings. In this paper the evolution of governance for the policy of Rome in its long term perspective from its origin in the Bronze Age to its decline in Late Antiquity is presented within the wider context of the Coalition for Archaeological Synthesis study led by Gary Feinman and Linda Nicholas. This evolution is also compared with the analysis or power dynamics through Rank-Size Analysis. Over the last decade, rank-size analysis has become one of the main methods for investigating urban systems in the ancient world. This theoretical model establishes a correlation between a settlement size and their rank within a certain regional unity according to the different level of socio-political organization of that region. While there is still debate on the theoretical underpinning and the mathematical explanation of the rule, it seems to be generally predictive at least at the empirical level. By connecting and analysing three relevant databases: Fulminante 2014 for Pre-Roman Latium, Sewell-Witcher 2015 for Republican Italy, and Hanson 2016 for Rome and its Empire, this paper will present a long term perspectives of the dynamic of power of Rome through the lens of governance inclusiveness and Rank Size Analysis to assess elements of continuity and change and their significance also for wider comparative perspectives.

2756. Tracking governance at Angkor: A Metric-based analysis of political change over time

Authors: Sarah Klassen (CU Boulder) – Alison Carter (University of Oregon) – Linda Nicholas – Gary Feinman (The Field Museum)
Format: Oral

This paper assesses the nature of government at Angkor in present-day Cambodia through a diachronic, metric-based analysis of political organization. The analytical framework employed here was developed by a working group of the Coalition for Archaeological Synthesis, in which we participated, and is designed to operationalize and comparatively evaluate key dimensions of governance in past societies. Rather than treating Angkorian political organization as static or monolithic, we apply these standardized metrics across multiple phases of Angkor's development to track change over time. By quantifying and comparing shifts in institutional structure, administrative integration, infrastructural investment, and political centralization, we identify patterns in the evolution of governance across the Angkorian sequence. This longitudinal perspective allows us to move beyond descriptive accounts of kingship and monumentality to more systematically evaluate how governance transformed in response to demographic growth, urban expansion, and environmental pressures. Ultimately, this study contributes to broader comparative debates about the dynamics of governance in early complex societies and demonstrates the value of synthesis-driven, metric-based approaches for understanding long-term political change.

1356. Inclusive governance and its correlations among the ancient Maya

Authors: Scott Hutson (University of Kentucky)
Format: Oral

Ancient Maya polities are often thought to fall closer to the autocratic end of the spectrum of governance. Nevertheless, some city states exhibit a higher degree of inclusiveness than others. Recently, scholars have begun to search for patterns that explain variation in the degree of inclusivity and collectivity in political organization. This paper continues this trend by quantifying variables such as plaza size, monumental construction, population scale and measures of household inequality. The goal is to quantify sites in terms of inclusivity and then determine the degree to which these scores correlate with the variables stated above. Such a method builds from comparative studies and is scalable for additional research. The sample of sites derives largely from the Classic period (250-900 CE) and includes settlements from the Northern and Southern Maya lowlands. Though no clear chronological patterns have thus far been discerned, this study will attend to potential temporal trends.

373. The Guachimonton Matrix: Intersecting Institutions and Collective Governance in Central Jalisco, Mexico

Authors: Verenice Heredia (El Colegio de Michoacan)
Format: Oral

Circular complexes from West Mexico, known as guachimontones, consist of several architectural features: a conical or square altar (or central mound), a patio (sometimes sunken), and a series of platforms—either single or multi-bodied—that together form a single unit. Researchers have explored their symbolic meaning and function, but they also interpret the guachimonton as the embodiment or materialization of corporate political strategies in which different lineages ruled jointly. Many questions remain about the origins of these lineages and whom they represent. This paper argues that the guachimonton embodies a bundle of institutions in which religious, economic, and political spheres intersect. These architectural complexes are widespread in West Mexico but particularly ubiquitous in the central valleys of Jalisco, around Tequila Volcano. I examine the prevalence and spatial distribution of guachimontones throughout the Tequila region—registered through systematic, full-coverage surveys over 900 km²—to investigate the convergence of multiple institutions at their core that enabled collective governance.

216. Situational Inclusiveness in the Native American Politics of the U.S. Southeast

Authors: Jacob Holland-Lulewicz (The Pennsylvania State University) – Victor Thompson (The University of Georgia)
Format: Oral

Descriptors such as "collective" or "inclusive" are often applied by archaeologists, and social scientists broadly, to characterizations of whole societies or political systems. In reality however, who is included in decision-making, and by extension where those decisions might be made, is in part dependent on the kinds of decisions being made or subjects under discussion. In this way, descriptors like "inclusivity" are in fact a gross average of the decision-making mechanics that may define a particular sociopolitical system. Drawing on the rich ethnohistoric record of the Indigenous societies across the American Southeast, we evaluate situational inclusiveness. That is, how does the scale and structure of citizen inclusiveness change depending on the kinds of decisions being made? Our results highlight how "inclusiveness" within the political realm can be situational. This also raises key methodological questions regarding how we interpret the archaeological signatures of different kinds of spaces with regard to the kinds of inclusiveness they may have represented, and thus the various kinds of decision-making that existed among these groups.

764. Collective Governance in the Maya Preclassic Period

Authors: Timothy Pugh (Queens College | The Graduate Center) – Karina Osorio Klinger (The Graduate Center/CUNY)
Format: Oral

Unilinear delusions of ambitious elites expanding their power and propelling the development of social complexity once held sway over our reconstructions of the Middle Preclassic period (1000-300 BCE) Maya. The Middle Preclassic period was poorly known until relatively recently, but it included the earliest urbanization and the largest known monumental construction in the Maya region. Yet, as in many other regions of the world, initial social complexity in the Maya area was not associated with the emergence of monarchs. Middle Preclassic societies lacked imagery of monarchs and royal tombs. They seem to have invested in the greater good and appear to have been more cooperatively organized. The well-known monarchs of the Classic period (AD 200-900) appeared rather suddenly and coopted the already developed complex societies in the Maya region. Thus, their emergence was not gradual. While the lives of these elites were certainly improved at this time, those of the general population were not. This discussion is centered upon Nixtun-Ch'ich' and nearby sites in the Petén Lakes region of Petén, Guatemala.

1313. More than kings: Diverse forms of Classic Maya governance expressed in writing

Authors: Jessica Munson (Lycoming College)
Format: Oral

Comparative studies of Mesoamerican governance tend to characterize the Classic Maya as less collective than central Mexican polities based on their personalized rulership and exclusionary political strategies. As demonstration of their power, Maya rulers bore the title k'uhul ajaw or 'holy lord' claiming divine status that was legitimized through public rituals and commemorated on stone-carved monuments. These apical rulers, however, were not the only titled officials to appear in the inscriptions. Subsidiary lords, governors, and other priestly and military officials were also marked with royal titles that indicate their specific roles and position within Classic Maya royal courts. Drawing on a comprehensive database of Maya inscriptions, these hieroglyphic texts provide the necessary contexts to examine the distribution of power and range of strategies employed by different polities throughout the Classic period (ca. 300 – 900 CE). Recorded in their indigenous script, these dated texts include details about the wars, alliances, royal marriages, ritual ceremonies, and acts of subordination that gave shape to a shifting and fragmented political landscape. As indexes of political power, these monumental texts can also provide evidence for the concentration of power and relative importance of personal versus shared leadership. Examining the spatial distribution and diversity of these royal titles, we explore the different forms of governance that were expressed in hieroglyphic writing to question monolithic and unidimensional models of Classic Maya rulership.

898. Tracing Inequality Across Three Millennia: House Size Differentials, Governance, and Population Dynamics in Maya Communities

Authors: Amy Thompson (The University of Texas at Austin) – Jessica Munson (Lycoming College)
Format: Oral

Ancient Maya communities are often classified as "complex" and highly unequal, with vast kingdoms ruled by godly kings who were part of dynastic lineages. Beyond hieroglyphic texts and archaeological features associated with the uppermost echelon of society, robust settlement data, which has been amplified with recent lidar acquisitions, sheds light on the larger population dynamics of ancient Maya cities. Drawing on settlement data from more than 60 Maya centers spanning the Middle Preclassic (800-400 BCE) through present (1880s – present), we evaluate variations in inequality among these Maya communities based on house size measurements. The suite of Maya centers varies from small hamlets to the largest and most powerful cities in the Maya Lowlands at the apex of the Classic period. Specifically, we use the Gini coefficient as a standardized metric to assess inequality, allowing for broad comparisons through time in the Maya region. Over the course of 3000 years, political systems oscillated from more collective to more autocratic and back again and more recently are impacted by processes of colonization, civil war, and cultural imperialism. Our comparisons allow us to consider how shifts in governance and political systems, subsistence practices, environmental variability, resource availability, and population density articulate with wealth inequality. Our evaluation of inequality through time in the Maya Lowlands region of Mesoamerica contributes to our understanding of the underlying mechanisms and driving forces that manifest in variations of wealth inequality.

339. New Views on the Causal Links Between State Formation and Marketplace Evolution

Authors: Richard Blanton (Purdue University)
Format: Oral

Previous considerations by Hopkins, Grove, Habib, and others of the causal connections between state formation and marketplace economies require reframing in light of recent research. They argued that it was the growing burdens of taxation accompanying state formation that forced subjects to intensify production and to increase their participation a commercial economy. This view needs to be reconsidered in light of new discoveries that demonstrate variation in state formation from more collective to more autocratic. While the latter show little commercial development, in the more collective states there is a strong tendency toward increased commercialization resulting from regulatory involvement by states that enhanced the functionality of the highly egalitarian marketplace economies that was widely recognized as a beneficial public good. We see other causes of marketplace growth that are additional correlates of state-provided public goods, including urban growth, overall population growth and an increased material standard of living of commoner households.

1018. Power and Property in the Ethnographic Record of Indigenous California, USA: Tracking Variability in Authority, Inclusiveness, and Proprietorship

Authors: Isabelle Holland-Lulewicz – Jacob Holland-Lulewicz (Pennsylvania State University)
Format: Oral

Narratives for the evolution of property continue to uncritically link systems and relationships of proprietorship to particular modes of subsistence, demographic scale, mobility, and sociopolitical organization or complexity. While archaeologists have continued to challenge neoevolutionary models, decoupling, for instance, agriculture, complexity, and hierarchical governance, conceptions of property, especially the emergence of private property and inequality, continue to be tied to broad generalizations. In this paper, we explore the articulation between two domains: governance and systems of property relations. Using the extensive ethnographic record of Indigenous California, which encompasses dozens of unique Tribal Nations, we assess relationships between power distribution, citizen inclusiveness, and property regimes. As power becomes more or less concentrated, do conceptualizations of property become more or less collectively or privately oriented? Under what conditions of governance do particular modes of proprietorship emerge or breakdown? Alternatively, are there modes of proprietorship that underwrite or reinforce distributions of power and inclusiveness with regard to governance? We discuss the implications of these results in respect to theorizing governance and to archaeological interpretations of property and proprietorship in the past.

1556. The Archaeology of Collective Action and Environmental Governance: Histories of Ecological Degradation and Resilience

Authors: Lane Fargher Navarro (The Ohio State University | The PAST Foundation) – Tl Thurston (University at Buffalo, SUNY)
Format: Oral

Recent Research in Environmental Political Science has drawn attention to the links between political structure, governing policies, contextual factors, and environmental management/degradation. This research postulates that the orientation of governing regimes - a continuum of political structure bracketed by democracy-like and autocracy-like regimes - coupled with factors such as corruption, frequencies of extreme climatic events, local governance quality, and institutional capacity variously mitigate or exacerbate human impact on the environment. In this paper, we build on our earlier work related to collective action and environmental conditions to further explore variation in the impact of ancient societies on their environments. Here we discuss additional cases from from Europe, Asia, and the New World Our conclusion is that ancient societies with good governance (e.g., collectivity, joint production, low corruption, high quality local governance, and well-developed institutional capacity) correlate with better environmental management and lower ecological degradation; conversely, shifts towards characteristics associated with failed states couple with low quality local regimes tend to result in higher exploitation of natural resources and increased degradation. However, as with contemporary examples, variation in the archaeological record illustrates that sometimes policy, rather than politics, can impact such relationships.

2148. The Distribution of Power and Inclusiveness in Bronze Age Transylvania and Carpathian Basin: Identity, Interaction, and Inequality

Authors: Colin Quinn (University at Buffalo)
Format: Oral

The Carpathian Basin and Transylvania during the Bronze Age has been a laboratory for the study of the distribution of power, political authority, and social cohesion for over 30 years. Bronze Age societies in Transylvania and the Carpathian Basin were a multi-scalar mosaic of complexity, where local histories and variable landscape affordances shaped and were shaped by larger-scale political, social, and economic networks. One emergent phenomenon that was a key feature of the Middle Bronze Age (2000-1500

BCE) in the Carpathian Basin and Transylvania was the creation of distinctive regional cultural identities with inclusive cultural practices and marked, though traversable, boundaries. Significantly larger than any single polity, the emergence of regionally distinctive cultural identities occurred alongside a process of interconnecting the continent through expanding trade networks and commodity chains. Alongside the emergence of regional cultural identities that local communities create and maintain, there was a proliferation in the diversity of local strategies for how people organize themselves socially, economically, and politically. Combining network analysis, semiotics, and political economic approaches, this paper traces how this process of cultural identity-formation facilitated inclusivity and exclusivity within and between communities in Transylvania and the Carpathian Basin. These changes, perhaps counterintuitively, contributed to the diversification of socioeconomic and political strategies within this region and had significant consequences for the long-term trajectories of the distribution of power and the institutionalization of social, economic, and political inequality.

486. Ecologies of Governance in the First Millennium AD: Environment, Rulership and Inequality

Authors: Patrick Gleeson (Queen's University Belfast)
Format: Oral

This paper presents some of the approach and early findings of the Ecologies of Governance project. Ecologies of Governance interrogates the emergence of inequality and the economic basis of rulership in early medieval, kin-based societies by undertaking multi-proxy and comparative analyses of the environment and agrarian regimes of some of the major and iconic royal landscapes of first millennium AD Britain and Ireland. It addresses understandings of strategies of rulership and governance through a fundamental reassessment of the emergence of inequality and its implication in political production. Its case studies occupy seminal places within ethnically-centred but now outmoded models for the origins and functioning of northwest European kingdoms, commonly analysed within isolated and diametrically opposed 'Celtic'/'Germanic' historiographies. Deploying novel approaches to their (i) origins, (ii) settings, (iii) regionality, (iv) landscape context and (v) diachronic transformation, Ecologies of Governance shifts emphasis towards scale and scale-change within regime and community relationships, and the associated economic and ecological basis of rulership within emergent polities, to fundamentally redress previous biases, and present novel, empirically-grounded analyses. The paper will present some preliminary analysis of the project's key case studies, Navan Fort, Milfield, Llangorse, Dunned and Rendelsham, as a basis for questioning established models of kingship and political formation. It will sketch some implications of these landscapes and their development for wider understandings of strategies of governance and the formation of polities in a comparative context.

632. Ceramic production and exchange in the early Inka heartland: Interaction networks before the formation of an empire (AD 1000-1400)

Authors: Julia Earle (University of Warsaw) – E. Williams Franco Chávez (Independent Scholar) – Bill Sillar (University College London) – Alexei Vranich (University of Warsaw)
Format: Oral

The Inkas built the largest Indigenous empire in the Americas (AD 1400-1532), but the mechanisms that triggered state formation and territorial expansion remain unclear. Traditional approaches rooted in culture history and neo-evolutionary theory had identified top-down power and centrifugal coercion as the driving force behind social change in Cusco from the Late Intermediate Period (LIP, AD 1000-1400) until the Spanish invasion. This account was thought to be supported by coarse-grained ceramic seriation, which observed broad similarities among LIP pottery across the area that would eventually become the imperial heartland. Shared conventions in decoration and vessel form were attributed to the growing influence of the pre-imperial Inka ethnic group in the Cusco Basin, as indicated by the spread of a ceramic style known as Killke. Increasing applications of digital microscope imaging have permitted greater precision for classifying and comparing ceramic assemblages based on paste, form, and surface decoration. Building on these advances, this paper presents multi-scalar insights on ceramic production and consumption. Specifically, we draw on a regional ceramic data set from over 20 sites to contextualize recent excavations of an LIP component at the monumental site of Saqsaywaman, likely representing a pre-imperial Inka occupation. Initial results contradict prior expectations. Ceramic data from sites within approximately 50 km of the Cusco Basin suggest complex exchange relationships and permit the definition of multiple overlapping interaction spheres in which some groups cultivated far-reaching ties. Conversely, while pre-imperial Inka (Killke) pottery was notably limited in its distribution, the distinctive aesthetic repertoires and hospitality practices associated with Killke ceramics could help explain how the Inkas cultivated centripetal power and elevated social and cultural capital by AD 1400. Leveraging these data and drawing on colonial-era chronicles, we evaluate how the Inkas' autocratic governance emerged from a context characterized by an interactive network of diverse self-governing populations.

42 BURIAL PRACTICES AND FUNERARY ARCHITECTURE IN THE LEVANT (5TH C. BCE–7TH C. CE)

Theme: 1. Widening perspectives in material culture studies
Organisers: Michael Eisenberg (School of Archaeology and Maritime Cultures, University of Haifa | The Zinman Institute of Archaeology, University of Haifa) – Ionis (Yannis) Nakas (College Year in Athens - International Centre of Mediterranean Studies)
Keywords: Burial practices, Funerary architecture, Levant, Roman Syria, tombs
Format: Regular session

SESSION ABSTRACT

The last two decades have witnessed an immense revival of research on burial practices and funerary architecture of the wider Classical period (5th century BCE–7th century CE) in the Levant. Despite numerous excavations of necropoleis and smaller-scale burials, significant lacunae remain, particularly regarding regional burial practices and the synthesis of broader regions and their mutual influences. Partly, this is due to a recent trend focusing on proposing new theories rather than, first and foremost, publishing new data derived from rigorous archaeological investigation. However, it is the new excavations and surveys, which often use modern research tools, e.g., bioarchaeology, archaeobotany, spatial and focal analyses, remote sensing, and 3D documentation and modeling, that enable us to address unresolved questions in this field. The session welcomes contributors with fresh archaeological investigations from the field and the lab, focusing on the Levant during the Classical–Early Byzantine period (5th century BCE–7th century CE), with a particular emphasis on the topics listed below, though not restricted to them. • Urban versus rural burial practices • New large-scale excavations of necropoleis • New finds of burials that elude interpretations • Funerary architecture in Roman Syria • Murals of burial caves • Burial coffins typology and reconstruction: sarcophagi, clay, wood, and lead • Funerary architecture typo-chronology • Geo-analyses and remote sensing of necropoleis • Recreating the path – from the home of the deceased to the tomb • Bioarchaeology and archaeobotany of burials • The connection between geology and burial preferences • Funerary gifts • The shifting of Classical canons into provincial-regional funerary architecture • Funerary architecture sculptured in basalt

CONTRIBUTION ABSTRACTS

729. The unwritten, sacred law of the gods - Burial practices in Palestine during the Hellenistic period

Authors: Katarzyna Langenegger (University of Bern)
Format: Oral

Building on the premise—famously dramatized in Antigone—that funerary obligations are anchored in enduring norms, this paper examines burial practices in Palestine during the Hellenistic period as a domain where change is typically incremental and closely tied to shifts in political power, economy, and population dynamics. Despite the interpretive prominence of "Hellenization," a comprehensive archaeological synthesis of Hellenistic burials in the region has been lacking. This study addresses that gap through a systematic compilation and comparative analysis of published evidence, structured with the analytical framework proposed by Wodtke and informed by the concept of glocalization. Eight funerary forms can be documented, alongside inhumation and cremation, and primary/secondary deposition. Most burial types—shaft and pit graves, grotto burials, and rock-cut chamber tombs—represent long-lived local traditions. By contrast, conspicuous innovations such as monumental tomb architecture and roadside commemorative markers appear only in specific contexts and are especially visible in Jerusalem. The paper argues that the geopolitical volatility between Ptolemaic Kingdom, Seleucid Empire, and Hasmonean dynasty correlates with shifts from concealed, non-representational tomb access toward selectively monumental, status-coded funerary display. Case studies from Atlit and Maresha further reveal a cultural mosaic in which external motifs (Greek, Egyptian, and Near Eastern) were appropriated unevenly and primarily by elites, while collective family-oriented burial remained the dominant local practice.

129. Sealed Graves from the 3rd Century CE along the Road to Jerusalem: Funerary Finds from Nesher Ramla

Authors: Ayelet Segal Reznitsky (University of Haifa)
Format: Oral

The site of Nesher Ramla is a large-scale, ongoing rescue excavation conducted by the University of Haifa within an active quarry in modern Israel. Excavation takes place under challenging conditions, including ongoing industrial activity and modern disturbance. Recent work has focused on an area near the ancient route leading to Jerusalem, where a burial ground dating to the 3rd century CE was identified. The graves were found intact and undisturbed, carefully sealed with marble slabs or orderly rows of stones. This level of preservation is particularly striking given the long-term use of the nearby route as a major thoroughfare. The burials contained a funerary assemblage including gold jewellery and a bone figurine. Most small finds were recovered through systematic soil screening rather than in situ, limiting the ability to reconstruct their original placement within the graves. At the same time, intensive screening greatly improved the recovery of otherwise unnoticed elements of the assemblage. This paper presents the archaeological and methodological context of the excavation, the burial installations, and the funerary finds, with particular attention to the gold ornaments and the bone figurine. The discussion highlights the preservation and uniqueness of these graves and demonstrates how careful rescue excavation can contribute to understanding burial practices and social display in this region during the 3rd century CE. The finds from Nesher Ramla illustrate both the scientific potential and the interpretive limitations of assemblages recovered from highly impacted landscapes.

1425. The Roman-Byzantine Southern Necropolis at Hippos of the Decapolis: Demarcation,

Characterization, and Typological-Spatial Analysis

Authors: Alexander Khait (School of Archaeology and Maritime Cultures, University of Haifa)
Format: Oral

The Southern Necropolis of Hippos is the largest among the city's three distinct cemeteries. It takes up an entire slope and top of a hill to the south of the hill on which the city stood. The two hills are separated by a streambed through which ran a Roman road. Besides a cursory documentation of the various burial features in the central part of the necropolis, no research has been conducted there until recently. This study presents a spatial and geo-archaeological analysis of the Southern Necropolis, integrated into a GIS database, enabling a feature-level study. Based on field survey, drone-based documentation, historical data, and small- scale archaeological excavations, the various types of burials are counted, and the cemetery boundaries are established. Preliminary mapping indicates how the terrain and geology influenced the placement of the burials, creating zoning: soil-dug and rock-cut pit graves cluster on the terraces and gentle slopes, whereas burial caves are restricted to exposed nari-rock bedrock ledges. These results represent the initial phase of analysis, with further integration of field observations, topographic data, and aerial imagery expected to refine our understanding of the necropolis.

569. Copper-alloy Plates from Roman-period Funerary Contexts in the Decapolis and Beyond

Authors: Arleta Kowalewska (The Zinman Intitute of Archaeology, University of Haifa) – Michael Eisenberg (University of Haifa)
Format: Oral

One of the most common metal finds from the Southern Necropolis of Hippos and beyond are copper-alloy plates. The same kind of artefacts has been reported previously at Abila, another city of the Decapolis (a region of Graeco-Roman poleis in the southern Levant, in the Roman provinces of Syria and Arabia), situated just 20 km east from Hippos. At both locations, the necropoleis, and with them the metal plates, are dated to the Roman period, from the late 1st century BCE to the early 4th century CE. The plates are thin, circular sheets, decorated on one side with punched geometric designs. They are perforated by nail holes and a have a hole in the center of the boss where a bronze ring was installed. The lecture presents the details of these unusual finds and their findspots, explains their most probable use as decorations of wooden caskets, and traces the published examples of similar finds from around the Roman World to try and reveal their socio-cultural origin.

1837. Excavations in Khirbet-Sar (Jordan) revels monumental architecture with similarities to Roman temple tombs

Authors: Anna Kubicka-Sowińska (Wroclaw University of Science and Technology)
Format: Oral

Excavations at Khirbat es-Sar, along the western road to Amman, uncovered a monumental courtyard that may have been associated with a palace tomb of the Roman East. The study explores architectural ties with Amman's temple tombs, illustrating broader later Roman funerary practices and highlighting creation of memorial landscape of Transjordan. The site's strategic elevation and visibility underscore its significance, a fact noted by 19th-century travelers such as Claude R. Conder and Howard C. Butler. Their conflicting reports regarding the location of sarcophagi whether along the neighboring road or sheltered beneath the arcades—point to a funerary environment. The masonry craftsmanship and decorative programs align the complex with Roman mausolea of the 2nd to 3rd centuries AD located in Amman region. Recent 2025 excavations have further clarified the site's spatial logic, revealing a monumental eastern entrance characterized by at least two doorways and plain pilasters. The homogeneity between the voussoirs and door jambs suggests a singular, sophisticated construction phase. Furthermore, the discovery of a two-stepped limestone platform preceding the entrance provides a direct parallel to monolithic mausolea at the Nujais Shrine and Qasr al-Qwaysimah located as well in Amman. By synthesizing these architectural elements—specifically the standardized 2.55-meter arcade spans and specialized eastern mouldings—this paper argues that Khirbat es-Sar represents a example of Roman temple tombs with architectural vocabulary crafted especially for tombs located in Amman.

1791. New insights on the development and decline of the Beth She'arim necropolis

Authors: Adi Erlich (Zinman Institute of Archaeology, University of Haifa)
Format: Oral

Beth She'arim in the Lower Galilee was an important Jewish village in the Roman period, with an extensive necropolis containing lavish tombs that served as burial places for Jews from across the Roman East. The necropolis is renowned for its many inscriptions in Greek, Aramaic, Hebrew and more, and the art engraved and painted in the many catacombs. The main period of use for the necropolis is the Late Roman period, 3rd-4th centuries CE. However, the finds and inscriptions from the catacombs hint at a longer period of use, from the Early Roman period to Medieval times. There is a debate over the cemetery's last use. While the excavators claimed that it declined in the mid-4th century after the Gallus revolt, and interpret all the late finds as evidence of robbery and activity other than mortuary, others maintain that there has been a continuous burial at the site from the Roman period through the Byzantine period and even later. Recent excavations in the largest catacomb at Beth She'arim, catacomb 20, also known as the sarcophagi catacomb, have yielded new evidence for the different phases, based on stratigraphic and radiometric considerations, as well as the types of grave goods and their placement within the cave. Further insights come from the correlation between the use of Greek and Hebrew inscriptions, their different dates, and various locations. Thus, for the first time in the research of Beth She'arim, we can offer a new history for the Beth She'arim cemetery.

43 SCIENTIFIC DATING OF ARCHITECTURE: FROM METHODS AND CASE STUDIES TO SOCIAL IMPACT

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Pavla Tomanova (Institute of Archaeology of the CAS, Prague | ETH Zurich) – Irka Hajdas (ETH Zurich) – Marta Caroselli (SUPSI)
Keywords: scientific dating methods, archaeology of architecture, radiocarbon dating, material analyses, social impact
Format: Regular session
Affiliation: Medieval Europe Research Community - MERC

SESSION ABSTRACT

Determining precise age of historical buildings, or even of relics of masonry constructions, stands as a major problem in archaeology and construction history. Standard archaeological or stylistic dating methods can determine ages only in broad chronological intervals. However, scientific dating methods developed in last decades can particularly contribute to resolution of this problem, e.g. application of OSL, archaeomagnetism, dendrochronology and, finally, radiocarbon dating (14C) of lime mortars and of organic materials embedded in the mortars. Although, there are numerous obstacles to use those methods on routine basis, e.g. the need for special laboratory treatments, machinery, or the relatively high costs of the measurement or analyses. Nevertheless, there are already numerous positive case studies indicating the dawn of more frequent application of scientific dating methods, in particular of 14C dating of lime mortars. Moreover, radiocarbon analyses of historical lime mortar are often accompanied by characterisation of the petrographic composition and chemical properties of the investigated mortar samples. That way, the research contributes to our knowledge about past construction materials and techniques in a broader context. The aim of this session is to share experience in absolute dating of masonry constructions and buildings using scientific methods, primarily, but not only, the 14C dating of lime mortars. The session intents to discuss possibilities, limits and methodological aspects of various methods, contribution of additional analyses (petrographic analyses, cathodoluminescence, FTIR,…), but also the impact of scientific data on the heritage care and/or public perception of individual historical buildings under investigation.

CONTRIBUTION ABSTRACTS

1116. Architectural stratigraphy and scientific dating of masonry in historic buildings: methodological challenges from heritage management practice

Authors: Miha Murko – Gašper Rutar (Institute for the Protection of Cultural Heritage of Slovenia)
Format: Oral

The interpretation and dating of masonry structures within historic buildings remain a widely recognised methodological challenge in archaeology of architecture and heritage management. Architectural stratigraphy, stylistic assessment and relative archaeological indicators often provide only broad chronological frameworks, which are insufficient for a detailed understanding of construction phases, building sequences and later interventions. This poster offers a methodological reflection on the limits of traditional approaches to dating standing masonry from the perspective of preventive archaeology and conservation practice. Rather than presenting specific case studies or laboratory results, it focuses on recurring analytical questions encountered during architectural analysis, such as how construction phases are identified, how repairs and reused materials affect stratigraphic interpretation, and why correlating architectural observations with absolute chronologies often remains problematic. The contribution discusses the potential role of scientific dating methods – such as radiocarbon dating of lime mortars, dendrochronology and optically stimulated luminescence (OSL) – as complementary tools within architectural stratigraphy. Particular attention is given to the conditions under which such methods can meaningfully contribute to heritage management, including issues of sampling strategy, feasibility, costs and the integration of scientific data into archaeological interpretation and conservation decision-making. By emphasising interdisciplinary dialogue between archaeologists, conservation professionals and natural scientists, the poster frames scientific dating not as a replacement for architectural analysis, but as a methodological support for advancing interpretation and improving the protection and management of built heritage.

677. The MoReS Project: A Tephrochronological Approach to Mapping Modern Restoration Phases in Pompeii

Authors: Simone Dilaria – Michele Secco – Caterina Previato – Jacopo Bonetto – Maria Stella Busana (University of Padova

- Department of Cultural Heritage)
Format: Oral

Pompeii is internationally renowned for its exceptional state of preservation; however, the site's long and complex history of modern restoration interventions—many poorly documented since the 18th century—continues to complicate the interpretation of the original ancient architectural fabric. This issue is particularly evident at the Sarno Baths (Regio VIII, Insula 2, 17–21), a terraced, multi-storey building on the southern slope of the Pompeian plateau. Here, early 20th-century restorations frequently involved the reconstruction of collapsed walls and vaults using recycled Roman materials and locally sourced volcanic debris, often guided by philological principles of imitation rather than scientific criteria. Distinguishing ancient construction phases from modern repairs therefore remains a major challenge. Over the last decade, multidisciplinary research by the University of Padova has analyzed more than 100 mortar samples from the Sarno Baths, identifying distinct compositional groups that enable a reliable differentiation between ancient and modern building phases. Building on these results, the MoReS project (Modern Restorations in Pompeii: a Novel Tool to Solve the Vesuvian Heritage Conservation Dilemma), funded by the Gerda Henkel Stiftung, aims to develop a high-resolution analytical protocol to identify modern restoration mortars across Pompeii. The project targets tephra inclusions (pumices and lapilli) used as mortar additives, whose petrochemical fingerprints reflect their eruptive sources within the Phlegraean Fields and Vesuvian districts. Because pre-79 AD tephras differ geochemically from those of the 79 AD eruption and later events, widely recycled during modern restorations at the Sarno Baths, the MoReS workflow combines petro-mineralogical and high-resolution trace-element analyses to establish robust criteria for the tephrochronological attribution of volcanic inclusions. The approach enables the systematic identification of restoration mortars and supports the development of a standardized protocol for reconstructing building and rebuilding histories across the Vesuvian region.

691. Construction Chronologies of Late Antique Fortifications in the Eastern Adriatic: Insights from Preliminary Mortar Characterisation at Rab and Danilo

Authors: Natali Neral (Institute of archaeology, Zagreb) – Małgorzata Zaremba (Institute of archaeology, Cardinal Stefan Wyszynski University in Warsaw) – Agnese Kukela (University of Lativa, Riga) – Ana Konestra (Institute of archaeology, Zagreb) – Fabian Welc (Institute of archaeology, Cardinal Stefan Wyszynski University in Warsaw)
Format: Oral

The Late Antique period in the eastern Adriatic (4th–7th centuries AD) is characterized by intensified construction of forts, linear defensive systems, and the refurbishment of urban fortifications, with building activity likely beginning as early as the late 2nd–3rd centuries. Despite the presence of more than thirty coastal and insular fortification sites stretching from the Kvarner Gulf to the Dubrovnik region, the chronology of their construction, use, and successive phases of rebuilding remains poorly defined. Within the framework of the Croatian Science Foundation project Re:Set, three such sites are currently under investigation using an interdisciplinary approach that integrates materials analysis, radiocarbon dating of organic inclusions, and detailed archaeological contextualisation. The primary objective is to establish absolute chronologies for distinct construction phases and to assess regional patterns through comparative studies of nearby rural villas and urban centres. This paper outlines the project's methodological framework and presents initial results from two study areas: the island of Rab (Kvarner) and the Roman settlement of Rider (Danilo, near Šibenik) in northern Dalmatia. Preliminary radiocarbon dates from organic inclusions are discussed in relation to architectural phases and material analyses, highlighting both the potential of the approach and the methodological challenges encountered.

2484. Radiocarbon Dating of Encaustic Beeswax Used for Polychromy on the Athenian Acropolis

Authors: Melanie Roffet-Salque – Timothy Knowles (University of Bristol) – Asterios Bakolas (National Technical University of Athens) – Eleni Aggelakopoulou (National Technical University of Athens | Hellenic Ministry of Culture)
Format: Oral

Encaustic painting, based on beeswax as a binding medium, was widely employed in antiquity for architectural polychromy. Recent analytical investigations of the Acropolis monuments in Athens have identified beeswax within preserved paint layers on the Parthenon, Propylaea, and Erechtheion, raising questions regarding its chronology and whether it derives from original Classical-period decoration or later conservation treatments (ganosis) or repainting. Establishing the origin of this material is critical for assessing the authenticity of the surviving polychromy. This study reports the multi-analytical characterization and radiocarbon dating of three polychrome layers from these monuments. Non-invasive and microanalytical techniques, including Visible-Induced Luminescence (VIL), stereomicroscopy, μ-Raman spectroscopy, Gas Chromatography–Mass Spectrometry (GC–MS), and SEM/EDX, were applied to determine the composition and preservation state of the paint layers. Radiocarbon dating was performed by Accelerator Mass Spectrometry (AMS). Results demonstrate a high concentration of well-preserved beeswax intimately mixed with mineral pigments, consistent with the encaustic technique. AMS radiocarbon dating places the beeswax in the 5th century BCE, confirming the Classical origin of the paint layers and providing the first direct scientific dating of architectural polychromy from the Acropolis monuments.

1177. An analysis of consolidant contaminated structural timbers for radiocarbon dating

Authors: Daniel Morris – Gerard Barrett (Queen's University Belfast)
Format: Oral

The archaeological remains of buildings can yield large timbers which are suitable for dendrochronological dating, but in some cases the number of available rings is insufficient for technique to produce an accurate age. While radiocarbon dating can offer an alternative in such cases, these timbers are also often treated with conservation materials. Conservation materials, such as consolidants, preservatives and glues, are a well-known source of contamination in the radiocarbon dating of organic materials. These contaminants introduce carbon of a different radiocarbon age to that of the archaeological substrate, and so if not entirely removed, will shift the measured age by an unknown amount. Studies which aim to assess the effectiveness of common pretreatment methods which are used to remove these contaminants commonly make use of analogue samples: materials of known age which are then purposefully contaminated. However, over long periods of time, conservation materials, particularly organic polymers, are susceptible to ageing effects which make them more recalcitrant. Therefore, it is not clear whether analogue substrates such as these suitably model the behaviour of real archaeological material, which are often conserved many years before dating is attempted. Dendro-dated timbers from archaeological structures are therefore ideal for investigations of consolidant contamination, as they are of known age, contaminated, and importantly, have aged for several years since being contaminated. This work presents investigations on contaminated structural timbers, characterising and modelling the effects of the contamination using FTIR, TGMS and ramped combustion/pyrolysis radiocarbon dating methods. Finally, these results are compared to those for analogue samples.

2126. Dry-Stone Architecture under Constraints: A Multi-Proxy and Bayesian Approach from the Megalithic Monuments of Menjez (Lebanon)

Authors: Méryl Defours Rivoira (University of Geneva)
Format: Oral

Establishing reliable chronologies for dry-stone architecture remains a major methodological challenge, particularly in contexts lacking organic material and affected by disturbance, reuse, and early excavation practices. This paper presents a methodological case study from the late prehistoric megalithic funerary monuments of Menjez (Akkar, northern Lebanon), exploring how an integrated dating strategy can be developed for dry-stone-built architecture under such constraints. The Menjez assemblage is marked by conditions that severely limit chronological resolution, including the exclusive use of basalt, extensive looting, incomplete archival documentation from excavations conducted in the 1960s, and complex architectural sequences resulting from reuse and reconfiguration. These factors restrict the applicability of single dating techniques and required the implementation of an adaptive, multi-proxy approach. Relative chronological sequences were established through building archaeology, combining the reading of architectural elevations, reconstruction of building chaînes opératoires, and architectural phasing with stratigraphic data from recent excavations conducted as part of the MEG-A project, associated material culture, and archival sources. Absolute dating relied on optically stimulated luminescence (OSL) dating of sediments, OSL dating of ceramic sherds, and bioapatite analyses, each subject to specific constraints related to sampling context, post-depositional processes, and signal preservation. All datasets were integrated within a Bayesian chronological modelling framework, allowing stratigraphic relationships, architectural sequences, and prior archaeological information to be formally incorporated in the assessment of date reliability, outlier detection, and sampling strategy refinement. This approach resulted in a robust chrono-typological framework for the Menjez monuments. Beyond the Menjez case, this contribution discusses methodological lessons that may inform the scientific dating of dry-stone architecture in similarly constrained contexts, highlighting the role of Bayesian modelling in integrating heterogeneous dating proxies and in linking architectural chronology to interpretations of construction practices, technical traditions, and long-term social dynamics.

1152. Luminescence dating of mortars through single grain procedure at European scale : potential and drawbacks

Authors: Petra Urbanova (CNRS French National Center for Scientific Research)
Format: Oral

With the beginning of the 21st century, the methodologies used in archaeology of architecture noted considerable transformations with an increasing role of natural science disciplines in the analyses of building materials, and of mortars in particular. In this context, a great progress has been made in the field of dating with optically stimulated luminescence. Thanks to the development of the single grain procedure (Duller 1999, SG-OSL) that allows overcoming the problems of heterogeneous exposure of mortars to light at the moment of mortar making, luminescence dating of quartz extracted from mortars has progressively become a reliable research method that has been employed in various archaeological research projects across Western Mediterranean (Javel et al. 2019; Urbanová et al. 2020; Urbanová et al. 2023; Sanjurjo-Sanchez et al. 2024). The large scope of geological contexts in which this dating technique was used in the last 15 years allowed mapping its potential but also better understanding its limits. In particular, it turned out that depending on its provenance across Europe, quartz sensitivity to SG-OSL stimulation is highly variable and difficult to predict. In luminescence dating of mortars, only a little proportion of analyzed grains gives a detectable signal. In some cases, it can be up to 5 %, while in many other cases it can be less than 1 % or even less than 0.5 %. At some point, the proportion of luminescent grains becomes so low that we have to ask about the feasibility of dating. The goal of this paper is to show the impact of the luminescence dating methods on the re-examination of chronology of early medieval monuments and to put the collected data on quartz sensitivity collected on about 40 historical sites in Croatia, Italy, France and Spain in context in order to make non-specialists aware of this particular issue.

993. Examples of radiocarbon dating of Roman and Medieval mortars

Authors: Irka Hajdas (Laboratory of Ion Beam Physics, ETH Zurich) – Walter Caseri (Laboratory for Multifunctional Materials, ETH Zurich) – Negar Haghipour (Laboratory of Ion Beam Physics, ETH Zurich | Geology Department, ETH Zurich) – Marek Krąpiec (AGH, Geophysics and Environmental Protection, Krakow) – Danuta Michalska (Geochronology, Institute of Geology, Adam Mickiewicz University Poznań) – Petra Ohnsorg (ProSpect GmBH, Aarau) – Jacek Pawlyta (AGH, Geophysics and Environmental Protection, Krakow)
Format: Oral

The first attempts to date mortars using the conventional counting method highlighted the potential and difficulties of separating carbonate fractions to accurately date the binders. The significant development was only possible with the AMS measurement technique and the interdisciplinary work summarized by Ringbom et al. (2014). Interest in radiocarbon dating of mortars is expressed across multidisciplinary fields, including archaeology, art history, architectural history, and conservation. Despite the challenges of dating mortars, ongoing research continues to elucidate the material and improve dating methods. This paper presents several ongoing studies that illustrate the complexity and potential of dating mortars and the methods employed (Hajdas et al., 2020). Roman mortars are known to be challenging, as illustrated by samples from two sites. One sample was collected from the Roman site located on the eastern Zürichsee lakeshore in Kempraten, Canton of St. Gallen, Switzerland. The second sample was mortar from the Aqueduct of Augusta Raurica in Augst, near Basel, Switzerland. Medieval mortars were collected from the underground of the Fraumünster, a protestant church in the center of Zurich. We attempt to date the different phases of the construction. The initial results are promising; however, the amount of carbonate separated was insufficient for graphitization, and a new separation is needed to improve precision. A promising result has been obtained as part of a pilot study to date Wawel Castle in Krakow. An ongoing project led by M Krąpiec (AGH) will provide more detailed chronologies of this prominent construction.

2261. The radiocarbon dating of Mg- mortars: Specific characteristics of the material, characterization, sample preparation and interpretation of results

Authors: Marta Caroselli (University of Applied Arts and Sciences of Southern Switzerland SUPSI) – Danuta Michalska (Faculty of Geographical and Geological Sciences, Adam Mickiewicz University) – Irka Hajdas (Laboratory of Ion Beam Physics, ETH Zurich)
Format: Oral

Due to their technological preparation process and the impossibility of reuse, lime mortars are one of the few inorganic materials for which it is possible to date the construction of a building using radiocarbon dating. The carbon that enters the mortar as CO_2 during carbonation within the lime cycle can indeed be dated. One specific type of historical mortar is magnesian mortar, which is derived from dolomitic raw material. In certain geographical areas where limestone outcrops are rich in magnesium, this material has been used historically both as a construction material and, after thermal treatment, for preparing mortars and plasters. Magnesian limes are obtained from dolomite, a limestone in which magnesium (Mg) replaces calcium (Ca) in the crystal lattice of calcite due to geological processes. Dolomitic limes are widely distributed, particularly in the southern Alpine region, where they were historically the main material used for producing mortar. Unlike high calcium lime, magnesian lime does not follow a similar cycle: Mg-hydroxide (brucite, $Mg(OH)_2$) slowly forms carbonates and, under certain conditions, may not carbonate at all. Consequently, the products of these reactions are chemically complex and exhibit different solubilities, which complicates the process of mortar radiocarbon dating. Preliminary characterization of the mortar through petrographic analysis is crucial to identify potential issues, determine the most appropriate methodology for sample preparation and ensure the correct interpretation of the results. This paper will explore this issue through specific examples and case studies from different historical periods and geographical locations. The results demonstrate the value of interdisciplinary collaboration to improve dating practices of potentially problematic materials.

481. Radiocarbon dating of lime mortars: intercomparison of labs and methods. A Case study of Břeclav - Pohansko (CZ)

Authors: Pavla Tomanova (Institute of Archaeology of the CAS, Prague, v. v. i. | Laboratory of Ion Beam Physics, ETH Zurich) – Jan Válek (Institute of Theoretical and Applied Mechanics, CAS, v. v. i.) – Irka Hajdas (Laboratory of Ion Beam Physics, ETH Zurich) – Gerard Barrett (14CHRONO, Queen's University Belfast) – Ivo Světlík (Czech Radiocarbon Laboratory, Prague) – Petr Dresler – Renáta Přichystalová (Department of Archaeology and Museology, Masaryk University Brno)
Format: Oral

The main challenge of radiocarbon (14C) dating of mortars is separation of the carbon from CO2 that was fixed in the mortar at the time of construction, therefore is essential for determination of the age of the object. To achieve this, 14C laboratories use various methods of sample treatment. In terms of the MORDAT research project, selected mortar samples are being 14C dated in parallel in different laboratories (ETH Zurich, 14CHRONO Belfast, CRL Prague) with the aim to compare and investigate the methods used. The most sophisticated intercomparison to date was conducted on mortar samples from the rotunda at the Břeclav – Pohansko site. Břeclav – Pohansko is an early medieval fortified settlement located in the Czech Republic. In 2007, remains of a rotunda have been unexpectedly discovered and dated to the 9th century based on the archaeological context. In 2021, three mortar samples from the

rotunda were 14C dated at ETH Zurich and at CRL Prague in cooperation with ITAM. To remove potential contamination from the samples, ETH laboratory applied sequential dissolution which removes potential geogenic carbon (Hajdas et al., 2020), whereas ITAM used suspension and sedimentation (Válek at al., 2026). In 2026, in terms of the MORDAT project, the samples were repeatedly analysed into more details. They were homogenised, purified by suspension and sedimentation at ITAM, and further processed and dated at ETH Zurich (using sequential dissolution) and in parallel at 14CHRONO Belfast (using ramped pyrolises; Barrett et al. 2021). Moreover, additional material analyses have been applied (optical microscopy, cathodoluminescence, FTIR) to characterise the binder and identify its potentially contaminating compounds. The aim of this research is to determine the age of the rotunda at Břeclav – Pohansko more accurately, and to examine the possibilities of treatment procedures for more reliable 14C dating of mortars.

883. The Castles Project: a new challenge to reconstruct the chronology of Medieval Castles in Central-Northern Italy

Authors: Giovanna Bianchi – Andrea Arrighetti (University of Siena) – Giulia Bellato (University of Cambridge) – Mauro Buonincontri (University of Siena) – Sara Calandra (University of Florence) – Alessio Fiore (University of Turin) – Carlo Garzonio (University of Florence) – Carmine Lubritto – Noemi Mantile (University of Campania "Luigi Vanvitelli") – Elena Pecchioni (University of Florence)
Format: Oral

The study of medieval castles and of their transformations, in both structural and socio-political terms, is a long-standing key theme of Italian historiographical research. Though it has been tackled extensively through historical, archaeological, and archaeometric study, it still retains numerous open questions that carry significant historiographical implications. The precise chronology of the transformations of castles between the second half of the 11th century and the 13th, for instance, remains unclear. One of the key elements of this transformation involves the shift to durable materials, accompanied by the increasing use of lime-based binders. This paper presents the results of an ambitious project developed by the universities of Siena, Florence, Turin, and Campania. It is based on a study of a set of Italian medieval castles from Tuscany, Piemonte, and Liguria, selected because of their historical and archaeological significance. It is aimed as refining our understanding of castles construction phases, specifically through the development of new protocol for the dating of historical lime-based mortars. The field of archaeometry has seen great strides in recent years, especially in terms of the development of increasingly precise procedures for the dating of historical mortars. However, these types of analyses still retain significant challenges, not least that of successfully integrating the archaeometric data with that produced through historico-archaeological research. The paper presents an innovative framework of research which centres mortar dating in the creation of historical models. At the same time, it also explores the contribution that historico-archaeological analysis can bring to archaeometry, especially regarding the creation of new protocols of analysis. It aims at offering a valuable example of interdisciplinary research and at opening a fruitful discussion regarding the challenges and the advantages of creating research frameworks that can integrate data from different specialisations.

1432. Radiocarbon Dating of Mortars from Fortified Churches in Southern Transylvania: Methods, Case Studies, and Architectural Implications

Authors: Ioan Marian Tiplic (Lucian Blaga University of Sibiu) – Corina Anca Simion – Maria Valentina Ilie – Cristian Mănăilescu – Doru Gheorghe Păceșilă (Institute for R&D in Physics and Nuclear Engineering - IFIN-HH)
Format: Oral

Scientific dating methods have become increasingly important for refining architectural chronologies, particularly in contexts where written sources are scarce or ambiguous. Among these approaches, radiocarbon (14C) dating of lime mortars provides a direct chronological indicator for construction and rebuilding phases, offering valuable insights into the history of medieval architecture. This paper presents new results from 14C dating of mortars sampled from fortified churches in southern Transylvania, focusing on the sites of Agnita, Șaroș, and Ruja. The study addresses both methodological and interpretative aspects of mortar dating. Particular attention is paid to issues commonly associated with this technique, such as the selection of suitable samples, the separation of the binder fraction from aggregates, and the identification of potential contamination caused by secondary carbonation or later repair phases. A controlled laboratory protocol was applied prior to AMS measurement in order to improve the reliability of the obtained dates. The calibrated results allow for a more precise attribution of major construction and modification phases, in several cases diverging from chronologies previously inferred on stylistic or typological grounds. Beyond the presentation of individual case studies, the paper discusses the broader implications of scientific dating for the study of fortified ecclesiastical architecture. Establishing absolute chronologies contributes to a clearer understanding of building dynamics in a frontier region marked by social change, defensive needs, and community investment in monumental architecture. In this respect, radiocarbon dating of mortars not only refines architectural histories but also enhances the interpretation of social processes embedded in the built environment. The Transylvanian examples demonstrate the potential of this method to inform interdisciplinary research and to support evidence-based heritage management and conservation strategies.

672. Radiocarbon dating of lime mortars from four medieval churches in south-western Transylvania

Authors: Maria Emilia Cringaci Tiplic (Institute of Social Sciences and Humanities Sibiu, Romanian Academy) – Corina Anca Simion – Maria Ilie – Cristian Mănăilescu (Horia Hulubei National Institute for R&D in Physics and Nuclear

Engineering)
Format: Oral

Recent archaeological investigations at four medieval churches in south-western Transylvania in modern-day Romania, key monuments for understanding the development of medieval ecclesiastical architecture in the region, have provided significant new data on their chronology and construction phases. The research was conducted in the context of extensive restoration works, which allowed the collection of lime mortar samples for radiocarbon (^{14}C) analysis from the Romanesque and/or Gothic foundations of the churches at Câlnic (a UNESCO World Heritage monument), Miercurea Sibiului, Sibiu, and Cisnădie. The main aim was to refine the chronology of the Romanesque buildings and their subsequent Gothic reconstructions. This paper presents radiocarbon dates for the Romanesque and Gothic phases of the aforementioned medieval churches. A total of 12 lime mortar samples were analyzed using different pretreatment methods. The radiocarbon results confirm that the construction phases took place in distinct periods, spanning from the 11th to the 14th centuries. Some calibrated ^{14}C dates are consistent with chronologies previously proposed on the basis of archaeological analysis, while others indicate either significantly earlier or more recent dates. Notably, the results suggest an earlier chronology for the churches at Câlnic and Miercurea Sibiului compared to previous historiographical interpretations. The interpretation of the mortar ^{14}C data is based on their correlation with the radiocarbon dates obtained from osteological samples, documented stratigraphic relationships, and the archaeological evidence available for each site, and is further supported by a comparative analysis of the four investigated sites. The radiocarbon dating was supported under Research Programme Partnership in Priority Areas PNII MEN-UEFISCDI, contract PN 23210102 and PN 23210201. Experiments were carried out at the 1 MV Tandetron™ accelerator from "Horia Hulubei" National Institute for Physics and Nuclear Engineering (IFIN-HH) and were supported by the Romanian Government Programme through the National Programme for Infrastructure of National Interest (IOSIN).

2573. Geogenic and Diagenetic Contaminants in Mortar Radiocarbon Dating: The Role of Characterization and Targeted Pretreatment Protocols

Authors: Irka Hajdas (Laboratory of Ion Beam Physics, ETH Zurich) – Danuta Michalska (Institute of Geology, Adam Mickiewicz University Poznań) – Marta Caroselli (University of Applied Arts and Sciences of Southern Switzerland SUPSI) – Negar Haghipour (Geology Department ETH Zurich | Laboratory of Ion Beam Physics, ETH Zurich) – Małgorzata Mrozek-Wysocka (Institute of Geology, Adam Mickiewicz University Poznań)
Format: Poster

Radiocarbon dating of historical mortars offers a direct method for establishing the chronology of construction. The accuracy of this technique is dependent on a comprehensive understanding of mortar composition and its degradation state, both of which are linked to regional and site-specific factors. The local geological environment dictates the mineralogical provenance of raw materials—primarily the limestone used for binder production and the sands or aggregates used as inert components. The presence of carbonate aggregates (geologically "dead carbon") is a primary source of contamination, necessitating detailed petrographic analysis to differentiate these lithic fragments from the atmospheric CO_2-derived binder. Furthermore, geology influences the availability of materials that impart hydraulic properties (e.g., pozzolans), altering the setting reaction and carbonation pathway. Equally consequential are the local climatic and environmental conditions, which exert a long-term control on the physicochemical state of samples. Parameters such as precipitation regimes, temperature fluctuations, and exposure to soluble salts govern the kinetics of the initial carbonation process and subsequent diagenetic alteration. These conditions can lead to the dissolution and reprecipitation of carbonates, recrystallization processes, and the formation of secondary mineral phases. Therefore, mortar dating requires an integrated methodology. This contextual understanding directly informs the selection of advanced pretreatment protocols, such as stepped acid hydrolysis or thermal decomposition, which are designed to isolate the most representative binder fraction. By systematically accounting for the constraints imposed by local geology and environmental history, together with knowledge about mortar components, the reliability and interpretative power of ^{14}C measurements in chronology are significantly enhanced.

2769. When radiocarbon mortar dates do not match the archeological context

Authors: Andreja Sironić – Lara Mikac – Vjekoslav Štrukil (Ruđer Bošković Institute) – Matija Deak – Krasanka Majer Jurišić – Duško Čikara (Croatian Conservation Institute)
Format: Poster

Radiocarbon dating of mortar is based on the fact that mortar hardens by absorbing CO2 forming carbonate binder and thus storing the 14C signal from atmosphere. However, mortar is a complex matrix consisting of carbonates originating from various sources, and it is challenging to isolate pure binder carbon for radiocarbon dating because it is chemically and crystalographically indistinguishable from the aggregate carbonate. The Zagreb Radiocarbon Laboratory process for obtaining the true radiocarbon mortar age involves sequential hydrolysis with extrapolation. The radiocarbon dating is performed after the phenolphthalein test and physical analysis, thin leaves petrography and XRD, showing no active mortar absorption, no recrystallisation or magnesite content present and nonhydraulic characteristic. However, sometimes even when all the pre-testing of mortar sample is acceptable, its radiocarbon date still does not agree with the archeological analysis, often failing by couple of hundreds to thousand years. The cause can be high content of fine-grained aggregate or the aggregate morphology. Here we perform FTIR and Raman spectroscopy, to try to distinguish between the binder and aggregate phase in the processed sample. The preliminary results will be presented for the samples of pure binder and aggregate. Further, it will be compared to the real samples that showed radiocarbon ages agreeable and unagreeable to archeological analysis on the historical monuments in the case of the Zagreb Cathedral, the Our Lady of the

Mountain at Lobor in the continental part and the St. Nicholas church at Jablanac in the coastal part of Croatia. The conference participation was funded by European Union program – NextGenerationEU.

45 ANCHORS OF MEMORY: SANCTUARIES, MONUMENTS AND VOTIVES IN THE CONSTRUCTION OF CULTURAL IDENTITY IN THE ANCIENT GREEK WORLD

Theme: 1. Widening perspectives in material culture studies
Organisers: Aura Piccioni (Universität Trier) – Clemente Marconi (University of Milan)
Keywords: Cultural memory, Cultural and social identity, Greek sanctuaries, Greek temples and their decoration, Greek Votive Offerings, Object biography
Format: Regular session

SESSION ABSTRACT

This session explores the role of sanctuaries, monuments, and votives as active agents in the formation, negotiation, and continual reinvention of communal identities in the ancient Greek world. Within the context of a highly visual culture, sacred spaces—together with the monuments and votives that animated them—functioned as dynamic mediators between different social groups. The focus of this session is on the capacity of sacred spaces—together with their monuments and votives—to function as "mnemonic anchors," transforming physical settings, in conjunction with ritual performances, into landscapes of memory. By displaying images of gods and heroes of particular significance to local communities, these spaces materialized shared identities and collective recollections. Monumental and artistic production itself—through the strategic selection of materials, stylistic language, scale, and spatial deployment—constituted an intentional act of communication, capable of giving tangible form to civic narratives and delineating the boundaries among different social groups. Central to this approach is the consideration of the biographies of monuments and votives, interpreting their diachronic processes of setting, spoliation, and re-signification as deliberate acts aimed at constituting or reconfiguring collective memory. By examining the interplay of temporality, materiality, and agency, this session seeks to illuminate the ways in which monuments constructed and negotiated both space and memory, as exemplified by the rebuilding of Athens after the Persian sack. The examination of these dynamics across the wider Greek Mediterranean will further contribute the perspective of the Greeks overseas. Contributors are invited to present case studies that, by combining visual analysis with broader theoretical frameworks, illuminate sanctuaries, monuments, and votives as dynamic contexts for the construction of collective cultural memory.

CONTRIBUTION ABSTRACTS

30. Anchoring Memory in Stone: Demeter's Votive Reliefs at Tegea

Authors: Aeneas Kapouranis (Independent researcher)
Format: Oral

Demeter has long been counted among the most significant deities of the Greek world. Her presence guaranteed agricultural fertility and the vital supply of food, while she also presided over key stages in the lives of women. Her numerous sanctuaries across mainland Greece and the colonies -often shared with Persephone and, in some cases, with Pluto- further underline her importance. This paper examines the cult of Demeter at Tegea. Whereas literary testimonia and archaeological finds from other Arcadian cities offer substantial information about the goddess' cult, her epithets, and her iconography, the situation at Tegea is strikingly different. Both the written sources and the archaeological record are comparatively meagre. Our principal literary witness is Pausanias (8.53.7), who briefly mentions a sanctuary in which Demeter and Persephone were worshipped as Karpophoroi (i.e. "Fruit-Bearers"). Alongside this testimony, four votive reliefs, dated to the first half of the fourth century BC and now preserved in the National Archaeological Museum and the Archaeological Museum of Tegea, provide crucial evidence. They depict Demeter either with Persephone alone, or together with Persephone and Pluto. These reliefs illuminate two central aspects of the cult at Tegea: on the one hand, the transition from female adolescence to maturity; on the other, the continual dependence of the community on Demeter's life-sustaining gifts.

2085. Regifting at the Sanctuary of Poseidon at the Isthmus

Authors: Martha Risser (Trinity College, Hartford CT)
Format: Oral

Located along a major road that traversed the land bridge joining Attica and the Peloponnese, and close to harbors on the Corinthian and Saronic Gulfs, Isthmia was for most visitors the easiest of the four panhellenic sanctuaries to access. The biennial games were a cultural bridge, uniting people from the many and varied city-states of ancient Greece. Even the ceramic record is suggestive of unity. The overwhelming majority of 6th and 5th century B.C. pots found at Isthmia are Corinthian in origin, locally-made, mass-produced, and repetitive in style, shape, and size. Most votive vessels were presumably sold in or near the sanctuary for near-at-hand use. Notable exceptions include two panathenaic amphoras (Broneer 1958, IP 1172 and IP 1173) that were on display in the Archaic

temple when it burned. "Regifting" a prize given at the Panathenaea to another sanctuary - even another deity –was a common practice. Martin Bentz (2003, p. 114) has shown that of the panathenaic amphoras with known proveniences, roughly 40% were found in sanctuaries or similar contexts outside of Athens. This paper argues that the Panathenaic vases at Isthmia - and likely also those found at other sanctuaries - were "regifted" for the purpose of generating a collective semantic memory from a visual narrative of victory in a place beyond Athens, in a setting chosen for both religious significance and physical centrality.

1657. Lustral basins at the Altar to Poseidon at Isthmia

Authors: Helga Felleisen (University of Chicago Excavations at Isthmia)
Format: Oral

Excavations at the panhellenic Sanctuary of Poseidon at Isthmia uncovered the rims of approximately 70 standed Corinthian coarse ware basins known as perirrhanteria. More than 50 date between the end of the 6th century and ca. 480 B.C. based on my chronology for this class of Corinthian vessel. Fragmentary basins and small vessels tentatively identified as cherniba of Attic-Cycladic marble are contemporary. The basins from the Sanctuary count among an unprecedented number of vessels associated with a lustral purpose found in contexts indicative of cult ritual activity in the Corinthia and in Attica in the final decades of the Archaic period. The paper examines their role at the shrine on the Isthmus. Beginning in the mid 7th century monumental standed basins of stone are documented close to the center of cult worship where, I argue, they served for ritual purification at the altar. Their scale reflects community investment. The Corinthian and Attic-Cycladic basins of Late Archaic times present new types with a renewed purpose. Dedicatory inscriptions on the marble vessels indicate these were votive offerings made by individuals. The appearance of so many standed basins is consonant with new construction and refurbishments at sanctuaries, as at the Sanctuary of Poseidon, with special emphasis on the altar to the god. I consider whether the Altar of the Twelve Gods in Athens presents another example of the manifestation of the zeitgeist or an impetus for the dedication of lustral basins.

1004. Same but different – A comparative approach on figurative Terracotta assemblages in sacral contexts on Samos

Authors: Katerina Kock (Universität Regensburg) – Maria Stathakiou (Εφορεία Αρχαιοτήτων Σάμου και Ικαρίας)
Format: Oral

Our paper aims to provide a better understanding of the use of mass-produced figurative terracotta as votive offerings in Archaic times by analyzing them within their context as part of a social entity. The research focuses on figurative terracottas from the 6th century BCE originating from Samos, one of the major southern Ionian centers that flourished during this period. The examined material comes from two sacred contexts: the extra-urban sanctuary of Hera, the main sanctuary of the polis, and the sanctuary of Artemis, located along the western flank of the city walls. The terracotta corpus consists predominantly of figurines and figural vessels belonging to the "Ionian repertoire". The Archaic terracottas from Samos have received little scholarly attention in their sacred context. However, they shed light on dedication practices on Samos and its strong connections to other southern Ionian centers. In our lecture, we will present many of these findings for the first time. By analyzing two assemblages from sanctuaries with reliably identified cult recipients, spanning the entire 6th century BCE, the paper provides a comprehensive understanding of dedicated terracottas within the context of a single polis, allowing for the inclusion of different groups of dedicants. The focus is placed on the typology and iconography of the terracottas and craftsmanship—considered within their archaeological context. This analysis reveals that identical basic types appear in sanctuaries dedicated to different deities and constitute a major component of their respective find assemblages. From this observation, we can conclude that the choice of votives is closely linked to the representation of the dedicator.

631. Viewing, Reading, and Speaking at the Sanctuary: Inscriptions Labelling Mythological Figures on Greek Sacred Architecture

Authors: Matilde Mossali (IMT School for Advanced Studies Lucca)
Format: Oral

This paper examines a small, yet coherent corpus of Greek sacred buildings and monuments characterised by the presence of labels identifying figures within their decorative apparatus. Unlike other types of epigraphs—such as dedicatory inscriptions—painted or engraved name-labels remain a comparatively understudied feature of Greek sacred architectural decoration. The paper asks why inscriptions were added to monumental imagery and how they functioned within the spatial, ritual, and perceptual dynamics of the sanctuary. Methodologically, it adopts an integrated approach that strives to situate the architectural decoration within its original structural and experiential setting, while also drawing comparative insights from contemporary practices in other crafts, most notably vase painting. In this perspective, inscriptions are situated within the visual economy of the sanctuary, with particular attention to their placement, scale, (in)visibility, degrees of (il)legibility, and interaction with movement and viewing conditions. Case studies from Archaic Aetolia and Delphi suggest that, in a predominantly oral culture, such inscriptions might have operated simultaneously on a semantic and visual level: even when difficult to read, they functioned as mnemonic anchors, signalling the presence of recognizable, nameable figures and prompting the reactivation of oral narration and collective recollection. Later examples, including Tegea and the Great Altar of Zeus at Pergamon, reveal significant transformations in both the visual syntax and the functional role of labels, possibly reflecting broader shifts in literacy, modes of viewing, and the relationship between text, image, and

memory in Greek sanctuaries. Overall, despite the quantitative scarcity of extant evidence for this epigraphical practice, through qualitative and contextual analysis the paper sheds light on the active role of writing within images in shaping how monuments anchored memory and mediated collective narratives, guiding viewers' engagement with the visual apparatus of Greek sanctuaries.

807. Athena on Greek acropoleis: protectress of the polis and of its memory

Authors: Alice Ognier (Université Bordeaux Montaigne - Laboratoire Ausonius)
Format: Oral

Athena's cult has helped shape the organisation of the polis from the archaic period and her sanctuaries remained important features of urban centres for centuries. Placing her sanctuaries on acropoleis was a very conscious choice and carried a strong symbolic intent. The use of a dominating space, looking over the city and its citizens, combined with the many offerings types that archaeology has revealed, shows the diversity of roles taken on by the goddess and her general protective function. The archaeological study of many of her sanctuaries has shown that, from their installation to their use beyond antiquity, they have always been anchors of memory occupying central place in the polis life and landscape. In shaping a landscape oftentimes already used for sacred purpose before the arrival of her cult, communities have put her in a position of power. The rough topographic characteristic of acropoleis heightens the symbolic of the sanctuaries as eternal sacred places. Many examples through the Aegean are proof that this is a shared trait of her sanctuaries all around the Greek world. Several case study such as Thasos, Emporio, Phokaia, Halai and Gortyn will help us show, through topography, architecture and votive, the importance of the goddess and her sanctuaries in the collective memory of poleis.

1276. Sacred Spoils: Octavian's Victory Monument of Actium in Nicopolis, Greece and the Weaponization of Sanctuaries and their Mnemonic Monuments

Authors: Arielle Hardy (University of Pennsylvania | American School of Classical Studies at Athens)
Format: Oral

Octavian memorialized his decisive naval victory near Actium, Greece with a 'tropaeum' (29–27 BCE) built on the site of the Roman encampment. The Victory Monument of Actium included an upper terrace with a pi-shaped stoa framing a decorated stone altar, and an inscribed lower terrace which displayed bronze rams of captured ships. Such memorials—derived from the Greek practice of erecting "trophies" of arms and armor on the battlefield—varied in form and material. By the Republican period, trophies were often displayed in Rome rather than on battlefields. Why, then, did Octavian choose to erect a large marble altar in Nicopolis, Greece to commemorate his victory for the Roman people? The visual language of the Victory Monument borrows heavily from Hellenistic Greek religious antecedents, and thereby speaks fluently to Roman and local communities alike. By the first century BCE, large, decorated altars were used across the Mediterranean to underscore the authority of their sponsors and to evoke event-memories. The Great Altar of Pergamon represents the epitome of this practice, but comparanda can be found throughout the Greek world. At Nicopolis, site specificity enhanced the communicative power of the Monument. The circumscribing stoa visually framed the Battle of Actium's martial landscape. This setting infused the memory of Rome's victory into the 'tropaeum' itself. The Victory Monument of Actium, an open-air sanctuary-sans-temple, owes its form and iconography to the architectural and artistic vernacular of Greek religious structures. The combination of material, image, and setting demonstrates Octavian's awareness of Greek monuments' influence while employing the significatory capacity of sacred spaces and sacred architectural forms to shape Roman collective memory and identity. Octavian's complex—including an altar decorated with mythic, historical, and triumphal imagery, which displayed rams of real warships—should be considered a transitional structure between mnemonic Hellenistic altars and religio-political monuments of the emergent Roman empire.

2565. A Cultic Center in Motion: The Sacred Area of the Sanctuary of Demeter at Siris-Heraclea in the Archaic Period

Authors: Ernst Tolksdorff – Annarita Doronzio (Humboldt-Universität zu Berlin) – Carmelo Colelli (Museo Archeologico Nazionale della Siritide)
Format: Oral

The sacred area situated east of the Sanctuary of Demeter at Policoro (ancient Siris-Herakleia), known as the "Ost-Temenos", provides a critical case study for investigating the long-term resilience of sacred landscapes in Magna Graecia. Rather than focusing on a single architectural monument, this paper aims to reconstruct the development, use, and meaning of a cultic space that was formally dedicated to Demeter from the 5th century BC onward, while specifically addressing its earlier phases of ritual activity. Recent results from the 2025–2026 SIRIS Project confirm that this area was frequented and ritually active as early as the Archaic period. Stratigraphic evidence and the discovery of an undisturbed votive deposit dated to the second half of the 6th century BC challenge traditional narratives that interpret the Achaian conquest of Ionian Siris as a moment of abrupt religious and cultural discontinuity. Instead, the data suggest a scenario of ritual persistence across a phase of profound political transformation. Architectural investigations reveal successive phases of spatial organization linked to a sacred spring, suggesting a progressive formalization of the landscape rather than episodic use. Votive assemblages provide strong evidence for the area's significance as a place of worship in the Archaic period, though the identity of the deity venerated in this early phase remains a central research question. The material culture reflects a transformative process in which new Achaian-style ritual practices were integrated into an established sacred space. By functioning as an "Anchor of Memory," the site allowed continuity to be negotiated through the reinterpretation of ritual.

Situating this area within a regional framework alongside sites such as the Achaian sanctuaries of San Biagio and Sant'Anna, this paper proposes a model for how sacred areas structured memory and identity within the cultural landscapes of Greek southern Italy.

2482. Sanctuaries and cultural identity at Locri Epizephyrii, Magna Graecia

Authors: Valeria Meirano (University of Turin | Standing Committee of the International Bronze Congress) – Diego Elia (University of Turin)
Format: Oral

At Locri Epizephyrii, the numerous shrines and sacred areas dedicated to the city's main female deities (Aphrodite, Persephone, and Demeter) reflect the distinct roles these goddesses play in civic narratives. These spaces of worship and ritual appear to be closely related to ongoing negotiations between different social groups, as well as to the construction of devotees' social identity. The spaces chosen for sacred practices are highly heterogeneous, and the landscape —natural or anthropic — accompanies the ritual forms chosen to shape various scenarios of memory, action and representation. These range from urban sanctuaries with the traditional association of temple, altar, secondary buildings, etc. withn the temenos, to sacred areas located along the urban perimeter, often in close proximity to the ancient shoreline or in evocative environments such as caves, ravines, gorges, and watercourses. The rich documentation collected during successful excavation campaigns since Paolo Orsi's time (late 19th–early 20th century), combined with recent investigations and reappraisals, provides an articulate framework for reflecting on the dynamics of constructing the collective memory of the Locrian community from the Archaic to the Hellenistic age. The "régime des offrandes" is also involved in these processes, so as to influence the relationship between local craftsmanship and local demand. The forms assumed by the sacred probably also reflect significant events that marked local society and resulted in the renegotiation of relationships between social groups. Evidence of these phenomena can be seen during the period of aristocratic control by the 'Hundred Houses' for more than three centuries, as well as after the regime change that led to democratic rule being established.

747. Architectural Succession at Selinus: Temple Replacement and Monumental Revival

Authors: Rebecca Salem (Institute of Fine Arts - New York University)
Format: Oral

Selinus (modern Selinunte), the westernmost Greek colony on Sicily, experienced one of the largest construction sprees in the ancient Greek world from its foundation in the latter half of the 7th century BCE until the sack of the city by the Carthaginians in 409. Over these two centuries, monumental religious buildings of the city were erected and replaced within a landscape that the population engaged with on a daily basis. Employing a temporal approach to the replacement of temples at Selinus clarifies what the local population retained and what they altered over time. As the reasons for replacing temples vary, so do the forms of successor structures. At Selinus, Temple R, the Temple of Demeter Malophoros, and Temple E all underwent palimpsestic reconstruction. This paper, by examining the archaeological remains of these structures, assesses the curated retentions, deletions, and innovations by means of which the Selinuntes ensured that the temples endured in time in response to the changing needs and identities of the people themselves. The Selinuntines renewed their connections to and reverence for their local deities while constructing and displaying both "Selinuntine" and "Greek" identities in aggrandizing monumental form. As the city grew and Selinuntine self-conceptions changed, so did their temples, in a manner that conservatively maintained elements of religious and stylistic continuity while largely replacing the predecessors with a new material expression. This paper presents these palimpsest temples at Selinus and discusses the implications of the choices made for their designs, whether in referencing predecessors, memorializing the present, or forging an architectural future.

1554. Anchors of Collective Memory on the Heights: The Material Agency of the Votive Offerings in the Attic Upland Sanctuaries

Authors: Aura Piccioni (Universität Trier)
Format: Poster

Attica is characterized by a series of uplands, which extend beyond mere topography and thus function as authentic hermeneutic agents. This phenomenon holds particular relevance when considering the function of the upland sanctuaries, which function as pivotal nexuses for the negotiation of concepts such as identity, territoriality, and ritual continuity. Contrary to the notion that they are merely marginal peripheries, these upland sanctuaries have been identified as significant markers of territoriality and identity. The analysis, which is supported by case studies such as Mount Hymettos, demonstrates the pivotal role of upland sanctuaries in their totality. It emphasizes the votive objects found in these sanctuaries, which are intricately linked to and significantly influence social life. Through the reiteration of rituals and the accumulation of votive gifts and ritual materials (ceramics, metalwork, and faunal remains), it will be demonstrated the role of such sites as multifunctional centers of memory that exhibit remarkable resilience against political shifts. The concept of "uplands" is of particular significance in the context of the "symbolic capital" of the community, as it serves to transform human religious consciousness into a tangible political and territorial reality. Their topographical resilience persisted into Late Antiquity, as such sanctuaries became ritual refuges.

46 THE LURE OF MEDITERRANEAN WATERS: ANCIENT MARINERS, ANCIENT SHIPWRECKS AND CONTEMPORARY COMMUNITIES

Theme: 8. Beyond the Middle Sea: rethinking the Mediterranean in motion
Organisers: Chryssanthi Papadopoulou (Hellenic Institute of Marine Archaeology) – Alexandros Sotiriou (Department des Sciences de l' Antiquite, University of Geneva)
Keywords: shipwrecks, identity, sea, maritime archaeology, ancient mariner
Format: Regular session

SESSION ABSTRACT

'An olive tree, a vineyard, and a ship' (Elytis, The Little Mariner). Easy enough to pin down the ingredients of the Mediterranean ecocultural composition. Considerably harder to comprehend the nature and extent of the Med's seductive powers. Where do these powers lie? Do they even have a name? How deeply and irreversibly can they touch a person, notwithstanding their understated life-threatening potential? This session focuses on the diachronic lure of ships and the Mediterranean waters. For years maritime archaeologists have unearthed the material evidence of the complex, ingrained and occasionally lethal bonds of humans with the middle sea, and through and on it with each other. In this session, we aim to explore the varying reasons that ancient mariners chose this life of hardship, and welcome papers that focus inter alia on the biographies of ancient mariners and (land-bound) passengers including those claimed by the waters and survivors of shipwrecks. We will also look into the lives, toils and deaths of ancient fishermen and frequent maritime travelers. Vis-a-vis those, we will explore the lure of ancient wreck sites in the Mediterranean on local and global communities focusing on how these communities often claim the sites as regional emblems, integral parts of their identities or sites of inspiration. Finally, we will look into the pull of these archaeological sites on the members of the diving community who visit them often. We are particularly interested in the perspectives of professional divers who work alongside archaeologist on underwater surveys and excavations. This session points attention to the individuals and groups of people who have shared the experience of walking the same sands, sailing or diving into the same seas, and have been hooked by the same salty allure that can be traced all the way back to prehistory.

CONTRIBUTION ABSTRACTS

615. Stopping by Antikythera, Greece, before crossing to the underworld on a 1st century BCE cargo ship

Authors: Alexandros Sotiriou (University of Geneva | IRIS Civil non profit association of scientific research and education)
Format: Oral

Transiting across the Mediterranean sea was a complex task for marine travelers to organize and safely complete during ancient times, nonetheless it was quite common especially from the Roman period onward. Both a ship's crew and its passengers were aware in those days that smooth sailing was subject to unpredictable weather changes, the mood swing expressions of sea Gods, as in the same time navigational errors, unknown reefs, equipment failures or bandit raids could present additional hazards. Several of such marine endeavors ended prematurely, as was also the case with the heavily loaded merchantman that sank off the north-eastern coast of Antikythera island, in Greece, during the 1st century BCE. It was not only a seaworthy vessel and its valuable cargo that were lost with this shipwreck, but also some of the souls onboard. Adequate relevant evidence has been found at this site, lately in 2025, also confirming four individuals among the casualties, one of whom was a young adult female passenger. How much is really known about the final moments of those onboard ancient vessels as they were going down? This contribution will attempt to open a narrow window on the possible end of the voyage of those that perished at the Antikythera shipwreck from their perspective, based on evidence from ship's parts and equipment, skeletal remains, personal items, utilitarian objects, and their contexts at the seabed, as they froze it time at the moment of the disaster.

494. "Why then...do we not...flee from the neighbourhood of death?" On ancient fishermen's life choices and lived experiences

Authors: Chryssanthi Papadopoulou (Hellenic Institute of Marine Archaeology)
Format: Oral

Fishing was a noble enough pastime in antiquity, but ancient fishermen did not enjoy much of a social standing. Instead, they appear to have occupied a rather precarious position between subsistence labor and sociopolitical marginality. They toiled at sea facing numerous hardships and dangers, made a meagre living, occasionally dealt with gruesome catches, and were prone to premature, unlikely deaths. Why then would they not flee from the neighbourhood of death, as the fisherman Glaucus asked his wife Galateia in a letter imagined by Alciphron (Letters of Fishermen 1.3.3)? This paper examines ancient literary, epigraphic and archaeological evidence. It presents some of the reasons why men became fishermen in antiquity, and the ways fishermen perceived themselves and their profession vis-à-vis the etic perceptions of their contemporaries. It challenges the popular myths of the poor and the unaccomplished fisherman, which endure and haunt fishermen to this day, and shifts its focus from fishermen's formulaic weaknesses and vulnerabilities to their agency and lived experiences.

1254. The Role of Mediterranean Anchors in Shaping Mariners' Experiences: Material Perspectives on Maritime Practice, Mortality, and Daily Life.

Authors: Karsyn Johnson (University of Haifa)
Format: Oral

The sea lays the foundation for ideas to take shape, and invention follows as mariners strive to resolve the challenges it presents. Although those who live beside the sea know it most intimately, its pull extends far inland; as a land-locked researcher, I came to rely on colleagues whose lives had been shaped by a maritime experience. Their perspectives gradually informed my own, revealing water as a unifying force that connects communities through trade, knowledge, and culture. A central component of my research involved determining the material composition of early wooden composite anchors, thereby illuminating both their construction and intended functions. Through experimental archaeology, I tested hypotheses about how these anchors were built and how they performed in practice. Drawing on an extensive dataset of anchors from antiquity, I then reconstructed broader patterns of reliance, usage, and distribution across the Mediterranean. This analytical process prompted questions about when tools and inventions become culturally embedded. Fieldwork with contemporary mariners underscored that there is never a single solution to a problem; each conversation revealed yet another inventive approach. Such adaptability suggests a similar phenomenon among ancient seafarers, whose ingenuity contributed to the development of maritime technologies, anchors among them, which existed in numerous composite forms. Iconographic, mortuary, and functional evidence together reveal a profound and enduring reliance on anchors throughout the Mediterranean. This research aims to bring that significance to light by situating anchors not only as practical tools but also as cultural objects shaped by the problem-solving traditions of the mariners who used them.

2075. Shaped by the sea: alternative engagements with ancient shipwrecks in Cyprus

Authors: Anna Demetriou-Patsalidou (Cyprus Marine and Maritime Institute)
Format: Oral

As a social and material place (Lambert et al 2006) the sea participates in social engagements and contributes to the building of identities, a sense of place, and histories (Cooney 2003: 323). Connected to the established "idea of the sea" (Mack 2011: 25), ancient shipwrecks, in turn trigger contemporary encounters and engagements that extend far beyond the shipwreck as a mere representation of the past. Instead, ancient shipwrecks are transformed into knowable places (Rainbird 2007:45) with their own features, bringing a variety of people together and generating distinctive negotiations of their identity. The presentation will focus on two shipwreck sites from Cyprus: the 3rd cent. BC shipwreck of Kyrenia that was excavated in the 1960s and earned an exceptional position within the field of shipwreck archaeology but also within the local community of Cyprus, and the 4th cent. BC Mazotos shipwreck, the second well preserved shipwreck site located in Cyprus, whose excavation is still on-going. The presentation will unfold the multiple engagements and negotiations and identified around the two sites, which bring to the fore the complex, multileveled, relational, and fluid qualities of maritime archaeological sites which could possibly reflect new research directories.

2386. Embodying underwater cultural heritage: ancient wreck sites and modern diving professionals

Authors: Nikolas Giannoulakis (Chania Diving | IRIS Civil non profit association of scientific research and education) – Chryssanthi Papadopoulou (Hellenic Institute of Marine Archaeology) – Alexandros Sotiriou (IRIS Civil non profit association of scientific research and education)
Format: Oral

Modern shipwreck sites have always been popular scuba diving destinations. Most diving centres are familiar with the shipwrecks located near their areas of operations, and take pride in advertising them as destinations of challenging and fascinating dives to their customers. This paper presents how, through these sites, scuba diving instructors and professional divers have formed embodied understandings of the ways one is supposed to approach and treat wrecks. Apart from modern wrecks, most scuba diving professionals in Greece have come across ancient artefacts on the seafloor, especially transport amphorae. These artefacts may have been jettisoned from an ancient ship or may be part of a wreck site, which – more often than not in Greek waters – is scattered and/or extensively looted, and seemingly incomprehensible. This paper examines the varying attitudes of the diving community towards these artefacts/potential sites, as well as why these attitudes can differ from the ways modern shipwreck sites are perceived. Subsequently, this paper presents the results of anthropological research conducted amongst professional divers and scuba diving instructors, who have participated alongside archaeologists in underwater survey and excavation projects. It examines the changes in those participants' understandings of shipwreck sites, the ways the notion of "underwater cultural heritage" is gradually embodied, and the process by which priorities – regarding not only to these sites but the past in general – shift.

957. Mobile Communities, Anchored Sites: Collaborative Practice at the Mycenaean Shipwreck off Modi Islet, Poros

Authors: Eirini Chrysocheri – Niovi Karapetsi (Hellenic Institute of Marine Archaeology)
Format: Oral

What draws people back to the sea, year after year? This paper examines years of volunteer-based underwater archaeology work at a Mycenaean shipwreck off Modi Islet, Poros, Greece, exploring how professional communities sustain long-term commitment to underwater sites despite the absence of employment contracts or financial incentives. While long-term archaeological projects commonly generate communities of practice, the underwater environment creates distinctive conditions that intensify these dynamics in particular ways. Based on interviews with team members from archaeology, conservation, engineering, and related fields—all qualified divers—we reveal an unexpected pattern. The Poros team members, affiliated with the Hellenic Institute of Marine Archaeology, have worked together across multiple Greek underwater sites for over two decades. They return to Poros each October even while participating in other projects throughout the year, creating what we term a "temporal anchor" for a mobile professional network. What sustains this voluntary, long- term commitment? Our analysis reveals that the "lure" operates through interconnected intellectual, social, institutional, and identity-based mechanisms that extend beyond conventional assumptions about archaeological fieldwork motivation. The decision to return is neither individual nor purely rational but emerges from complex negotiations between dedication to understanding the maritime past, personal relationships, collective responsibility, institutional frameworks, shared maritime identity and the particular nature of volunteer participation. This pattern offers insights into ancient Mediterranean maritime life. Ancient sailors formed mobile occupational networks, returning seasonally to known routes and partnerships. By examining our own experience reflexively, we demonstrate how individual passion for the sea transforms into sustained collective commitment as community bonds reinforce both what people do and who they are. The pull of Mediterranean waters—then and now—operates fundamentally through the social structures that sustain maritime practice. The lure of the sea, we conclude, is as much about the waters themselves as the people (or communities) who share it.

47 GENES, BONES, AND TRADE: BIOARCHAEOLOGICAL PERSPECTIVES ON ANCIENT MOBILITY

Theme: 7. Interaction, connectivity and mobility
Organisers: Branka Franicevic (University of Derby) – Asta Rand (Nicholas Copernicus University in Toruń)
Keywords: Genetic mixing, Afro-Eurasian trade, Bioarchaeology, Migration, Mobility
Format: Regular session

SESSION ABSTRACT

Trade has long served as a catalyst for multilayered networks of negotiation, fostering population mixing, migration, and cultural integration across diverse geographical regions. Yet, trade corridors are often studied through the lens of a single discipline, resulting in fragmented understandings of how they shaped societies and environments. This session adopts an interdisciplinary bioarchaeological approach to explore the influence of Afro-Eurasian trade on patterns of human interaction and mobility from the fall of the Western Roman Empire to the waning of the Black Death pandemic (5th to 14th century AD). Our first research area examines trade as a catalyst for genetic mixing through the movement of traders, soldiers, and settlers who enabled intermarriage and biological blending. For example, how did genetic admixture and trade influence migration, displacement and settlement? Our second research area concerns trade as a catalyst for the transmission of diseases. It traces the links between interaction and the spread of pathogens utilising Isotope analysis (e.g. diet, labour and migration), skeletal analysis (e.g. health and diseases) and genetic data (e.g. disease evolution and resistance). For instance, how can we trace the transmission routes and geographic origins of diseases that spread through the trade routes? Our third research area explores trade as a catalyst for cultural integration. It concentrates on burial customs, bone stress markers and dietary shifts to reveal social cohesion within trade hubs. For example, how do hybrid burial customs reflect cultural exchange among historically mobile populations? By framing trade as a braided river of intersecting currents, rather than a linear path, this session highlights how people and ideas flowed together to shape the human story across centuries.

CONTRIBUTION ABSTRACTS

664. Bones and Beliefs: Bioarchaeology and Material Culture from Himalayan Cave Burial Contexts

Authors: Sonam Dolma (Deccan College Post Graduate Research Institute)
Format: Oral

Cave burial contexts across the Himalayan region represent complex mortuary landscapes where human remains and material culture intersect to reflect ritual practice, environmental adaptation, and cultural connectivity. This paper presents an integrated bioarchaeological and archaeological analysis of human skeletal remains and associated material culture from the western Himalaya, a cave site named Gachu Lhabrog Cave (Ladakh) India, contextualised within broader Himalayan cave burial traditions dating to the early–mid first millennium CE. The skeletal assemblage, characterised by commingling and post-depositional disturbance, is examined through macroscopic assessment of age-at-death, sex (where preservation permits), pathological conditions, and activity-related stress markers, including degenerative joint disease and trauma. These data provide insights into demographic structure, health status, and habitual activity patterns of the population. In parallel, the analysis of associated material culture-including ritual objects, utilitarian items, and funerary deposits—offers evidence for symbolic behaviour, mortuary practices, and cultural affiliations within trans-Himalayan exchange networks. By integrating osteological evidence with archaeological materials, this study highlights the role of caves as liminal spaces used for complex funerary and ritual practices rather than solely as burial repositories.

The paper further addresses methodological challenges posed by disturbed and commingled assemblages and discusses their implications for interpreting mortuary behaviour in high-altitude environments.

2359. Mobility versus burial traditions. Horse Burials in cemeteries from the 5th to the early 7th century CE in Eastern Austria

Authors: Bendeguz Tobias (Austrian Academy of Sciences) – Konstantina Saliari (Natural History Museum, Vienna)
Format: Oral

The early medieval Middle Danube region was characterised by migration and high human mobility, as demonstrated by written sources and the latest genetic data. While human mobility has received increased attention, animal remains have not. Archaeozoological remains reveal essential information not only about the animals of the period and the humans with whom they were buried. An over regional comparison of animal bones and teeth from Lombard period graves indicates that the species mainly deposited were chicken, pig and horse. A high quantity of eggshells were also found. Of special interest in the current study are horses remains. Morphometric studies reveal at least two different morphotypes. The first morphotype exhibits a withers height between 120 and 130 cm and bears significant similarities to the Iron Age pony. Its appearance during this period is extremely rare. The second morphotype is larger, with withers height between 135 and 140 cm, suggesting Roman influence, and is commonly found in graves and settlements from this period. Craniological finds support the osteometric results and raise new questions about the identities of these animal#s owners.

907. Environmental and Cultural Signals in Human Remains: A $\delta^{34}S$ Multi-Isotope Study from Mainland Greece

Authors: Pavlos Meratzis (National Centre for Scientific Research N.C.S.R. "Demokritos" | School of Mineral Resources Engineering, Technical University of Crete) – Platon Gamaletsos (School of Mineral Resources Engineering, Technical University of Crete) – Petros Karalis (National Centre for Scientific Research N.C.S.R. "Demokritos" | CERTH, Centre for Research & Technology) – Panagiotis-Leandros Poutoukis (CERTH, Centre for Research & Technology) – Anastasia Chrysostomou (National Centre for Scientific Research N.C.S.R. "Demokritos" | Ministry of Culture, Athens) – Elissavet Dotsika (National Centre for Scientific Research N.C.S.R. "Demokritos")
Format: Oral

The investigation of past human diet and mobility increasingly relies on stable isotope analysis, as it provides direct biogeochemical evidence from human skeletal remains. Carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) isotopes in bone collagen are well-established indicators of dietary protein sources, while oxygen ($\delta^{18}O$) in bioapatite is widely used to approach palaeoclimatic conditions and patterns of water consumption. In recent years, sulfur isotopes ($\delta^{34}S$) have emerged as an additional critical tracer, capable of yielding information on both local environmental conditions and potential population movements. $\delta^{34}S$ values are strongly influenced by environmental and geographic factors, such as proximity to the sea, geology, and hydrology, enabling the distinction between marine and terrestrial protein intake as well as the identification of non-local origins when compared with local isotopic baselines. Despite their potential, sulfur isotope studies in the Eastern Mediterranean remain limited, creating a significant knowledge gap regarding their spatial variability and archaeological applications. The present study examines human skeletal remains from sites in mainland Greece which differ chronologically, environmentally, and culturally. The aim is to evaluate the contribution of $\delta^{34}S$ values to the understanding of local dietary practices and possible human mobility, due to environmental conditions, in combination with $\delta^{13}C$, $\delta^{15}N$, and $\delta^{18}O$ data. This multi-isotope approach seeks to highlight the importance of integrating sulfur as a complementary tool in the archaeological biogeochemistry of Greece and the wider Eastern Mediterranean.

2439. Artificial Cranial Deformation in the South Caucasus: Bioarchaeological and Paleogenomic Insights into Cultural Practice and Population Dynamics

Authors: Nino Tavartkiladze (Ivane Javakhishvili Institute of History and Ethnology) – Harald Ringbauer (Max Planck Institute for Evolutionary Anthropology) – Shorena Laliashvili (Ivane Javakhishvili Institute of History and Ethnology) – Anahit Khudaverdyan (Institute of Archaeology and Ethnography, National Academy of Science)
Format: Oral

Artificial cranial deformation (ACD) is a widespread cultural practice across Eurasia and is often linked to highly mobile populations of Late Antiquity and the Early Medieval period. In the South Caucasus, however, the social meaning and biological background of this practice remain poorly understood. In this study, we identify three main types of cranial deformation—circular, annular, and tabular—and explore their distribution and biological context through an integrated bioarchaeological and paleogenomic approach. Our analysis includes 51 individuals with artificially deformed crania from Georgia and 22 from Armenia, combining osteological observations with genome-wide ancient DNA data. Principal Component Analysis (PCA), along with ancestry modeling and identity-by-descent (IBD) analyses, shows that most individuals with ACD fall within the genetic variation of the South Caucasus and possess predominantly local ancestry. Only a small number of individuals—six from Georgia and one from Armenia—exhibit clearly non-local genetic profiles, pointing to limited gene flow into otherwise stable local populations. A notable exception is individual JET03, the earliest known case of ACD in Georgia, dated to the 2nd century BCE. This individual falls outside the main South Caucasus genetic cluster and displays an atypical genetic profile, suggesting that population interactions in the region began before Late Antiquity and that the adoption of ACD took place within a complex and heterogeneous demographic setting. Overall, our findings indicate that ACD in the South Caucasus was largely adopted and maintained within local communities rather than introduced through large-scale migration. Its long-term persistence, alongside the occasional presence of non-local individuals, supports an interpretation of ACD as a socially transmitted cultural practice embedded in local traditions while also circulating through broader interregional interaction networks. This work was supported by the Shota Rustaveli National Science Foundation of Georgia (SRNSFG) [23-17430].

193. Reframing Indo Levantine Anatolian Exchange Through Bioarchaeology and Mobility Studies

Authors: Branka Franicevic (University of Derby)
Format: Oral

Indo Levantine–Anatolian exchange networks, active from the late 4th to early 2nd millennium BCE, have long been recognised as key zones of interaction in western Asia, yet they remain predominantly interpreted through the circulation of luxury goods rather than the movement of people. This study integrates osteological indicators of activity and stress, ancient DNA, material culture distributions, and spatial network modelling to reconstruct the embodied experiences of mobility that shaped early maritime and overland routes linking the Indo-West Asian sphere between 3500 and 1500 BCE. Drawing on datasets from Arslantepe (Levels VIA–VII), Alalakh (Level VII), Ebla, Tell Brak, Titriş Höyük, and sites in the Upper Tigris region, the analysis identifies multi-scalar patterns of movement. Osteological evidence, including enthesopathies, vertebral compression, and trauma signatures, reveals labour regimes consistent with short-term mobility and task-specific relocation, particularly during the Old Assyrian Colony Period at Kültepe Kanesh (c. 1950–1750 BCE). Material culture distributions, such as the circulation of Red Lustrous Wheel Made Ware, Cilician metalwork, and northern Levantine ceramics, further demonstrate the integration of communities across the Levant, Cilicia, and central Anatolia. Ancient DNA from 3rd millennium BCE populations documents long-distance genetic admixture between Anatolian, Caucasus/Iranian, and Levantine groups, including the spread of CHG/Iran-related ancestry into central Anatolia. These patterns align with osteological evidence for increased mobility and with the emergence of multi ethnic households and enclaves in urban centres such as Ebla and Alalakh. Digital mapping, including Byblos, Ugarit, Cilicia, the Upper Euphrates corridor, and the Gulf of İskenderun illuminate the braided, multidirectional pathways through which people, ideas, and biological traits travelled. Together, these lines of evidence reposition Indo West Asian exchange as a deeply embodied system in which human movement was as consequential as the circulation of goods.

765. Bioarchaeology at the Ancient City of Apollonia Pontica: Research and Future Directions

Authors: Katharine Kolpan (University of Idaho)
Format: Oral

Founded by Milesian Greek colonists at the end of the 7th century BC, Apollonia pontica (7th-2nd century BC) is one of the oldest and largest Greek colonies on the Western Black Sea Coast. Though Apollonia was an important trade hub, it was seldom discussed by ancient historians, meaning we must rely on archaeological analysis to understand the daily lives of its inhabitants. Moreover, while Apollonia's mortuary context has been extensively examined, its population's skeletal remains have been less well studied. This presentation considers the legacy bioarchaeological collection at Apollonia, pulling together various strands of disparate evidence (isotope analysis, dental research, paleopathological examination, etc.) to examine what we know about its residents, and which directions we hope to explore in the future. Specifically, this analysis investigates all previously published examinations of the skeletal remains from the city's vast necropolises, exploring the information they provide regarding diet, migration, disease, and daily life. It also suggests how the skeletal collection might be utilized to answer future questions related to migration, social relations, violence, and health.

48 SKILLS AND CRAFTS IN RITUAL CONTEXTS: OBJECTS BIOGRAPHIES IN EAST MEDITERRANEAN SANCTUARIES/CULT CENTRES (LATE BRONZE AGE - HELLENISTIC PERIOD)

Theme: 1. Widening perspectives in material culture studies
Organisers: Ann Brysbaert (Katholieke Universiteit Leuven) – Natacha Massar (Koninklijk Museum for Kunst en Geschiedenis) – Helle Hochscheid (University College Roosevelt-University Utrecht) – Georgos Papasavvas (Archaeological Research Unit, Cyprus University)
Discussant: Veronique Chankowski (Ecole Francaise d'Athenes)
Keywords: object biographies, cult centres/sanctuaries, Greece, East Mediterranean, economic and ritual interactions, artisans and ritual activities
Format: Discussion session

SESSION ABSTRACT

From early on, craft interaction and object production have been defining elements in human lives. Making objects is at the heart of human identity, as fundamental as food, drink, ritual and housing. Even the most utilitarian object (drinking cup) may acquire additional meaning when moved into the ritual sphere (Holy Grail). The object's contexts of use define its function. From Prehistory onwards, sanctuaries and temene of ancient Greece testify to craft activities and to economic locales. A great deal of skill and resources were invested in monumentalizing and adorning buildings. Simultaneously, sanctuaries gathered many objects dedicated to gods or used in rituals. Some were specially made for these functions, whereas others had been used before entering the divine sphere. Despite the rule that divine belongings should not be removed, there is evidence that such material (e.g. metal) could be recycled and re-enter the economy. Many offerings, though, hardly survived (e.g. wood, agricultural products). Consequently, the crafts that turned them into usable, edible and sensory items are difficult to reconstruct. The focus on craftsmanship also raises questions about the ritual practices of artisans themselves both in sanctuaries and in their workplaces. This session investigates, therefore, multiple connections between ritual and craft production through contributions on the following (while avoiding funerary aspects): 1/ The manufacture of objects within sacred spaces and the economic role of sanctuaries as producers and consumers 2/ The interconnections of craft production and economies, and ritual activities in sanctuaries as evident in production, storage, possible redistribution, financing of various activities, etc. 3/ Craft spaces that temporarily become sacred, entirely or in part, due to rituals linked to crafting processes 4/ The role of artisans and the place of rituals in craft practices and workshops 5/ Sensory approaches to any of the above lines exemplified with case studies.

CONTRIBUTION ABSTRACTS

1616. Corinthian Frauenfest vases: a re-evaluation of their production and use in relation to Corinthian sanctuaries

Authors: Leonie Defonteyne (University of Oxford)
Format: Oral

Corinthian Frauenfest vases offer fertile ground for a discussion of the interaction between craft and ritual in Archaic Greece. The roughly 300 surviving pieces were mostly produced in the Middle to Late Corinthian periods (c. 595–550 BC) by a small number of workshops. They are characterised by their display of female chain dances and processions, sometimes alongside elements such as women seated with children or women with spinning implements. The Frauenfest often appears on kotylai, pyxides and bottles, and most scenes are of rather mediocre stylistic quality. Unlike the Brauron krateriskoi, the Corinthian Frauenfest vases have been found in a wide range of archaeological contexts, including the Corinthian Potters' Quarter, graves from Etruria to Rhodes, as well as Corinthian and Sicilian sanctuaries. Whereas the more elaborate examples derive from grave contexts, sanctuaries seem to have attracted the lower-quality vases with less detailed scenes. This paper considers both production and use of Frauenfest vases. It questions the idea that the Frauenfest painters always had a single 'festival of women' in mind. Instead, they might have drawn upon various rituals related to the cults of goddesses such as Demeter and Hera, which raises questions about the interaction of (male) vase-painters with such cults. Moreover, economic considerations could help to explain certain peculiarities of Frauenfest vases, as the painters seem to have responded to the demands created by sanctuaries of female deities (although they were not exclusively catering for sanctuaries). A comparison between the Frauenfest scenes from four sanctuaries within the Corinthia may reveal how particular people were about their offerings, and consequently to which extent the imagery can give us an insight into the actual rituals performed at those sanctuaries. In other words, Corinthian pottery deserves a more prominent place within discussions of Archaic Greek cult representations.

1790. What the Cult Centre Megaron does and does not tell us about craft and religion at Late Bronze Age Mycenae

Authors: Stephanie Aulsebrook (University of Warsaw)
Format: Oral

The Cult Centre at Mycenae is the only known example of this type of complex at a Late Bronze Age Mycenaean palatial site (1400–1200 BC). Consisting of five closely associated buildings, each with its own distinctive character in terms of both architecture and finds assemblage, various links can be drawn between this sacred space and craft practice across different dimensions, whether that be the specialist production of the large wheel-made figures found in the Temple, or the elements of monumentalisation and elaboration incorporated into each building and the later access route known as the Processional Way. The role of one of the lesser-known buildings in the complex within this relationship between craft and religion has recently come under scrutiny. This paper explains how the restudy of the Cult Centre Megaron has significantly changed our previous interpretation of a direct link between its basements and high-status craft activities, which was based upon a misunderstanding of the stratigraphic context of a significant deposit of production-related debris, whilst simultaneously revealing new aspects of the broader relationship between the Cult Centre and craft production.

2104. Sacred skills, self-definition, and scale: object and space biographies in Prehistoric East Mediterranean crafts and rituals

Authors: Ann Brysbaert (Katholieke Universiteit Leuven)
Format: Oral

I aim to explore lived experiences in places of ritual in the Prehistoric East-Mediterranean by exploring intertwined biographies of objects and people, their production and consumption patterns within corresponding spaces, and how human and material beings impacted each other along their biographies within ritual spheres. I investigate the procurement of materials, preparation of objects, execution of rituals, and the craft skills essential for their success. The complexity of objects biographies equally allows to interpret the role of specific spaces when they become active players in ritual practice. The biographies of spaces change with the biographies of objects, both in production and in use, because spaces and objects can have multiple lives going on simultaneously. But what if spaces and objects collapse together, especially when scale starts playing with the obvious roles in the mentioned biographies? Miniature forms form a unique cache of items in rituals and beyond and add other layers of complexity and meaning to the discussion of lived experiences in ritual practices. In contrast to the enduring shrines and monuments whose construction involved large teams of skilled craftspeople, artisans of miniatures will have played a very different but equally important role in creating and employing objects and/or space in ritual practices. A large part of worship expenditure was often in materials that rarely show up in East-Mediterranean archaeological contexts, in contrast to their importance in the experience and practice of that worship. Additional difficulties are that some of these materials 'lived' both in sacred and everyday settings and were often tied to agricultural produce and the crafts that turned them into edible or usable items. The sometimes ephemeral nature of both the materials involved, and the lived experiences in rituals will be highlighted in the context of miniature-making and -usage in the prehistoric East-Mediterranean.

1010. The craft of destruction : the case of the Geometric Delphic tripods

Authors: Alexis Gorgues (Université Bordaux Montaigne | CNRS UMR 5607 Ausonius) – Hélène Aurigny (Aix-Marseille Université | CNRS UMR 7299 Centre Camille Jullian)
Format: Oral

Patterns of destruction and fragmentation of ancient artefacts has for long been a central topic for Western and Central European archaeology, especially in the context of the study of Bronze and Iron ages hoards. Different hypothesis have been considered through time: pre-recycling parting of the objects, monetary use of weighed metal, ritual destruction, etc. In the Eastern Mediterranean, the study of these practices have emerged more recently. In the Greek world, the sanctuary of Olympia has obviously been a major center of attention, with the program Fragmentierung von Weihgaben im Heiligtum von Olympia- Forschungen zum Hintergrund einer rituellen Praxis (DFG-GZ.: BA 3197/2-1). The program Etude des Bronzes de Delphes de l'Ecole Française d'Athènes (EfA) has developed a similar approach for the sanctuary of Delphi, focusing first in copper-alloys tripods. These objects were central among all the ritual paraphernalia of the oracular sanctuary of Delphi. These large cauldrons standing on three long feet were originally cooking vessels that became prestigious offerings in the sanctuary, coinciding with the arrival of Apollo at Delphi. Fragments of these objects are well known: tens of them were recovered during the "Grande Fouille" of 1892 and after. Most belong to objects made during the Geometric Period. The date of their destruction and of the burial of their fragments is unknown, as a consequence of the lack of information about their discovery context. However, much information can be recovered through their observation and the analyses of the traces related with their making and their breaking. In 2025, a specific approach devolved to the study of fragmentation patterns was developed: it involves 3D modeling and statistic analysis, with the aim to consider the aforementioned hypothesis. This paper will present the first results of this research, focusing on the technical analysis of the destruction of the objects.

1206. The economy of metal votives: producing and recycling in Greek sanctuaries

Authors: George Papasavvas (Department of History and Archaeology, University of Cyprus)
Format: Oral

Although it is widely believed that votive offerings in the Greek sanctuaries were considered as property of the deities and were never to be removed from the sacred space or used in any other way, the examination of written sources and the archaeological evidence tells in some cases a completely different story. With regard to metal offerings, in particular, even if it was not uncommon for a large number of them to remain in the sacred grounds, even when broken or damaged, and to be deposited in bothroi, others had an altogether different fate: It was apparently not a sacrilegious act for some metal dedications to be removed from the sacred space and to be deprived of their association with the divine, specifically for economic purposes, that is for recycling their metal, when need arose. Though some ancient texts mention such cases and attribute them to plunder, or source them back to political decisions to finance military campaigns, for instance, the archaeological record from various sanctuaries in the Aegean reveals that it was a common practice to withdraw metal offerings, or parts of them, and use them for the production of other artifacts. In this sense, sanctuaries with access to accumulated metal offerings, appear to have been actively engaged in the management and trade of metal reserves, particularly of bronze, and to have played a major role in controlling access to and distribution of metals.

1686. The Role of Metalworkers, Metallurgy, and Their Deities in the Phoenicianization of the

Mediterranean

Authors: Ann Killebrew (Pennsylvania State University | Society for Eastern Mediterranean Archaeology and Heritage Studies)
Format: Oral

The role of Levantine Phoenicians in the search for metals and the spread of metalworking was a crucial catalyst for their westward expansion during the Iron Age and beyond. Archaeological evidence, along with Classical and biblical traditions, supports this view and demonstrates how these activities fundamentally reshaped the Mediterranean's cultural, economic, and religious landscape during the first millennium. This transformation is particularly evident in the establishment of new settlements characterized by Phoenician-style material culture, which modern scholarship often associates with Phoenician colonization. However, the relationship between metalworking activities, temples, deities, and cult practices at Phoenician sites is less frequently examined. This paper aims to address several key questions regarding the role of metalworkers in transmitting Phoenician ideology and culture. It will explore the archaeological contexts of metalworking remains, investigate the connections between temples, cultic activities, and metal production, and analyze the identity, status, and practices of metalworkers in relation to cults. Based on this evidence, can we establish a link between the quest for metals, the role of metalworkers and their rituals, and the dissemination of Phoenician religion in the formation of Phoenician identity?

58. Artful attire: cross-crafting ritual on the Athenian Akropolis and beyond

Authors: Helle Hochscheid (University College Roosevelt - Utrecht University)
Format: Oral

The Athenian Akropolis is not only a locus of virtuoso craft skill in its built environment but also in more transient objects and practices. One can think of many examples, for instance, votives that were of perishable materials or could be melted down or recycled, but also practices and ritual modes: sacrifice and other offerings, but also performances, from dance and athletics to songs and poetry. This paper investigates the cross-crafting practices of dress, performance, and their mimetic representation in sculpture and vase painting. In particular, it examines how the cloth and clothes of dancers and other performers are rendered in paint, stone and bronze. It then inventorizes the rituals that involved either dance or textiles, or both. By comparing these with literary sources and the religious contexts, the paper highlights the interwoven-ness of the different practices, craft, sacrifice and performance. This contrasts starkly with assumptions in modern scholarship that artistic and craft production of material objects is separate from (and sometimes below) artistic performance. Through an investigation of the common ground of practical enactments in this ritual setting, the paper proposes a path to avoid the separation of material, ritual and performative crafts. In this way, by uncovering how the strands of activity of these crafts are joined, we can attain new insights in the functioning of craft skill and ritual in ancient sanctuaries.

2295. The economic role of sanctuaries as producers and consumers: textiles/garments in sacred spaces during the Mycenaean period

Authors: Tina Boloti (University of Athens)
Format: Oral

Evidence from Linear B tablets suggest that religion, craft, and economy were entangled during the Aegean Late Bronze Age. Zooming on the Mycenaean mainland (ca. 1600–1100 BCE), it appears that sanctuaries were not just ritual venues; they were active economic nodes that commissioned, produced, stored, redistributed, and consumed a wide range of goods, among which textiles/garments. Within the aforementioned spatial and chronological framework, I aim at focusing on and compare the related written evidence from Pylos and Thebes, where differing administrative emphases reveal distinct modes of integration rather than fundamentally different systems. At Pylos, religious institutions appear firmly embedded within a highly centralized palatial economy: sanctuaries and deities are attested primarily through accounting records that document among others textiles, and cult personnel as components of palace-managed resource flows. Cult officials function as elite dependents, and religious demand—particularly for textiles, among others—constitutes one endpoint within a broader redistributive apparatus directed by the wanax and his administrators. By contrast, the evidence from Thebes suggests a more prominent and operationally visible role for cult institutions, especially in the organization and circulation of textiles. Religious personnel at Thebes appear more frequently in production-related contexts, implying that cult was not merely a recipient of palatial output but an active institutional node within regional economic networks. While neither center exhibits fully autonomous sanctuary economies, the contrast indicates meaningful variability in the degree to which religious institutions structured production and labor, reflecting differences in political organization, regional tradition, and administrative practice within the Mycenaean palatial world.

2519. Skilful Weavers and Crafting Spaces within Aegean Sanctuaries (Archaic to Classical)

Authors: Vicky Vlachou (Aristotle University of Thessaloniki)
Format: Oral

Following the presence of textiles as ritual offerings to Aegean sanctuaries, their preparation by skilful weavers is considered to have taken place within the space of the oikos, or in areas outside the sanctuary. On the other hand, textile tools, such as loom weights and spindle whorls, recovered from most Aegean sanctuaries during the Archaic and Classical periods, have been equally considered as symbolic offerings, embodying the skills and competence of mostly the female donors. Despite the presence of both the tools and the final products of the weaving process being present in Aegean sanctuaries, the existence of crafting spaces within the sanctuary areas has been only briefly addressed. Still, some evidence for the installation of weavers within specific sanctuaries may be found, both by considering the literary and archaeological record. Starting from the case of the sanctuary of Demeter on Xobourgo (Tenos) and its Cycladic milieu, this paper shall address the use of the sacred space for the preparation of ritual textiles that were eventually offered to the Goddess, as well as the preparation of exclusive cloths and textiles for specific ceremonies and festivals that served the donors. It may be argued that ritual and craft activities could intermingle within established or accepted traditions, inextricably connected to regional expressions and the character of ritual activities. In this way, sanctuaries may be considered as representing proper spaces for sustained interaction and shared competence, while providing the occasion for weavers to practice their craft and evolve their skills.

49 PRACTICE MAKES PERFECT - HUMAN EXPERIENCE AND THE MORPHOLOGICAL EVOLUTION OF MATERIAL CULTURE

Theme: 1. Widening perspectives in material culture studies
Organisers: David Brown (National and Kapodistrian University of Athens) – Bart Cornelis (Curt-Engelhorn-Zentrum Archäometrie gGmbH) – Léonard Dumont (Ghent University, Department of Archaeology)
Keywords: Morphology, Artefacts, Diachronic
Format: Regular session

SESSION ABSTRACT

From tools and weapons to ornaments and containers, the morphology of artefacts reflects a continuous dialogue between human intention, material constraints, and functional requirements. The object form evolves not only through technological innovation but also through changes in modes of production, performance, and purpose. This session explores how form follows both function and experience — how artefacts were designed, modified, or standardised to fulfil the specific tasks for which they were created as well as changes over time. We invite contributions that investigate how morphology mediates the interactive relationship between production and performance. Papers may address any period or region and can employ diverse analytical approaches — from typological studies and experimental archaeology to digital methods such as 3D modelling, geometric morphometrics, or computational analyses of shape variation. We particularly welcome research that links morphological change to production processes, technological adaptation, or the evolving needs and roles of material culture within human societies. By bringing together studies of artefact form, function, and production, this session aims to move beyond static typologies toward dynamic understandings of technological and functional evolution. How does shape record the requirements of production and use? In what ways did objects adapt to the demands of their task or to changing technological systems? Through this discussion, we aim to explore how material culture reflects both the persistence of human needs and the innovation that arises from reimagining how things are made to work.

CONTRIBUTION ABSTRACTS

81. Assessing Shape Variation in Mycenaean Artefacts Using 2D Geometric Morphometrics

Authors: David Brown (NKUA)
Format: Oral

This presentation presents preliminary results from a doctoral research project applying 2D Geometric Morphometrics (GM) to Late Bronze Age Aegean artefacts, with a focus on Mycenaean weapons and prestige objects. The study investigates shape variability and standardisation to reassess traditional typological classifications and explore technological and social choices in Mycenaean craftsmanship. High-resolution photographs of swords, daggers, and selected ornaments from Greek museum collections were used to capture outlines and landmarks for 2D GM analysis. Shape data were analysed using TPS and RStudio software to quantify morphological variation within and between established typological groups. The results are contextualised using excavation data, with particular emphasis on funerary assemblages from the Shaft Graves of Mycenae. The analysis is structured around two case studies: a synchronic assessment of variability within Shaft Grave assemblages, and a diachronic examination of shape change in swords and daggers across the Mycenaean period. These results demonstrate the value of 2D GM as a robust method for artefact analysis and typological research.

2220. Rethinking the Style/Function Dichotomy: An approach from the chaînes opératoires and the archaeology of learning

Authors: Alberto Cooper (University of Seville | University of Cambridge)
Format: Oral

The interpretation of ceramic variation from an evolutionary standpoint has laid its attention in the fundamental distinction between style and function, proposed by Robert Dunnell (1978). It essentially defines stylistic traits as neutral with respect to selection, and functional ones as subject to adaptive pressures. This framework has guided several studies of pottery variation (Neiman, 1995; Shennan and Wilkinson, 2001; Kohler, VanBuskirk and Ruscavage-Barz, 2004; Steele, Glatz and Kandler, 2010; Crema, Kandler and Shennan, 2016), which have relied on neutrality tests to assess qualitative evolutionary values (neutrality/selection) based on the frequency of cultural variants. Nonetheless, issues with respect to the demarcation of selection and departure from neutrality have raised questions regarding the archaeological interpretation and true significance of style and function. As an alternative, we introduce an approach based on chaînes opératoires, which examines the complete sequence of productive techniques as a manifestation of technical knowledge transmitted among potters. By reconstructing and probabilistically comparing these sequences, we aim to show that migratory and autochtonous groups can share a technological repertoire despite superficial typological differences (Kroon, 2024). Thus, revealing processes of interaction, social learning, and diversification that remain invisible under the style/function classification. This approach allows us to connect pottery morphology with modes of production, social interactions between potters, and use requirements. It is possible to use digital tools such as 3-D modeling, geometric morphometrics, or network simulations to quantify shape variation and its relationship with productive syntax (Kroon, 2024). By focusing on learning and cultural transmission dynamics, the chaînes opératoires methodology advances beyond the dichotomy of style and function. It offers a route to understanding the nuances of how social learning shapes pottery traditions from a more robust and dynamic viewpoint.

448. Expected Choices: Organization of Lithic Technology and Morphological Change in Neolithic and Chalcolithic Bulgaria

Authors: Nikolay Aleksandrov (Sofia Univerisity "St. Kliment Ohridski")
Format: Oral

This study reconsiders published lithic assemblages from Bulgaria dated to the late 6th–5th millennium BCE, with a focus on how patterns of technological practice are reflected in the morphological variability of stone tools. While recent studies have refined the chronological and regional frameworks of these assemblages, less attention has been paid to how repeated acts of production, learning, and use shaped lithic forms over time. The study examines diagnostic features of lithic production sequences and tool types across multiple assemblages, paying particular attention to core reduction strategies, degrees of standardization, and variability in tool morphology. These patterns are approached through the model of organization of lithic technology, which allows technological choices to be interpreted as results of behavior linked to specific environmental and social contexts. By focusing on technological practice, the research explores what lithic variability reveals about the experience and skill of knappers and their engagement with raw materials. Observed changes in production strategies and tool forms are discussed not only as ways to adapt to shifting economic or environmental conditions, but also as manifestations of changing social organization, mobility, and specialization. Through this re-evaluation, the analysis contributes a practice-oriented perspective on the morphological evolution of lithic assemblages and offers new insights into human experience in late prehistoric Bulgaria.

202. Divergent traditions, convergent solutions: the "inevitable inventions" of prehistoric pyrotechnology

Authors: Felix Adrian Tencariu (Institute of Interdisciplinary Research, "Al. I. Cuza" University of Iași) – Diana-Măriuca Vornicu (Institute of Archaeology, Romanian Academy-Iași Branch) – Andreea Țerna (Institute of Prehistoric and Protohistoric Archaeology, Kiel University) – Adina Amăriuței (Faculty of History, "Alexandru Ioan Cuza" University of Iași)
Format: Oral

This paper investigates the morphological evolution of prehistoric pottery-firing installations through the lens of a productive dichotomy: divergent traditions versus convergent solutions. The diffusion of Neolithic lifeways from the Near East to Europe involved the transmission of pyrotechnic knowledge, yet the materialisation of firing technologies followed distinct trajectories. A distant comparison in time (Neolithic-Chalcolithic, ca. the seventh to the fourth millennia BCE) and space reveals a striking pattern: while Mesopotamia and the Levant display a rich record of complex updraught kilns, the intermediate regions (Anatolia, the Aegean, and the Balkans) show a decrease in the visibility of permanent structures, suggesting a reliance on simpler, ephemeral installations. In sharp contrast to this intermediate 'hiatus', the forest-steppe zone between the Carpathians and the Dnieper (Cucuteni-Trypillia area) sees the re-emergence of complex firing technology, offering the most coherent European sequence for the standardisation of fixed, purpose-built kilns. We treat these kilns as technical devices whose form reflects production goals and material constraints. Using a comparative approach, we argue that the similarities between the distant kiln traditions of the Near East and the Cucuteni–Trypillia culture are not the result of direct linear transmission, but of convergence within a limited solution space. The argument is grounded primarily in data from Cucuteni-Trypillia sites with recent kiln discoveries, among which we highlight the monumental kiln at Ursoaia (Romania). In line with recent entropy-based models of technological evolution, we interpret the sunk, bicameral design as a stable morphology that communities independently converge upon when facing high-volume demand. We argue for the concept of 'inevitable inventions': when production scales up, specific technical solutions for draught and heat management converge repeatedly toward a limited set of optimal shapes, regardless of the geographical distance.

1226. How do we 'handle' this? Exploring vessel handles to reconstruct social practices

Authors: Lynne Kvapil (Butler University) – Kim Shelton (University of California Berkeley)
Format: Oral

This paper examines handles on Mycenaean drinking vessels as a means of understanding the complex behavioral codes for vessel handling and use that were embedded within this accessory element from the perspective of producers and consumers. We build on our research examining the dynamic relationship between potters and consumers and foreground these perspectives in this study. Our primary data comes from Petsas House, located in the settlement of Mycenae. Petsas House was both a domestic structure and ceramic production space during the 14th c BCE, a period of palatial expansion and centralization in the Argolid region of southern Greece. Handles are an under appreciated element of pottery. But they are also critical for understanding how a human encounters a vessel. Handles (or the lack thereof) can be guides to proper manipulation, but often they are not so straightforward. Rather, their presence or absence, size, and placement on a pot are encoded with information. The handles of drinking vessels in particular can tell multitudes about lifting, grasping, and sharing practices - to grip or guide, to hold or pass, and to use one or two hands - all of which reflect the social complexities of gatherings. Like users, potters had to understand these social codes to produce functional vessels that could be understood by consumers while also innovating shapes in response to changing social habits. Although Mycenaean vessel typologies often reflect the number and type of handles, few studies from Late Bronze Age Greece examine pottery from the perspective of potters who fulfilled the distinct needs of their communities but also played a role in actualizing social change. And, while morphology plays a clear role in understanding the social use of pottery, it is rare to see a study devoted specifically to the deictic function of handles.

1601. Changes in Function, Structure, and Morphology of Textile Impressions on Pottery from the Late Neolithic to the Late Bronze Age

Authors: Monika Kaczmarek – Kinga Winnicka (Faculty of Archaeology, University of Warsaw) – Magdalena Przymorska-Sztuczka (Archaeological Museum in Biskupin) – Marek Truszkowski – Agata Ulanowska (Faculty of Archaeology, University of Warsaw)
Format: Oral

In prehistoric societies, textile crafts were employed not only in the production of garments but also in the manufacture of utilitarian objects and luxury items. Textiles also played a significant role in pottery production, as evidenced by archaeological finds from the area of present-day Poland dating back to the Neolithic period. Fibre-based materials could be incorporated into clay vessels at various stages of the manufacturing process, from vessel formation to surface decoration. This paper examines the diachronic and regional development of textile imprints on ceramic vessels from the Late Neolithic to the Late Bronze Age in Poland. An integrated analytical approach is employed, combining Reflectance Transformation Imaging (RTI), Structure-from-Motion photogrammetry (SfM), portable digital microscopy, positive casts of textile imprints, and experimental replication to investigate surface morphologies and the cross-craft traditions that produced them. The study aims to demonstrate that textile imprints on ceramics provide valuable insights into changing pottery manufacturing practices and shifting functional priorities. It traces the evolution of textile applications on pottery surfaces, including changes in textile techniques and the types of raw materials used. The paper also identifies the functions of textile materials and explores relationships between vessel shape, size, and type, as well as the role of textiles in pottery production. By integrating imaging, microscopic analysis, and experimental approaches, this study shows how textile-generated surface morphologies reflect broader technological transformations within Bronze Age communities.

1019. Figurine Morphology as Record: Production and Embodied Practice in Late Neolithic North-East China

Authors: Jeong-Min Jeon – Gi-Dae Bok (Inha University)
Format: Oral

Research on prehistoric figurines has largely focused on interpreting what these objects symbolised, without adequately accounting for how figurine morphology structured bodily interaction, or how the physical conditions of production and use shaped that morphology. This paper examines anthropomorphic figurines from the Hongshan culture (c. 4500–3000 BC) of north-east China. Hongshan figurines encompass diverse materials (clay, stone, and jade), a size range from 3.5 cm miniatures to a 55 cm life-size example, and archaeological contexts spanning ritual sites, tombs, and residential areas. This range of variation makes them a productive case for investigating the relationship among production, morphology, and practice. The analysis focuses on how the physical properties of figurines afford or constrain specific bodily actions, and traces how production conditions shape morphological outcomes that structure embodied practice. These conditions include material selection, manufacturing technique, craft skill, and the dynamics between commissioners and makers. This process unfolds differently across material and technique. Large hollow coil-built clay figurines necessitate frontal encounters at fixed locations, whereas small hand-modelled clay figurines permit portability and concealment. Subtractive stone and jade figurines each exhibit a distinct trajectory. This paper suggests that figurine morphology is not a simple projection of symbolic meaning but can be understood as a material record of the relationship between production organisation and embodied practice.

1823. The shape of water: morphology of hunting and fishing gear from osseous raw materials in prehistory of SE Europe

Authors: Selena Vitezovic (Institute of Archaeology, Belgrade)
Format: Oral

Hunting and fishing weapons are artefacts that need to be carefully designed in order to successfully fulfil their function; their shape needs to be adjusted to laws of physics, but at the same time it depends from available raw materials and tools for working, from skills of craftsperson, as well as from cultural traditions in artefact production. In case of osseous materials (bones and antlers), the raw material itself pose numerous restriction to the final product regarding both shape and dimensions. Osseous raw materials were commonly used for the production of hunting and fishing weapons produced since the earliest prehistoric times, and even continued to be in use after metals were introduced. This paper will focus on morphological traits on osseous projectile points, harpoons and fishing hooks from Neolithic, Chalcolithic and Bronze Age in central Balkans and southern Carpathian basin and will discuss the following: to what extent is the shape determined by technological demands and raw material restrictions, and to what extent is it determined by cultural preference? The presence and level of standardisation will be examined, as well as technical traditions and innovations.

1895. Dionysiac Postures as Material Traces of Embodied Experience: A Cognitive Archaeological Approach to Greek Iconography

Authors: Sayoko Hirano (Sorbonne Université)
Format: Oral

This paper explores the possibility of a cognitive archaeology applied to art, considering Greek Dionysiac iconography as material traces of embodied cognitive processes. Rather than explaining Dionysiac postures solely through symbolic interpretation or workshop conventions, this study asks what conditions allowed these configurations to achieve historical stability and collective recognizability through the articulation of bodily constraints, mimetic selection, and material stabilization. The study is based on a corpus of fifty female Dionysiac dance figures on red-figure vases (500–300 BCE). Morphometric analysis reveals an asymmetrical pattern: body axis inclination and knee flexion remain relatively constrained, while head inclination and center-of-gravity position vary widely, consistent with the hierarchy of biomechanical constraints on human bipedal posture. This "controlled imbalance" combines stable structural conditions, which preserve the recognition of a coherent moving body, with a zone of expressive variability. This pattern is interpreted through strong embodied cognition, mimetic capacity, and Material Engagement Theory. These frameworks explain how bodily constraints define the space of possible configurations, how mimetic processes select particular forms within that space, and how material engagement contributes to the stabilization and persistence of these configurations through repeated production and circulation. This also clarifies a difficulty raised through qualitative comparison: similar postures—head thrown back, body off balance—recur across ecstatic maenads, dying warriors, and intoxicated symposiasts. These are structurally distinct: actively sustained instability in the maenad, passive collapse in the warrior, externally supported stability at the banquet. Their convergence reflects not a shared symbolic code, but the recurrent emergence of similar configurations within the same limited biomechanical space when mimetic processes operate on altered states of postural control. Dance-related configurations occupy a specific place in this account: not as the causal origin of Dionysiac iconography, but as a representational field where the constraints of the painter, the dancing body, and visual reception interact.

835. Pragmatic Innovation? The Relationship of Bronze Age Axe Designs with Mould Preservation

Authors: Bart Cornelis (University of Tübingen) – Jakob Thøsing Hvid (Museum Silkeborg)
Format: Poster

Since its inception, archaeology has relied on artefacts as the primary means of tracing shifts in cultural history. Artefacts embody variations in knowledge, production methods, styles, and modes of material engagement, and are often categorized through typologies. As such, they provide a unique perspective on the evolution of practices across generations, indicating how people interacted with and shaped their world. A potential example of material culture change during the Nordic Bronze Age is the transition from curved axes to smaller, straight-bladed axes. Traditionally, curved axes have been interpreted as symbolic display objects, while straight axes are viewed as common, utilitarian and easily replaceable. However, the archaeological record reveals a clear trend: as bronze metallurgy took hold in Northern Europe, straight-bladed axes became increasingly widespread. This poster challenges the traditional interpretation of unique versus utilitarian, by focusing on the prehistoric bronze casting process. Rather than merely reflecting a stylistic preference, the shift from curved to straight axes may represent a practical advancement in craftsmanship. Casting experiments show that producing curved axes places significant stress on stone or clay moulds: as the bronze cools and shrinks, it damages the mould material, particularly in curved sections. In contrast, straight axes exert less strain on moulds, suggesting that the transition to straighter designs was driven by a deliberate effort to preserve or reuse moulds as well as to increase and standardize production. By examining changes in axe shapes throughout the Nordic Bronze Age, this poster argues that the move toward straight axes could be a pragmatic innovation or a response to the limitations of early mould material, at least until the introduction of bronze moulds, which were better equipped to withstand the internal pressures caused by metal shrinkage.

50 TRACEOLOGY OF BONE ARTEFACTS: STATE OF THE ART AND RESEARCH PERSPECTIVES

Theme: 1. Widening perspectives in material culture studies
Organisers: Grzegorz Osipowicz – Justyna Orłowska (Nicolaus Copernicus University in Toruń) – Justin Bradfield (University of Johannesburg) – Monica Margarit (University Valahia Targoviste)
Keywords: traceology, bone, use-wear, technology, taphonomy, residues
Format: Regular session

SESSION ABSTRACT

There have been a growing number of traceological studies in recent years focused on artefacts made of osseous raw materials. They address very different research problems. Methodological work is constantly being carried out, aiming to develop an optimal method for the microscopic examination of bone products and precise classification of the technological and functional traces identified on them. Microscopic analysis is widely used for technological research, allowing the reconstruction of the chaîne opératoire of various types of artefacts from the raw materials in question. Complicated functional research is also carried out to interpret ancient bone tools' function. A complimentary aspect of traceological research is the identification of residues on bone tools, which can provide clues as to how various types of organic and inorganic raw materials were processed. These analyses are now carried out not only using optical and metallographic microscopes, but increasingly incorporate more advanced imaging techniques, such as confocal microscopy, micro-CT and OCT. The session we propose is meant to collect the latest research in all mentioned directions and determine the current state of traceological studies on bone products and research prospects for the near future. Proposed abstracts can be submitted to the session on the following topics: 1. New methods and research tools in traceological studies of bone artefacts. 2. Technological and functional studies on collections of bone products. 3. Taphonomy in the study of ancient bone industries. 4. Residue studies in traceological studies of osseous artefacts. Presentations in this session are not chronologically or geographically restricted.

CONTRIBUTION ABSTRACTS

2284. A protocol to identify the use–wear traces on osseous points used for fish hunting

Authors: Grzegorz Osipowicz – Justyna Orłowska (Institute of Archaeology, Nicolaus Copernicus University in Toruń) – Giedre Piličiauskienė (Department of Archaeology, Vilnius University) – Gytis Piličiauskas (Archaeology Department, Lithuanian Institute of History, Vilnius) – Ilga Zagorska (Institute of Latvian History, University of Latvia)
Format: Oral

The ability to distinguish bone points used for hunting in aquatic and terrestrial environments is key to understanding the economies of hunter-gatherer societies (and beyond) and the typological diversity of such tools observed worldwide. In our presentation, we present an analytical protocol for traceological research that enables the identification and correct interpretation of use–wear traces generated on bone points as a result of fish hunting. A starting point of our studies, which were conducted using optical and confocal microscopy, as well as microcomputed tomography (microCT), was the analysis of 72 experimental osseous points, which were used 1208 times in hunting experiments, where the targets were 110 kg of fish of various species and the bodies of terrestrial animals such as red or roe deer. We constructed a classification of use–wear traces formed on bone points after fish hunting based on the results of an analysis of 169 traceological observation areas on the barbed points used in such experiments. This classification significantly diverges from previous findings on use–wear patterns typical of projectile points, where impact fractures play a crucial role. Moreover, it demonstrates that in the case of fish hunting, other, previously undistinguished categories of microtraces, such as compression traces, osteon structure highlighting, specific polish, and several types of perpendicular linear traces, are of primary importance. We then tested the analytical protocol developed based on this analysis by analyzing 35 prehistoric bone points from 11 sites located in Poland, Lithuania, and Latvia. These studies fully confirmed its effectiveness.

116. Bone pointed tools of early farmers in Dobrudja (Romania): adapting to environment and economy

Authors: Monica Margarit ("Valahia" University of Targoviste) – Adrian-Daniel Irimia (Museum of National History and Archaeology Constanta | "Valahia" University of Targoviste) – Valentina Voinea (Museum of National History and Archaeology Constanta) – Valentin Radu (National Museum of Romanian History) – Adrian Balasescu ("Vasile Pârvan" Institute of Archaeology, Romanian Academy)
Format: Oral

Our study examines bone pointed tools found in the settlements of Palazu Mare (Prehamangia culture, c. 5700-5400 cal BC) and Cheia (Hamangia culture, c. 5400-4600 cal BC) in Dobrudja, Romania. This research highlights the significant preference for pointed tools made from the long bones of caprines, processed using a method involving quadri-partition by double grooving. We approached our investigation in two parts: first, identifying the technological transformation sequence, and second, determining the tools' functionality. To achieve our objectives, we employed a multi-faceted methodology that integrated direct analysis of

archaeological artifacts, comparative data from published archaeological assemblages, and our own experimental findings. Our focus was on diagnostic pieces such as preforms, blanks, and waste rather than finished tools, allowing us to reconstruct their transformation process experimentally. These created tools underwent functional testing through various actions, including skin perforation, bone breaking, shell perforations, or wood processing. We observed the active ends of the tools alongside other factors such as polish frequency, micro-topography, and functional striation patterns. By comparing our experimental replicas with archaeological specimens, we concluded that the pointed tools were utilized primarily for vegetable fibers processing and woodworking. Archaeozoological studies indicate a strong pastoral economy characterized by a high proportion of domestic animals, particularly cattle and caprines, suggesting significant environmental influences on the Prehamangia and Hamangia cultures, where hunting played a minor economic role. The acquisition of raw materials for tool production was tied to the breeding and slaughter of domestic animals. Our experimental findings demonstrate that bone pointed tools were integral to the domestic activities of these communities, reflecting their specific economic practices. Acknowledgments. This work was supported by two grant of the Romanian Ministry of Education and Research, CNCS - UEFISCDI, project number PN-IV-P1-PCE-2023-1547 (ExLiDo) and CCCDI - UEFISCDI, project number PN-IV-P6-6.1-CoEx-2024-0042, within PNCDI IV.

2091. Traceological Study of Osseous Artefact Assemblage from the Berezivzka HES Archaeological Complex

Authors: Hrytsiuta Oksana (Odesa Archaeological Museum of the National Academy of Sciences of Ukraine)
Format: Oral

This paper presents the results of a functional and traceological study of a bone and antler artefact assemblage from the Berezivzka HES (central Ukraine) Chalcolithic archaeological complex. The research aims to contribute to current discussions on the methodological potential of use-wear analysis for reconstructing craft practices and functional specialisation within osseous toolkits. The analytical framework integrates technological observations with functional traceology and use-wear analysis. This approach enables the identification of functional groups independently of formal typological classifications. Several distinct functional categories were identified. The most numerous group comprises awls and perforators used in the processing of soft organic materials, primarily hide and leather. These tools are characterised by intensive tip rounding, continuous bright polish, and transverse striations indicative of perforation with rotational motion. Antler implements form a distinct functional group used for soil working as hoes, characterised by intensive polish and edge rounding resulting from repeated contact with compact soil and mineral substrates. A limited number of bone tools also exhibit wear patterns associated with ceramic production, including edge rounding and broad striations resulting from shaping or smoothing wet clay surfaces. The results demonstrate a high degree of functional diversification within the osseous assemblage and underline the importance of traceological analysis for identifying craft activities that remain archaeologically invisible when approached through typology alone. This study contributes to the broader state of the art in bone tool traceology by illustrating how integrated functional analysis of assemblages can refine interpretations of everyday production practices and craft organisation.

1637. Bone tools from the early Bronze Age settlement at Lochenice in eastern Czechia. Between form and function

Authors: Justyna Baron (University of Wrocław) – Eva Schimerová (University of Hradec Králové) – Zdeňka Sůvová (Independent Researcher)
Format: Oral

A collection of 8,960 osseous finds was meticulously assembled through hand collection and flotation at the site of Lochenice. Ceramic-based dating indicates that 8,110 items derive from Early Bronze Age contexts associated with a settlement of the Únětice culture. Archaeozoological analysis identified domestic and wild taxa typical of Bronze Age assemblages. The material preserves traces of diverse processes, including taphonomic factors such as gnawing, exfoliation, etching, and burning, alongside anthropogenic modifications, particularly butchery marks. Sixty-seven artefacts were classified as half-products, finished objects, or fragments of broken items. The variety of raw materials and skeletal elements, together with formal diversity and distinctive use-wear patterns, highlights the importance of osseous resources in Early Bronze Age metal-using communities. These finds suggest organized production, repair, and discard practices within the settlement, reflecting both everyday subsistence activities and specialized craft behaviors. The assemblage therefore provides insight into resource management, technological choices, and the integration of bone working within economic and cultural systems of Únětice world.

1470. A multi-scalar wear and residue analysis of bone objects in the Bronze Age of southern Britain

Authors: Oliver Line (University College Dublin)
Format: Oral

This paper presents results from wear and residue analyses of bone objects from the Bronze Age of southern Britain (2500 BC-800 BC). Low and high-magnification microscopic analyses were conducted on bone artefacts from multiple depositional contexts (burials and settlements) spanning the entire period to investigate changes in how bone objects were manufactured, used, and deposited. The data produced attest to the importance of bone objects across many spheres of Bronze Age social life (e.g., pigment processing, goldworking, textile production, dress ornamentation). To verify the residues, several artefacts were sent to Leicester University for

SEM analysis with EDS/XRF, providing supporting evidence for the initial hypotheses. Two case studies, one from each sub-period of the Bronze Age (early and later), will be explored, providing an opportunity to contextualise the objects and microscopic data (e.g., depositional contexts, artefact associations) and to examine social change over time. The case studies will represent broader patterns in the function of bone artefacts in each period and can therefore add texture to pre-existing understandings of the societal changes that occurred at the end of the Early Bronze Age (c. 1500 BC) (e.g. cessation of burials with grave goods, the appearance of monumental domestic architecture and field systems). This multi-scalar analysis will highlight the potential of integrating a detailed contextual approach with wear and residue analyses to address social questions, going beyond purely functional analyses.

2672. Organic technologies in Bronze Age copper mining: functional insights from bone tools (Great Orme, UK)

Authors: Olga Zagorodnia (British Museum)
Format: Oral

Bone and antler tools form a recurrent component of Neolithic - Bronze Age mining assemblages across Europe. This study investigates the functional roles of bone tools from the Great Orme copper mines in North Wales (UK), a major mining complex exploited approximately 3000–4000 years ago. Over 35,000 osseous remains have been recorded at the site, predominantly derived from cattle, comprising food waste, manufacturing debris, and fragmented or discarded implements. Distinguishing between these categories is methodologically challenging but critical for interpreting mining practices. The analysed archaeological dataset consists of 650 bone samples, including different types of tools. They include wedges and picks made from limb bones, scoops fashioned from scapulae and pelvis elements, and rib tools used in mining and potentially ore-processing activities. The research combines morphological, technological, and traceological approaches, employing low-power optical microscopy, metallographic microscopy, and scanning electron microscopy (SEM), alongside SEM-EDS analysis. Observed surface modifications on bones reflect both human use and post-depositional processes. To refine functional interpretations, replica bone tools were experimentally produced and tested in mining-related tasks under site-specific geological conditions in the vicinity of the Great Orme. Comparative analysis between archaeological and experimental wear patterns enables the identification of diagnostic macro- and microscopic traces linked to specific tool motions, contact materials, and impact mechanisms. By integrating microwear data with experimental results and archaeological context, this study establishes robust criteria for recognising bone tool manufacture and use, highlighting the significant contribution of organic technologies to Bronze Age mining systems and providing a foundation for broader comparative research across prehistoric Europe.

162. Material entanglements and identity: traceological insights into bone tool authorship in South Africa

Authors: Justin Bradfield (University of Johannesburg)
Format: Oral

The worked bone component of archaeological sites seldom forms the focus of research, particularly when compared to less perishable materials like pottery and lithics. Consequently, worked bone is not usually incorporated into the technological descriptions of archaeological cultures. Drawing on the theory of material entanglement, archaeologists often use material culture as a proxy for people, with changes in ceramic design or stone tool technology serving as indicators of changes within human society, driven either by internal or external factors. Here, I will explore some South African case studies that have focused on the chaine operatoire and use-wear of worked bone from contemporaneous and associated Later Stone Age hunter-gatherer sites and Early Iron Age farmer sites. Bone tools in the farmer settlements were previously thought to signal amicable contact between the two groups, with the bone tools being made by the hunter-gatherers and exchanged for milk, cereals and pottery. Technological and microwear analyses, however, reveal distinct differences in the worked bones between the two sites. This would suggest that the bones tools in the farmer settlement were most likely made by the farmers themselves and do not in fact represent evidence of exchange between the two communities. I unpack how manufacturing technology and use-wear may profitably be used in studies of authorship and identity in the archaeological record, and how this component of the material record may be more meaningfully incorporated into broader discussions about the past.

1864. Technological studies of bone artefacts from the Neolithic period in the Balkans

Authors: Selena Vitezovic (Institute of Archaeology, Belgrade)
Format: Poster

Technological procedures for production of artefacts from osseous raw materials (bone, antler, teeth, shells) from the Neolithic period are relatively well studied; a number of different studies published in past years focused on the production and usage of osseous tools in different regions, although there are discrepancies in the level of research between different areas. The researches on bone artefacts from prehistoric periods in central and eastern Balkan area are still relatively limited. In this poster will be presented some of the results from researches on technological traits from several Neolithic assemblages in present-day Serbia and Bulgaria. The presence of manufacturing debris and technical pieces enabled the reconstruction of technological procedures and helped in outlining the local technological traditions. These researches also came across different obstacles that will be discussed as well. The main problems concern the preservation of the archaeological material and the damages from exposure to high temperature, creation of heavy carbonate crusts in the archaeological matrix, etc., and the working conditions for researches, since it is often

required to analyse the material during field work, with limited equipment.

51 WHERE THE WILD THINGS ARE – THE STONE AGE IN SCIENCE AND SOCIETY

Theme: 1. Widening perspectives in material culture studies
Organisers: Daniel Groß (Museum Lolland-Falster) – Andrej Maczkowski (University of Bern)
Keywords: Representation of Prehistory, Narratives, Research history, Scientific communication, Museology, Public Archaeology
Format: Discussion session
Affiliation: Palaeolithic and Mesolithic Community - PaM

SESSION ABSTRACT

The Stone Age is often portrayed through enduring caricatures: We envision a period of club-wielding troglodytes, mammoth-hunting brutes, simple coastal foragers, and grain-grinding pioneers. These images persist in textbooks, museums, and media – even as our understanding of prehistoric life has grown far more complex. Likewise these images show how scientific narratives and public imagination have shaped, perhaps distorted, our understanding of prehistory. In this session, we critically examine how the Palaeolithic and Mesolithic have been represented within both academic research and public discourse, and where outdated narratives continue to dominate. We want to explore the stories we tell about the past; how scientific discoveries are, or are not, translated into popular culture, and how social, political, and cultural contexts shape our interpretations. Our objectives are to analyze changing representations, assess influences on these shifts, and encourage critical reflection on our own approaches. By reflecting on our own research history, we aim to uncover the influence of social, political, and cultural contexts on the construction of "the Stone Age". What does the zeitgeist of different eras reveal about the way we frame the Palaeolithic and Mesolithic? How can we move beyond outdated tropes to foster a more nuanced understanding of the longest periods in human history? We invite scholars from diverse disciplines to share insights into the portrayal of the Stone Age, from museum exhibitions to scientific literature, digital media, and outreach programs. By uncovering persistent clichés and reflecting on the evolution of knowledge, this session aims to spark a conversation about how we can engage the public with a richer, more accurate picture of our earliest history.

CONTRIBUTION ABSTRACTS

429. Hidden in Plain Sight: The History of the (Non-)Discovery of the Early Mesolithic in Southern Ukraine

Authors: Dmytro Kiosak (LEIZA)
Format: Oral

National traditions in Stone Age research are well known, and their influence on research practices has been clearly demonstrated. It has been mostly done through the discussion of methodological differences between American and French approaches. However, even beyond this major divide, other national traditions shape interpretation in a variety of more subtle ways. These nuances can lead researchers, working from the same archaeological evidence, to reach conclusions that are markedly different or even not directly comparable. From this perspective, this paper examines the problem of the "missing" Early Mesolithic in southern Ukraine. Early on, the period was defined primarily on typochronological grounds and came to include assemblages that are now clearly recognized as Late Paleolithic. Paradoxically, the subsequent reassignment of these industries to the Late Paleolithic created a void in the regional chronological framework that was long accepted by default with little attempt to address it. This gap has only recently begun to be filled, largely through the re-evaluation of sites long known but only lately demonstrated to date to the Early Holocene. The reasons for this delay and the broader structure of the debate itself are deeply rooted in the specific intellectual background of Soviet archaeology and its later Ukrainian continuation, which in this respect functioned as a provincial branch of the Soviet tradition.

531. The "Hominization" of Neanderthals: What's Driving the Story?

Authors: Peter Sahlins (University of California, Berkeley)
Format: Oral

This paper explores the dialogue of science and popular culture that shaped over 170 years the changing reputation of Neanderthals. Since their discovery in 1856, the public reputation of Neanderthals has shifted dramatically: from "missing link" and ape-men without culture and language, their humanity has been slowly restored. The historical rehabilitation of Neanderthals, however, has hardly been the result of scientific "progress": indeed, the opposite case might be made. Early archaeologists and biological anthropologists were responsible for their construction as less-than-human; Marcellin Boule (and Franz Kupka's illustration) are a case in point. But their gradual and uneven redemption since the 1920s – first among creationists, then science fiction writers, and finally a handful of anthropologists before World War II – resulted from broader cultural shifts in thinking about race and difference. In the decades after the war, as Neanderthals became seen as direct human ancestors, the sciences of prehistory tended to favor their rehabilitation, while popular cultural representations moved in exactly the opposite direct, toward a portray of Neanderthals

as violent, monstrous, and stupid. In the 1980s, within the context of renewed debates in human origins studies over the recent African origins of Homo sapiens, the positions were exactly reversed: paleoanthropology and archaeology demoted Neanderthals to subhuman status, while popular culture began to humanize them. With the advent of paleogenetics, including personal ancestry testing in the United States, the early 2000s saw a dramatic shift, as both popular culture and archaeology joined to restore the full humanity of Neanderthals. The shift, once again, was not driven by the science, but by a broader reconsideration of race that framed Neanderthals as the white victims of (pre)historical violence and positioned them for "reparations" – after which archaeology, then genetics confirmed their essential humanity.

1430. Representations of the Stone Age in commercial board games: case studies

Authors: Victor Jimenez-Jaimez (University of Malaga)
Format: Oral

Representations of the past in contemporary games—digital and analog alike—have generated significant debate within History and Archaeology. Because games are interactive, players do not simply receive information; they actively shape the narrative through their choices. Moreover, games often communicate ideas about the past more effectively than academic texts due to their immersive qualities. By placing players in historical settings, they can cultivate historical empathy and help audiences grasp why events unfolded as they did. Their multimedia format and accessibility also give them far greater public reach and cultural impact than most scholarly publications. These factors help explain the rise, over the last two decades, of emerging fields such as Archaeogaming (Reinhard, 2024) and Historical Game Studies (Chapman et al., 2017), both focused on the examination of games that depict or engage with the past, the ways these games can be applied across different fields of practice and knowledge, and the motivations, interpretations, and behaviors of players and other stakeholders involved in their creation and use. While these disciplines have focused mainly on digital games, the board-game industry is also expanding rapidly. Numerous titles now portray aspects of human Prehistory, particularly the Paleolithic period. What narratives about the past do these games construct? This paper examines several case studies to explore how such representations are created and what they imply.

1949. Neanderthals as familiar strangers, distinction versus connectedness in human self-understanding

Authors: Susan Peeters (Erasmus School of Philosophy, Erasmus University) – Marie Soressi (Faculty of Archaeology, Leiden University) – Stine Jensen – Hub Zwart (Erasmus School of Philosophy, Erasmus University)
Format: Oral

Recently, our image of Neanderthals has changed dramatically, and this has philosophical implications as well, challenging us to reconsider our self-understanding: what makes us human? Neanderthals are now increasingly regarded as basically human, people like us. Yet, the persistent quest for a minimal difference which separates them from us, and defines us as 'winners', is still noticeable. This quest is a symptom of a worldview built on a dualistic framework. At the root of the dominant, western, self-narrative lies a 'hyperseparated' conception of the human, emphasizing autonomy, and separation from and domination of what is considered nature. This is not only problematic from a scientific point of view, where the evidence of coexistence and admixture is showing a more complicating picture than that of linear progression and 'inadequate' Neanderthals, but it also leads to a one-sided view of what it means to be human and persistent stereotypes. With the scientific literature serving as a backdrop and frame of reference, we studied a selection of case studies from popular discourse and novels that deal with Neanderthal – Homo sapiens encounters. Particular attention is paid to how the issue of difference (human exceptionality) is linked to heroic narratives of achieving 'world mastery' and to masculinity and concepts of gender. More recently there seems to be a growing unease with these narratives, introducing themes of vulnerability, interdependence and kinship. With this study, we capture a basic ambivalence in establishing identity: the need for self-assertion, distinguishing ourselves, coupled with the longing for connection. A more fluid and dynamic view of humanity, that no longer relies on the logic of dualist thinking that rigorously distinguishes human from the not yet fully human, will allow us to become open to more inclusive and comprehensive visions of the past, and of what it is to be human.

52 CONNECTING CAVE ARCHAEOLOGIES: SHARED PRACTICES AND CHALLENGES ACROSS THE MEDITERRANEAN

Theme: 8. Beyond the Middle Sea: rethinking the Mediterranean in motion
Organisers: Fotis Georgiadis (Ephorate of Palaeoanthropology-Speleology, Hellenic Ministry of Culture) – Konstantinos Trimmis (King's College London, Centre for Hellenic Studies) – Stella Katsarou (Ephorate of Palaeoanthropology-Speleology, Hellenic Ministry of Culture)
Keywords: cave archaeology, mediterranean caves, fieldwork, diachronicity, interdisciplinarity, cave shrines
Format: Regular session

SESSION ABSTRACT

Caves and rock shelters across Greece and the Mediterranean constitute unique cultural archives, preserving millennia of human activity, and reflecting every dimension of human culture, from daily subsistence to ritual expression. Exploring and interpreting

the complex nature of human—cave interaction has been an ongoing process of methodological development shaped by the challenges of subterranean research, from physical constraints of cave environments to stratigraphic/taphonomic ambiguities and uneven fieldwork opportunities among sites. In Greece, work conducted by the Ephorate of Palaeoanthropology-Speleology of the Hellenic Ministry of Culture—the state authority for cave archaeology—illustrates these disparities: only a few sites can be systematically investigated, while most caves remain known only from exploratory visits or have been lost to erosion, looting, or modern development. This session aims to provide a forum for cave archaeologists from across the Mediterranean—working in state services, research institutions, universities and more—to share their experiences, fieldwork practices, methodological and interpretive trajectories in cave archaeology. We welcome contributions that address not only the practical and methodological challenges of subterranean work but also the interpretive dimensions that arise from them. These include understanding caves as dynamic contexts of human evolution, mortuary performance, shrine establishment, refuge use, agropastoral activities, and beyond. Possible topics of discussion include, but are not limited to: • Location and exploration challenges of new caves • Diachronicity, thick stratigraphies and the 'longue durée' of cave sites • Contextual and taphonomic puzzles of human-cave interaction • Densities and metrics of caves at different scales • Landscape perspectives of cave sites • Research potential of brief investigations, non-invasive surveys, minor, damaged or neglected caves • New investigations and current projects across the Mediterranean • From material evidence to interpretation and underground narratives.

CONTRIBUTION ABSTRACTS

1255. Unfinished Tales: Towards a Diachronic and Interdisciplinary Approach in Mediterranean Cave Archaeology

Authors: Fotis Georgiadis (Ephorate of Palaeoanthropology - Speleology, Hellenic Ministry of Culture) – Konstantinos Trimmis (King's College London, Centre for Hellenic Studies) – Stella Katsarou (Ephorate of Palaeoanthropology-Speleology, Hellenic Ministry of Culture)
Format: Oral

Caves and rock shelters across the Mediterranean constitute exceptional cultural archives, preserving long-term records of human activity that extend from prehistory to the contemporary period. Despite their significance, research has often been fragmented by period-based traditions and disciplinary boundaries, with prehistoric human–cave interaction frequently studied in isolation from later historical, religious and socio-economic engagements with subterranean spaces. As a result, the narratives that caves reveal about the societies intertwined with them remain necessarily incomplete and open-ended. These "unfinished tales" have limited our ability to understand caves as dynamic settings of human–environment interaction across the longue durée. This paper argues for the necessity of a diachronic and interdisciplinary approach to Mediterranean cave archaeology that integrates archaeological, geoarchaeological, palaeoenvironmental, biological and historical perspectives alongside technological advances. By moving beyond narrowly defined chronological or functional interpretations, caves can be examined as evolving socio-cultural spaces shaped by changing practices of habitation, spiritual expression, refuge, production and mobility. Such an approach allows short-term and episodic engagements to be contextualised within broader regional and temporal trajectories of human activity. Focusing on case studies from Greece and the Adriatic, this paper highlights the importance of diachronicity, methodological innovation and interdisciplinary collaboration in the study of Mediterranean caves and their continuously evolving relationships with human societies. Ultimately, it calls for a renewed theoretical and methodological agenda in cave archaeology, positioning caves as active cultural landscapes whose meanings are both continually renegotiated within particular contexts, yet are also shaped by longer-term, diachronic traditions of cave use across the Mediterranean.

1238. Caves and nympholepts: Sotades' astragalos

Authors: Yulia Ustinova (Ben-Gurion University of the Negev)
Format: Oral

A unique mid-fifth-century vessel, attributed to Sotades and shaped as a knucklebone, features thirteen attractive women, ten of whom are levitating (BM 1860,1201.2). One side has an irregular opening, representing the mouth of a cave, with an emaciated, bearded man emerging from it and extending his hand toward the young women. This vessel has not yet been conclusively interpreted. I suggest that it evokes the caves of the nymphs that served as seats of lot-oracles, where knucklebones were used for divination. The bony man, his ribs clearly showing on his bare torso, is a nympholept who has spent much of his time in a cave, portrayed within his hallucinatory vision of a visitation by an airborne ensemble of flying nymphs. In order to prove this suggestion, I will juxtapose the portrait of the emaciated man with epigraphic and other written evidence attesting to the contents of nympholeptic hallucinations in caves. I will survey the sophisticated artistic devices used to convey the imagined actions and characteristics of the Nymphs in a hallucinatory vision, and explore the contribution of Sotades' astragalos, which depicts the nympholept's physical and mental condition, to the reconstruction of the cave cults of the Nymphs.

1357. Unveiling Zerynthia's Secrets in Samothrace

Authors: Marta López Aleixandre (University of Alcalá)
Format: Oral

Ancient literary sources attest to the existence on the Greek island of Samothrace of a city, a cave, and a goddess with the nickname of Zerynthia; as well as to the existence on the mainland coast opposite the island of a temple dedicated to a god with the nickname of Zerynthios. These epithets, probably of pre-Hellenic origin, could well have been Thracian, given that the Thracians inhabited both the island and the coast opposite it before being colonized by the Greeks during the 7th century BCE. Because Lycophron referred to the goddess Zerynthia of Samothrace as "queen of Strymon" and "goddess of Pherae", and most ancient authors affirm this, Zerynthia may have been a Thracian deity later assimilated with the Greek goddesses Hecate and/or Aphrodite. However, we know nothing about the cave where this goddess was worshipped, except that her secret rites or "Mysteries" were celebrated there and that dogs were sacrificed in her honour. We do not even know its approximate location; only that the "divine" Zerynthus was in the place "where the rocks are thronged with torchbearing mystics of the Maid." This statement by Nonnus of Panopolis leads us to imagine its location around Paleopolis, where the ancient polis and the mystery sanctuary dedicated to the Great Gods are located. However, some old cartographic maps conflict with this theory, placing these divine city and cave on the island's eastern coast, rather than the northern coast where Paleopolis lies. That is why the main objective of my paper will be to present an investigation, called Zerynthia Project, whose aim is trying to locate these city and cave on the Samothracian insular land, as well as to find out what characteristics defined the goddess Zerynthia through a multidisciplinary lens, combining ancient literary sources, archaeological evidence, and old cartographic maps.

14. Archaeological Investigations at the Te'omim Cave, Jerusalem Hills: Quarrying, Refuge, and Cult from the Middle Bronze Age to Late Antiquity

Authors: Boaz Zissu (Bar-Ilan University)
Format: Oral

Te'omim Cave is a large karst cave located in the western Jerusalem Hills. The cave features a main hall approximately 50 × 70 meters, a deep vertical shaft, additional chambers and ramifications and a natural spring. Recent surveys and excavations documented archaeological remains spanning the Neolithic to Ottoman periods. Three phases merit particular attention. The Middle Bronze Age quarrying operation extracted over 200 m^3 of flowstone for calcite-alabaster production. U-Th dating indicates quarrying ceased before 1500 BCE. This represents the first identified calcite-alabaster quarry in the southern Levant. The discovery necessitates reconsideration of the provenance of alabaster vessels previously attributed to Egyptian sources. Evidence from the Bar Kokhba Revolt (132-136 CE) includes three coin hoards, weapons, and pottery deposited in the cave's inner chambers by Jewish insurgents. One hoard contains 83 silver coins restruck by the rebel administration. Over 120 oil lamps from the Late Roman and Early Byzantine periods (late 2nd-4th centuries CE) were recovered from narrow crevices throughout the main chamber, particularly near a deep pit and spring. The deliberate placement of lamps in difficult-to-access locations suggests ritual deposition rather than utilitarian use. Parallels from Greco-Roman sanctuaries and the cave's topographic features—including a water source and deep vertical shafts—support interpretation as a cultic site, possibly associated with chthonic deities. The cave's Arabic name and local fertility traditions may reflect continuity from Late Antique practices.

2092. Between two "Worlds": In search of the origins of symbolism in the Caves and Rivers of Western Iberia

Authors: Dionysios Danelatos (Universidade Autónoma de Lisboa | Instituto Politécnico de Tomar | Instituto Terra e Memória - Centro de Geociências) – Sara Garcês (Instituto Politécnico de Tomar | Instituto Terra e Memória - Centro de Geociências) – Hipólito Collado Giraldo (Instituto Politécnico de Tomar | Instituto Terra e Memória - Centro de Geociências | Junta de Extremadura - Sección de Arqueología) – George Nash (Instituto Politécnico de Tomar | Instituto Terra e Memória - Centro de Geociências | University of Liverpool) – José García Arranz (Universidad de Extremadura) – Hugo Gomes (Instituto Politécnico de Tomar | Instituto Terra e Memória - Centro de Geociências) – Virginia Lattao (Museu de Arte Pré-Histórica de Mação | Instituto Terra e Memória - Centro de Geociências) – Pierluigi Rosina (Instituto Politécnico de Tomar | Instituto Terra e Memória - Centro de Geociências) – Telmo Pereira (Instituto de Ciências Sociais - Universidade do Minho | UNIARQ - Universidade de Lisboa | Instituto Terra e Memória - Centro de Geociências) – Luiz Oosterbeek (Instituto Politécnico de Tomar | Instituto Terra e Memória - Centro de Geociências | Museu de Arte Pré-Histórica de Mação)
Format: Oral

Palaeolithic rock art in Europe is traditionally associated with karstic environments. Nonetheless, the origins of symbolic behaviour "in situ" are considered to be a practise evident in both closed spaces (e.g. caves) and in open-air sites and rockshelters. This presentation focuses on rock art research conducted between the Tagus and the Guadiana rivers. Caves generally tend to preserve precious information about past human behaviour and occasionally unique symbolic remains which imply complex abstract thought. On the other hand, open-air rock art sites, particularly those located alongside rivers in Western Iberian Peninsula, stand as exceptional evidence of how widespread has been that behaviour in different landscapes, as demonstrated by the Late Pleistocene preserved common iconography. Here, we present this connection based on the results of two ongoing projects, the FirstArt and the OcrezArt. These projects will be presented briefly, using two key sites as case studies: the Escoural cave and the Ocreza river. Furthermore, the methodology applied to rock art research will be presented, together with the shared Upper Palaeolithic iconography of the sites, with a particular focus on zoomorphic figurative motifs. Finally, the importance of the current data in the context of Western Iberia and Southern Europe will be discussed.

1654. Iconographical Superimposition at Asphendou Cave on Crete: Practice and Meaning

Authors: Thomas Strasser (Providence College, Art & Art History)
Format: Oral

The practice of superimposing images is well documented in Palaeolithic art. The suggested reasons for this are manifold. At Asphendou cave, however, many of the superimpositions are certainly Holocene in date. I have argued elsewhere that the basal layer of the petroglyphs depicts a herd of now extinct deer, endemic to Crete during the Pleistocene. Unlike the Palaeolithic superimpositions that frequently seem to augment the art; the superimposed petroglyphs at Asphendou do not enhance the underlying figural imagery as much as it obfuscates it. They are not complimenting the previous images. It seems unlikely there was a narrative presented by the Holocene superimpositions. Nevertheless, they may not be accidental. Because there is evidence elsewhere on Crete that Homo sapiens and the extinct Pleistocene fauna coexisted, some questions can be asked. Why are none of the other extinct fauna (mice, hippopotami, elephants, shrews) presented in the basal layer? Is this perhaps marking a spot for hunters? Setting aside some modern graffiti, what could have been the purpose of the superimposed images? Similar examples from Europe, Australia and the American Southwest are analyzed to sharpen our analytical focus on these illustrations.

2255. When Behavioural Innovation Does Not Produce Social Complexity: Evidence from the Epipalaeolithic Ashkawta Rash Cave (Sulaymaniyah, Kurdistan Region of Iraq)

Authors: Eleni Asouti – Ceren Kabukcu – Douglas Baird – Hannah Morris (University of Liverpool) – Amanj Amin (Sulaymaniyah Directorate of Antiquities and Heritage)
Format: Oral

The Epipalaeolithic of Southwest Asia spanning the period from the Last Glacial Maximum to the end of the Pleistocene (~ 23,000–11,700 cal BP) is traditionally perceived as a profound transition from highly mobile foraging to sedentarising "complex" hunter-gatherer societies, which set the stage for the Neolithic Revolution of the Early Holocene. This period was characterised inter alia by population growth, resource intensification, increasing investment in residential sites and elaborate symbolic and mortuary practices, and nascent social differentiation, culminating in the Levantine Natufian, which marked the emergence of hunter-gatherer social complexity in the Levant and adjacent regions. In this paper, we present new securely dated evidence from our excavations at Ashkawta Rash Cave (Sulaymaniyah Province, Kurdistan Region of Iraq) indicating that in the northern Zagros, Epipalaeolithic behavioural and cultural innovations evolved following a very different trajectory, independent of cumulative shifts in demography, group size, architectural and social complexity, or resource ceilings.

2415. Reconstructing a Lost Cave Stratigraphy: Marine and Karst Processes at Limnopoula Rockshelter (Varassova, Western Greece)

Authors: Elli Karkazi – Stella Katsarou – Stefanos Ligkovanlis (Ephorate of Palaeoanthropology-Speleology, Hellenic Ministry of Culture) – Eleni Asouti – Ceren Kabukcu (Department of Archaeology, Classics and Egyptology, University of Liverpool) – Andreas Darlas (Ephorate of Palaeoanthropology-Speleology, Hellenic Ministry of Culture)
Format: Oral

The paper presents preliminary stratigraphic observations on the late Pleistocene–early Holocene deposits of Limnopoula rockshelter, a coastal site on Mount Varassova (western Greece). Our focus is on geoarchaeological evidence and on the complexity of the rockshelter fill, shaped by the interaction of karst and marine processes. The rockshelter lies at the base of a high vertical cliff on the southern Varassova massif, projecting into the Patraikos Gulf. Situated slightly above the modern sea level, Limnopoula has an arched opening that allows direct exposure of its interior to coastal conditions. Field research conducted by the Ephorate of Palaeoanthropology-Speleology has documented a fragmented archaeological fill with evidence for two main horizons: (a) a loose floor sediment of late Pleistocene–early Holocene date, occupying almost half the height of the rockshelter and showing clear signs of disturbance, and (b) a series of lithified deposits preserved discontinuously at various heights on the rock walls, both above and below the present level of the loose sediment. These cemented remnants incorporate cultural materials, dietary remains, and evidence of fire dated from the late Pleistocene through the Holocene and appear to have survived marine erosion by virtue of karst processes and carbonate cementation. The paper draws on macroscopic sediment observations, test excavation data, radiocarbon dating, lithic analysis, and archaeobotanical evidence to reconstruct the original sequence of human activity in the rockshelter and the geoarchaeological stages of its fragmentation. Sea-level fluctuations and wave action impacting the rockshelter from outside, combined with carbonate precipitation and speleothem formation in its interior, contributed to the preservation of some stratigraphic segments while erasing others. Limnopoula emerges as an illuminating case study of how coastal and karst dynamics can simultaneously erode, displace, and preserve archaeological stratigraphy, transforming an originally continuous deposit into fragmentary fills of contrasting texture, form, and depositional history.

2753. Constructing a chronostratigraphic framework for the Franchthi Cave and Paralia

Authors: Catherine Perlès (Université Paris Nanterre) – Mark Rose (Retired)
Format: Oral

Despite the wealth of data provided by the very long archaeological sequence at Franchthi, the use of independent phasing system by each specialist and the large number of discrete trenches renders a synthetic view extremely difficult, if not quasi-impossible. We have therefore elaborated a general chronostratigraphic framework based on all the available data —the sediments, the archaeological and bioarchaeological remains—, the phasing suggested by each author for its own material, the stratigraphic sections and the excavation notebooks. In a way, this amounted to an excavation of the excavation! Despite many contaminations, both prehistoric and recent, and cross-cutting during the excavation as no sterile layers separate the phases and subphases, we were able to isolate sequences of units in which contextual integrity, or at least the general associations of remains, was preserved. This led us to define 16 phases and a number of subphases many of which unrecognised so far, from the earliest Upper Palaeolithic to the Final Neolithic. We will here present the method we used, the underlying postulates, the difficulties we met, the different paces of change among the different categories of remains, and outline some of the unexpected results of our work.

2670. From subterranean to submerged: investigating the Bay of Kiladha, beyond Franchthi Cave

Authors: Julien Beck – Patrizia Birchler Emery (University of Geneva) – Dimitris Sakellariou (Hellenic Centre for Marine Research)
Format: Oral

Caves are inevitably linked to their external environment, whether as geological features or archaeological sites. Franchthi Cave, a well-known prehistoric site with an exceptional occupational sequence spanning the Upper Paleolithic, Mesolithic, and Neolithic periods, lies on the shores of the Bay of Kiladha, in the southern Argolid (Greece). As a result, much of the landscape that formed its prehistoric environment is now submerged because of the Holocene sea-level rise. Franchthi Cave was excavated in 1967-1976 by a team from Indiana University, with a particular focus on environmental studies. Research later extended beyond the cave, as investigations were carried out in the bay to reconstruct the prehistoric landscape linked to its occupation and look for traces of a Neolithic village (1979-1985). A new, interdisciplinary research program (the "Bay of Kiladha" project) started in 2012, with updated technology. More evidence of Neolithic activity was found in the bay, as well as a fortified Early Bronze Age settlement: underwater excavations showed that its oldest stratigraphic layers potentially dated back to the Final Neolithic and could thus have been contemporary with the occupation of the cave. Current research objectives range from studying submerged prehistoric landscapes on a wider scale to mapping Franchthi Cave and dating its partial collapse, further connecting the cave with the bay.

1983. Neolithic Alepotrypa Cave and memorialization: interpretive challenges of the ritual practices and the mortuary record

Authors: Anastasia Papathanasiou (Hellenic Ministry of Culture)
Format: Oral

The site of Alepotrypa Cave, Diros, Lakonia, Southern Greece is a 300m long, remote, cave, which was used during the entire Neolithic and more intensely during the Late and Final periods (6,000-3,200 cal. BC), in association with the surrounding area, as a burial site and a center for rich ceremonial activity. It is characterized by a massive quantity of material culture and great mortuary variability. The patterns of deposition and processing of the human remains include primary single or multiple burials, secondary depositions of multiple commingled remains, and scattered disarticulated bone. Perhaps the cave served as a mortuary monument for the specific or a broader area, as memorialization has constantly been emphasized by processes of which the memory of the dead was re-incorporated and extended into future generations through actions of disarticulation, fragmentation, commingling, and re- arrangement of the skeletal elements of the ancestors. Parallel repetition for millennia of specific activities of fragmentation, dispersal and structured accumulation of artefacts including mainly pottery, but also tools, plants, animal remains, and dung suggests a monumental and persisting ritual of worship and a place of social congregation, where the memory of the past was revived and reintroduced with ancestral importance for the living. Therefor Alepotrypa cave contributes information in the discussion of the use of remote places and caves as formalized centers for seasonal crowd aggregations, starting at least from the Early Neolithic and remaining constant till the Final Neolithic in the Mediterranean world. Except from repeated formalized rituals and structured depositions, evidence also exists for formalized attempts to create the notion of the lineage through secondary burial grounds, as well as for a broad web of contacts and traded items and tentatively information and "beliefs".

1818. The excavation of the Klenia Cave in Corinthia. Ritual practices in prehistoric Peloponnese and comparisons with Cretan caves

Authors: Dimitris Chadjiangelou (Ministry of Culture)
Format: Oral

The excavation of the Klenia Cave in Corinthia. Ritual practices in prehistoric Peloponnese and comparisons with Cretan caves It was the field research carried out by N. Bertos in the 1930s that first brought the Klenia Cave to scholarly attention. This early investigation revealed the site as a major archaeological landmark of northeastern Corinthia. Eighty years later, systematic excavations have not only confirmed the cave's topographic and geographical significance but have also brought to light remarkable finds spanning five millennia of human activity. An unexpectedly rich assemblage of pottery, lithics, and small finds has been unearthed, illuminating the earliest phases of the cave's use and offering the first insights into its remote past within the Neolithic landscape of

the Peloponnese. Bronze Age material, particularly of Mycenaean date, indicates that the cave remained in use—with a few minor interruptions—after the Neolithic, while religious finds from the historical periods further attest to its long-term ritual significance. More broadly, the Klenia cave is one of the multitude caves that have been located in the Peloponnese and all over Greece to date, while new ones continue to be discovered. Yet only a small number have been thoroughly explored archaeologically although rescue and brief digs have been carried out in many of them. This presentation presents how the Klenia cave fits in the prehistory of the mainland and focuses in particular on its ritual profile. On this basis, it concludes with a discussion of key differences in prehistoric ritual practices between caves in the Peloponnese and those in Crete. These contrasts highlight the distinctive cultural frameworks through which subterranean spaces were experienced and transformed into places of symbolic and religious meaning in the two regions.

2533. New Finds and Stratigraphic Evidence for the Diachronic Use of the Psychro Cave, Crete

Authors: Ioanna Efstathiou – Nikolaos Daskalakis (Ephorate of Palaeoanthropology-Speleology, Hellenic Ministry of Culture)
Format: Oral

The Psychro Cave (Diktaion Antron) has long been recognized as one of the major Minoan cult caves of eastern Crete, with evidence for use extending from the Neolithic into the Roman period. Early excavations at the end of the 19th and the beginning of the 20th century (by I. Chatzidakis, F. Halbherr, A. Evans, J. Demargne and D. G. Hogarth) revealed a rich and diachronic assemblage; however, controlled stratigraphic data for the earliest phases of activity within the cave have remained limited. In the context of recent works for the protection and enhancement of the cave, small-scale investigations were carried out in areas of earlier excavation trenches. These interventions brought to light new archaeological finds, while the stratigraphy revealed earlier phases of use that had not been adequately documented in previous research. In particular, a previously unrecorded Neolithic and Early Minoan stratigraphic horizon was identified, providing the first controlled evidence for the early occupation of the cave. Overall, the new data indicate that the Psychro Cave was not only a place of cult and social gathering during the Minoan and later periods, but also a space of earlier human activity. These preliminary results underline the potential of limited, targeted interventions within previously explored cave sites to refine our understanding of their long-term history, stratigraphy, and function.

2338. Making Sense of Taphonomic Processes in the Neolithic "Longue Durée" in the Pelekita Cave, Crete: An Ongoing Discussion

Authors: Susan Ferrence (INSTAP Academic Press) – Lily Bonga (INSTAP Study Center for East Crete) – Athanasia Kanta (Mediterranean Archaeological Society | Centre for the Study of Cretan and Mediterranean Civilization)
Format: Oral

The deep complex prehistoric stratigraphy of the Pelekita Cave—located near Kato Zakros in eastern Crete—is exemplified by the human use of the cave within its first chamber over the course of the "longue durée." The cave is a case study of challenging taphonomic processes inherent to the cavern's morphology and coastal yet mountainous setting with the additional layer of human-landscape interaction over the millennium. Discussing the longue durée at Pelekita contextualizes the use of the cave within the Cretan context and also the broader cave-use trends in the southern Aegean. The ongoing study of the Neolithic pottery has shown that joins among sherds revealed unexpected depositional and contextual locations. Interpreting their distribution and understanding the disparate find locations is further complicated by the absolute dates from the first round of radiocarbon samples, which yielded unexpected results, namely dates as early as the 7th millennium BCE—locating the first human use of the Pelekita Cave in the so-called "Initial Neolithic" of Greece—and placing it not only as contemporary with Stratum X and Levels 35–37 at Knossos, but also perhaps earlier in date. A series of stone-built successive Neolithic hearths provides the opportunity to discuss their use and chronology on the human scale in years, lifespans, and generations.

967. Surveying the Underground: Discovery Units, Deposits, and Non-Invasive Cave Archaeology in the Mediterranean

Authors: Konstantinos Trimmis (Australian Archaeological Institute at Athens, the University of Sydney)
Format: Oral

Caves and rock shelters across the Mediterranean preserve complex and stratified records of human activity, yet archaeological field survey within subterranean contexts remains methodologically underdeveloped compared to open-air landscapes. This paper presents the shared challenges but also opportunities of archaeological field survey in Caves. It proposes a non-invasive, surface-based archaeological survey methodology tailored specifically to cave environments, aiming to bridge landscape survey theory with cave archaeology practice. Drawing on case studies from volcanic caves on Santorini and karstic cave systems on Lastovo Islands, the paper explores how systematic cave survey can be structured through the concept of Discovery Units (DUs), adapted to the spatial, depositional, and visibility constraints of subterranean settings. Building on previous work by Mavridis and Trimmis (2020) and by Dinnis et al (2010), particular emphasis is placed on the role of depositional processes, sediment exposure, and surface characteristics in evaluating archaeological potential within caves. Rather than treating caves as uniform entities, the proposed approach understands them as internally differentiated spaces, where discrete deposits, geomorphological features, and sedimentary regimes guide both survey intensity and interpretative resolution. The methodology integrates detailed archaeological mapping with paperless recording workflows, enabling the development of cave-specific GIS environments. These digital systems function not only as tools for visualisation but as analytical platforms capable of integrating artefacts, features, sedimentary units, and geological elements within a coherent spatial framework. By combining non-invasive survey, deposit-led evaluation, and digital spatial analysis, this paper argues for a scalable and transferable approach to cave survey that enhances comparability across Mediterranean cave contexts while minimising impact on fragile subterranean archives.

1469. Archaeological CaveScapes in Central-West Greece

Authors: Apostolos Sarris (University of Cyprus) – Stella Katsarou (Hellenic Ministry of Culture)
Format: Oral

Caves have long attracted the attention of archaeologists, as they constitute loci of diverse anthropogenic activities, ranging from habitation to ceremonial, funerary, or sacred use, from the Palaeolithic period onwards. They often signify a symbolic separation between the divine, the secret, the sacred, or the funerary sphere and other aspects of human activity, although they were also used as habitation spaces, particularly during the early prehistoric period. This project focuses on the archaeological caves of Central–Western Greece. An IT platform was developed to record the various archaeological attributes of these caves, aiming to improve their management and to provide insights into their geographical characteristics. Spatial analyses addressing the topographic setting of the caves, their spatial distribution, continuity of use across different periods, catchment areas, visibility and control of the surrounding landscape, and patterns of connectivity can offer a more comprehensive understanding of these sites. This is particularly effective when the period of use, function, and associated finds have been clearly defined through archaeological investigation. The spatial analyses were based on environmental datasets collected from multiple sources. All datasets related to caves and rock shelters were analyzed collectively, and conclusions were drawn according to their period of use and function. The aim of the study was to examine long-term trends in site selection, use across different periods, and to explore the spatial characteristics of caves within their specific archaeological contexts.

2122. Caves as biocultural archives: Interdisciplinary methods for study and outreach

Authors: Asterios Aidonis – Elissavet Ganiatsou – Angelos Souleles – Christina Kakasa – Panagiota Bantavanou (Laboratory of Biological Anthropology, Democritus University of Thrace | Institute of Applied Bioarchaeological Research, Democritus University of Thrace) – Stella Katsarou – Ioanna Efstathiou – Andreas Darlas (Ephorate of Palaeoanthropology-Speleology, Hellenic Ministry of Culture) – Christina Papageorgopoulou (Laboratory of Biological Anthropology, Democritus University of Thrace | Institute of Applied Bioarchaeological Research, Democritus University of Thrace)
Format: Oral

Caves represent exceptional monuments of both natural and cultural heritage, preserving invaluable evidence of the Earth's geological history and human occupation from deep prehistory to the present. As complex natural archives, they document past environments, climatic variability, geomorphological processes, and biological evolution. At the same time, caves have been associated with human activity across cultures, functioning as early dwellings, ritual spaces, and sites of artistic and symbolic expression. This study employs advanced methods in Biological Anthropology to reconstruct key aspects of past human life through the integrated analysis of bioarchaeological, palaeogenetic, and palaeodietary data. Case studies include the Cave of Lakes (Peloponnese), the Cave of Negros (Astypalaia), and the Cave of Petralona (Chalkidiki), each offering exceptional archaeological and anthropological material spanning critical phases of human evolution and cultural development. The scientific investigation and systematic documentation of selected anthropological remains, combined with the application of advanced digital technologies, constitute a methodological framework for community engagement, educational initiatives, and sustainable heritage tourism. This approach is underpinned by interdisciplinary collaboration and active stakeholder participation, ensuring the effective dissemination of scientific knowledge beyond academic contexts. By enhancing the cultural and environmental value of caves, this framework promotes both their scientific and cultural significance.

2461. Radiocarbon Dating of caves and rockshelters in Greece – An overview

Authors: Yorgos Facorellis (University of West Attica)
Format: Oral

Over the past six decades, archaeological research on anthropogenic deposits in caves and rockshelters throughout Greece has brought to light new evidence regarding their use and has demonstrated that such use was very frequent and, in many cases, continuous from the Paleolithic period to the present day. Thus, in addition to well-preserved stratigraphic records, we now have series of published radiocarbon dates that assist archaeologists and other interested researchers in reassessing older theories concerning the reasons for and duration of their use. Furthermore, the often-undisturbed stratigraphy of coastal caves has made it possible to calculate the local deviation (ΔR) of the marine reservoir effect * from the global oceanic model, thereby enabling reliable dating of archaeological finds of marine origin (e.g. mollusk shells). In this study, 14C ages from all these sites across Greece are presented. Their conventional radiocarbon ages span the entire temporal range of applicability of the radiocarbon dating method, i.e. up to 50,000 years before present, and are uniformly calibrated and converted into calendar ages using the latest versions of the international calibration curves, IntCal20 and Marine20.

1444. Worshipping underground deities: caves and grottos at ancient Greek sanctuaries in the Cyclades and Attica

Authors: Erica Angliker (University of Sao Paulo)
Format: Poster

Although recent research has paid more attention to cultic practices in caves, relatively less focus has been given to caves and grottoes located within the immediate areas of sanctuaries. This poster explores the meaning of such caves and grottoes within the sacred landscapes of sanctuaries in the Cyclades and Attica. It treats caves as dynamic components of sanctuary settings and highlights the special relationships some developed in cultic contexts. By examining votive practices both within sanctuaries and in associated caves, comparing practices across these spaces, and studying the divinities connected to them, the poster investigates how these relationships evolved over time. Particular attention is given to how caves were incorporated into sanctuary settings and how their roles and meanings shifted. The connections between caves, grottoes, and sanctuaries are also explored by considering location and accessibility, challenges of exploration, diachronic use, and the complex dynamics of human–cave interaction. The poster demonstrates that the significance of caves — both cultic and conceptual — emerges from sustained interactions among people, practices, and place, revealing layered histories embedded within sanctuary landscapes.

1831. Caves, corridors, and prehistoric landscapes: a spatial analysis of the Penedès region (NE Iberian Peninsula)

Authors: Alba Sánchez De La Blanca Ramírez – Francesc Oms Arias – Xavier Rubio Campillo (Universitat de Barcelona)
Format: Poster

Prehistoric caves of the Penedès region (NE Iberian Peninsula) have traditionally been studied as individual sites, often detached from their broader spatial and landscape contexts. This paper presents a spatial analysis of prehistoric caves in the Penedès area, focusing on the relationship with natural corridors, such as valleys, passes, and routes of least-cost accessibility. By integrating cave locations with topography, hydrography, and corridor networks, the study explores how caves were embedded within wider systems of mobility and territorial organization. Rather than interpreting caves solely through their internal stratigraphy or material assemblages, this research approaches them as dynamic nodes within prehistoric landscapes, potentially linked to circulation routes and seasonal movements. The analysis includes both well-known and poorly documented caves, highlighting the research potential of minor or understudied sites. This spatial perspective allows for the identification of patterns in cave distribution at a regional scale and opens new interpretive avenues regarding their diachronic use and function, aligning closely with the methodological and interpretive themes addressed in this session.

2679. From Cave Stratigraphy to Landscape Reconstruction: Preliminary Micromorphological Results from Podlipe, Bosnia & Herzegovina

Authors: Aristeidis Varis (Department of Earth Sciences, University of Oxford | Senckenberg Centre; Human Evolution & Palaeoenvironment, University of Tübingen | German Research Foundation Centre for Advanced Studies, University of Tübingen) – Aleksandar Jašarević (Regional Museum in Doboj) – Panagiotis Karkanas (Malcolm H. Wiener Laboratory for Archaeological Science, ASCSA) – Sofija Dragosavac (Department of Archaeology, Univesity of Belgrade) – Effrosyni Roditi (Paleoanthropology, Department of Geosciences, University of Tübingen | Senckenberg Centre; Human Evolution & Palaeoenvironment, University of Tübingen) – Jean-Luc Schwenninger (Research Laboratory for Archaeology & the History of Art, University of Oxford) – Dušan Mihailović (Department of Archaeology, University of Belgrade) – Katerina Harvati (Senckenberg Centre; Human Evolution & Palaeoenvironment, University of Tübingen | German Research Foundation Centre for Advanced Studies, University of Tübingen | Paleoanthropology, Department of Geosciences, University of Tübingen | HUMAN ORIGINS—Cluster of Excellence, University of Tübingen)
Format: Poster

Reconstructing past landscapes is crucial for archaeological research as it provides a framework for human activity in the landscape. This is especially important for understanding human subsistence during the Quaternary, when landscapes often differed substantially from modern analogues. Karst features, such as caves and rock shelters, can act as sediment traps and provide depositional archives that are often not preserved in open-air sites. This phenomenon is exemplified in Bosnia and Herzegovina, where stratified Palaeolithic sequences are currently best preserved at only two sites: the caves of Badanj and Podlipe (1, 2). Here, we draw on recent excavations at Podlipe, to investigate site formation processes and it's implications for human activity and landscape change. Using primarily micromorphology, we provide a unified stratigraphy across the three excavation sectors, disentangle key taphonomic issues, and contextualize diachronic site use. We demonstrate that human activity developed around a rockshelter rather than a cave environment, with Epigravettian hunter-gatherers most probably utilizing a past river terrace of the nearby Bioštica river. This finding is in accordance with earlier evidence for the preference of river terraces for human subsistence during the later parts of the Upper Palaeolithic (3). Our case study concludes that micromorphology and site-formation processes can disentangle the preservation biases resulting from Quaternary deglaciation and sea-level rise, which are commonly observed across the Mediterranean.

53 DIVINE BUREAUCRACIES: HOW TEMPLES WORKED IN THE ROMAN EASTERN MEDITERRANEAN - ECONOMY, ORGANIZATION AND MANAGEMENT

Theme: 8. Beyond the Middle Sea: rethinking the Mediterranean in motion
Organisers: Aleksandra Kubiak-Schneider (University of Wrocław) – Haggai Olshanetsky (University of Ghana)
Keywords: temple, Eastern Mediterranean, polytheism, monotheism, administration, economy
Format: Regular session

SESSION ABSTRACT

Studies dealing with ancient religions often revolve around the deities: their representation, names, religious perception, but also rituals and practices. Often, the structure built to worship and house the deity, or deities, is often ignored or purely examined as a built complex, rather than the economic and social institution of the temple. This panel proposes to explore the issue of temples as economic and social institutions in the eastern Mediterranean, including Greater Syria, Judaea/Palaestina, Asia Minor and Arabia. We aim to bring together papers analyzing various aspects of temple life, such as sources of personnel, economic resources, impact on the urban economy and development, as well as the interactions of these institutions with the Roman state powers. Presentations employing archaeological, textual, iconographical and epigraphical sources are welcome. Furthermore, these papers will also question the rigid definitions of what a temple is, and whether smaller religious institutions belonging to monotheistic religions can be considered a temple institution in an economic or social sense. The session thus hopes to foster a comparative and interdisciplinary dialogue on the role of temples as social and economic institutions, while challenging conventional approaches that view them merely as architectural or cultic entities. By re-evaluating their functions within urban, imperial, and religious frameworks, the session seeks to reveal temples as dynamic centres of economic management, social interaction, and negotiation with imperial power across the Eastern provinces of the Roman Empire. This will provide a basis to further discuss the similarities and differences between temples and places of worship belonging to various religions, cults and sects in the eastern Mediterranean during the Roman period.

CONTRIBUTION ABSTRACTS

1107. Where Temples Stand. Urban Space in the Northern Levant during the Roman Period.

Authors: Sophia Marxer (University of Bern)
Format: Oral

Temples in the eastern Mediterranean are often studied primarily as cultic or architectural entities, while their spatial embedding within the urban fabric and the ways this embedding changes over time have received comparatively little attention. This paper approaches temples as dynamic urban institutions by examining how their location within cities reflects their roles as social actors, and how these roles changed over time, with a particular focus on the Roman period. Focusing on selected case studies of public temples located within cities of the Northern Levant (e.g. Doliche, Jebel Khalid, Baalbek or Palmyra) , including temples founded in the Iron Age or the Hellenistic period, the paper analyses the spatial relationship between temples and key elements of the urban landscape in Roman cities. By combining architectural analysis, urban topography, and archaeological context, the study explores how the position of temples within the city led to different functions in urban and cultic life. In the Roman period in particular, new temple foundations or monumental reconstructions frequently reflect processes of urban reorganization and negotiation between local traditions and imperial frameworks. By analysing temples through their urban placement, this paper contributes to a broader understanding of temples as social institutions rather than static cult buildings. Ultimately, it demonstrates that the location of temples within the urban landscape provides crucial insights into their evolving roles in social organization, economic management and imperial interaction in the eastern provinces of the Roman Empire.

1368. What is a Synagogue For? A Temple for Every City? A Building for Every Purpose?

Authors: Haggai Olshanetsky (University of Ghana)
Format: Oral

There are numerous unresolved questions concerning ancient temples, their functions, and their place within society. Central among these is the question of what constitutes a "temple," and whether places of worship in the monotheistic religions are fundamentally similar and can be considered part of the same category. This issue is particularly salient in the case of the synagogue, the most common ritual building in Jewish society. Notably, synagogues began to appear during a period when the Temple in Jerusalem still existed and functioned as the primary religious centre. The original function of the synagogue is the subject of ongoing scholarly debate and is often influenced by modern forms of this institution and their functions. Nevertheless, it is clear that, like the modern synagogue, earlier synagogues fulfilled multiple roles, although these roles were likely more numerous and more diverse throughout antiquity. This presentation aims to map the rules, functions, and roles of synagogues across different Jewish communities across the first six centuries CE. It will then trace how these functions evolved, spread, and transformed from one community to another. Such an analysis will allow us to reconsider and possibly redefine what a synagogue is, and to assess whether it can, in some or all respects, be meaningfully compared to the temples of antiquity.

33. Temple life in Palmyra: management and economies

Authors: Aleksandra Kubiak-Schneider (University of Wrocław)
Format: Oral

Epigraphic and material evidence brings a scarce, but important information about the organisation of the temple work in Palmyra. This Syrian city had at least 9 temples, among which the most important and monumental was the Temple of Bel. In this talk I want to focus on the social structures as well as economy of the temples, pointing out a very important role of the priestly associations in organisation of the caravans and expeditions to different parts of the ancient world. The epigraphic evidence attests the procedure of selection of the priests and iconographic sources deliver the images of the priests. The material reveals the prominence of the cultic professions of the priests. For Palmyra it was more than an office to fulfil, it was attached to particular families, limited with certain rules. I will discuss the Aramaic inscriptions: both monumental in stone as well as enigmatic legends on the clay tokens, pointing out the supplies to the temples and provisions. I will pose the question and try to find the answer: what was the administrative and economic model of the temple work in different temples of Palmyra?

950. Keep on File: Human Agency and Documentary Management in Asia Minor's Sacred Spaces

Authors: Giuseppina Marano (Scuola Normale Superiore di Pisa)
Format: Oral

This paper explores how sanctuaries in the ancient world functioned as essential centers for public administration and the preservation of collective memory. Beyond their religious role, these sacred spaces provided a secure and prestigious environment for the management of official documents. The inviolability of the sanctuary, guaranteed by divine authority, made it the ideal location for storing sensitive records, such as citizen lists, financial accounts, and legal decrees. This progression ensured both transparency and durability, framing the sanctuary as a "laboratory" for administrative innovation where accounting techniques and archiving protocols were refined before being adopted by other civic institutions. In times of crisis or forgery, the community developed sophisticated countermeasures, such as creating authorized copies kept in separate archives, ensuring that the sacred space remained a dynamic political hub where divine protection validated the state's documentation. Central to this administrative machinery is the question of human agency: who were the individuals effectively entrusted with these responsibilities? This study interrogates the specific roles of cult officials, seeking to identify and trace the figures whose duties often differed significantly across various institutional contexts. By focusing on prominent sanctuaries in Asia Minor, such as those in Mylasa, Ephesus, and Iasos, the research highlights diverse and localized modalities of documentary management. Rethinking the "archive" through the lens of agency allows for a detailed reconstruction of the rigid protocols and technical practices governing document conservation. Furthermore, retracing these administrative actors reveals how their expertise and the strict adherence to preservation standards were not merely bureaucratic tasks, but essential contributions to the construction of public identity. Ultimately, this paper demonstrates that the interaction between human intervention and sacred space was fundamental in defining the authenticity, stability, and collective memory of the Greek polis.

1971. Sacred Economies on the Frontier: Local Temples and the Roman Army in Syria Coele during the Early Imperial period

Authors: Viktor Humennyi (Ivan Franko National University of Lviv)
Format: Oral

The paper focuses on the epigraphic evidence from Roman Syria that can help us to try to reconstruct the economic interplay between the Roman army and temple institutions in Syria Coele. Inscriptions from Antioch, Apamea, and Berytus attest to temples as major economic actors, administering land, managing endowments, and funding construction projects that relied on large-scale mobilization of labor and materials. Building inscriptions record sustained investment over several decades, reflecting coordinated imperial funding and the logistical capacities associated with nearby military forces. Military participation in temple economies is visible in dedicatory inscriptions by centurions, beneficiarii consularis, and veterans, who reinvested pay and donatives into local cults. Such practices parallel evidence from other frontier zones (the Danubian provinces), where sanctuaries similarly functioned as repositories of surplus military wealth. In Syria Coele, looking at the scale and durability of temple complexes, we can very carefully suggest a particularly strong integration of sacred economies into regional fiscal networks. Epigraphic references to military titles in honorific and administrative contexts further imply the army's role in protecting temple assets and stabilizing local revenue flows. These patterns underline temples as key intermediaries between imperial military finance and provincial economies along Rome's eastern frontier.

2472. The Distribution of Sacred Architecture in Mesopotamian Settlement Systems

Authors: Latif Oksuz (UKSW, Warsaw) – Christina Tsouparopoulou (UKSW, Warsaw | Durham University)
Format: Oral

This study analyses ancient Mesopotamia's religious landscape by investigating the connection between sacred sites and settlement distributions within the scope of Mesopotamian Material Religion (MeMaRE) project. Employing GIS spatial analysis, this research identified over 80 sites across two millennia to explore how temples functioned as institutional hubs within regional networks. The data demonstrates that rather than being widespread or randomly distributed, sacred structures appear at only approximately 2% of identified settlements, demonstrating that their construction was the result of deliberate, strategic choices rather than common practice. At major urban centres including Nippur, Babylon, and Assur, temple complexes served as organizational hubs for resource redistribution, workforce coordination, and tribute administration. Meanwhile, at secondary centres such as Carchemish, Harran, and Tell Halaf, temples were strategically positioned along major trade routes at regular intervals of approximately 90 km, suggesting intentional placement to facilitate trade and extend political influence across the landscape. Ultimately, temple distributions proved fluid rather than static, continuously adjusting to changing geopolitical realities. As centres of power shifted from the Khabur Triangle through the Middle Euphrates and later to the Tigris region, sacred architecture relocated accordingly. Analysing these structures within broader settlement patterns highlights these structures as dynamic institutions which seem to have played an important role in negotiating political and economic relations.

25. The Temple Before the Temple: Architectural Models as Administrative Tools in Hellenistic and Roman Egypt

Authors: Cesare Iezzi (University of Salento)
Format: Oral

The construction of a temple in the Hellenistic and Roman Eastern Mediterranean was not just a religious act, but a comlex economic enterprise requiring precise administrative control. This presentation aims to investigate the role of architectural models within the "divine bureaucracy" of Egypt, challenging their traditional interpretation as purely votive objects. Focusing on different case studies from Egypt (Soknopaiou Nesos, Tôd, a set of unprovenanced Hathoric capital models) and drawing comparisons with the well-known model from Niha (Lebanon), this study presents a rigorous metrological analysis. The data reveals a systematic recurrence of scale ratios, intrinsically linked to the subdivisions of the Egyptian reformed cubit, identifying these artifacts as technical instruments (paradeigmata) used to instruct the workforce, estimate material consumption and costs, and verify the project against the contract. Consequently, these objects allow us to analyze "the temple before the temple": they reveal the economic institution already at work, planning, budgeting, and contracting, prior to the physical materialization of the sacred edifice. In this light, the architectural model emerges as a bureaucratic interface between the sacred administration (the economic client) and the specialized workforce, embodying the standardization of the construction process. Finally, the presentation discusses the archaeological context of their discovery, suggesting a ritual refunctionalization: once their administrative function ceased, these tools were reabsorbed into the cultic sphere. This transition bridges the gap between the economic institution of the construction site and the final sacred nature of the built environment.

54 RE-WILDING THE NEOLITHIC: UNLOCKING THE DISRUPTIVE POTENTIALS OF CURRENT RESEARCH

Theme: 7. Interaction, connectivity and mobility
Organisers: Daniela Hofmann (University of Bergen) – Evita Kalogiropoulou (Foundation for Research and Technology Hellas: Heraklion)
Keywords: Neolithic, Europe, narratives
Format: Regular session

SESSION ABSTRACT

Neolithic research is highly innovative. Building on a long tradition of pioneering theoretical work and creative scientific approaches, Neolithic studies lead in applying new science-based methods, with discoveries covering various human expressions, customs and traditions that have fundamentally reshaped our understanding of the period. Large-scale collaborative projects continue to add more data in this complex framework, along with lively debates about the need to keep sight of the contextual and human aspects of past lives and social transformation. Yet after the third science revolution, dominant narratives have also emerged, centred among others on migration, patrilocality and ways of quantifying inequality. Complementary to these key themes, we argue, there are many divergent stories to be explored. We invite participants to delve into different interpretative avenues by focusing on the things that don't quite fit the big story. What are our new unknowns? We would like to invite participants to leverage archaeology's diverse methods and theories to ask speculative and challenging questions about how we conceptualise Neolithic identities and ways of life. These can include, but are not restricted to, blind spots in our current models, new models, interpretations destabilising the current status quo of one of the big themes, or indeed new ways of telling the Neolithic in various contexts and media, both in academia and to the wider public. Examples could, amongst many others, include: What happened to hunter-gatherer societies? How were gender roles challenged? How did Neolithic people define "outsiders"? What narratives or oral traditions were transmitted to children?

1803. Re-wilding the Neolithic – an introduction to the session

Authors: Daniela Hofmann (University of Bergen) – Evita Kalogiropoulou (Foundation for Research and Technology Hellas: Heraklion)
Format: Oral

The Neolithic, in all its regional definitions of this term, remains an exceptionally active field of research. New data are accumulating all the time, both through university-led projects and developer-funded excavations. We can now talk in great detail about, for example, the genetic relationships across a cemetery, or about the histories of mobility of individuals and groups, as well as reconstructing how artefacts were made, used and deposited. In this brief introduction, we argue that this wealth of new data has also left some blind spots in our narratives. By foregrounding these, we can ensure that the Neolithic has productive and challenging contributions to make also in the present. There is already an emergent shift in Neolithic scholarship that challenges the traditional archaeological view of stable, bounded settlement communities. Instead, they highlight the role of bottom-up agency in the formation of the social order, which involved strong communal elements, but also a variety of actors and strong local variation, with unpredictable outcomes. We illustrate this using two short case studies, on Greek and central European material. Both examples tackle established discussions on social order and inequality and attempt to stretch our narratives in the European Neolithic into new directions.

1516. Adaptation While Keeping Traditions Alive: Cultural Transmission and Social Reproduction at the PPNA–PPNB Transition

Authors: Uftade Muskara (Kocaeli University, Prehistoric Archaeology Department) – Seda Karayünlü Bozbaş (Kocaeli University, Chemistry Department)
Format: Oral

Gre Fılla, located in the Upper Tigris region, provides a rare opportunity to examine technological transmission and social reproduction across the PPNA–PPNB transition (PPNB ca. 9300–7500 cal BCE). We interpret change through household-centered "decision rules" that mediated shifts in access and provisioning, maintaining largely self-sufficient and non-standardized lithic practice rather than relocating production into communal "workshops." The strongest functional differentiation emerges at the domestic and communal interface and among communal buildings themselves: three communal buildings represent large assemblage settings with distinct emphases, indicating differentiated communal routines. Although Gre Fılla participates in broader regional traditions that imply shared knowledge and selective high-investment pyrotechnological engagements, technological organization remained primarily structured around household needs and locally configured daily practice. This interpretive model is supported by micro-context archaeometry. Sediment screening of features using spot tests, pH, and element measurements provides an independent test of feature use and helps link shared installations to communal routines through comparison with non-feature contexts. The results suggest a domestic technological continuity with structured variation among communal buildings. Gre Fılla suggests that community integration was negotiated through differentiated shared practices and places, while household practice remained the dominant arena for reproducing everyday ways of doing and making across the PPNA–PPNB transition.

665. Between Rivers and Mountains: Rethinking Movement in Early Neolithic Thrace

Authors: Atanas Tsurev – Petar Leshtakov (Bulgarian Academy of Sciences)
Format: Oral

This presentation reexamines communication networks and patterns of physical and cultural interaction among early Neolithic communities in Thrace during the first half of the 6th millennium BC, as reflected in pottery production and settlement distribution. Building on recent data and a critical reassessment of older evidence, it proposes new models for understanding movement and connectivity within the region and offers new interpretations of long-standing assumptions about routes of interaction. The analysis identifies distinct technological preferences and morphological traits in ceramic assemblages from Upper Thrace, suggesting at least two partially separate groups within the Thracian ceramic tradition. These patterns point to localized communication networks through which cultural and technological traditions circulated. The middle and lower Maritsa River and its watershed emerge as key contact zones where these traditions converged, reinforcing the well-established role of river corridors in structuring settlement development and interaction. At the same time, new data from field surveys in the Eastern Rhodope Mountains, combined with a reexamination of published material, suggest a more complex picture of movement in the early Neolithic. Beyond riverine corridors, a possible mountain route–showing stronger links with one of the identified ceramic groups–is proposed between Upper Thrace (present-day Bulgaria) and Western Thrace (present-day Greece), potentially bypassing or complementing the main river system. This challenges river-centered models of mobility and points to more diverse pathways of movement through mountainous landscapes. Together, these observations highlight the dynamic interplay between riverine and upland routes in shaping early Neolithic communication networks. They call for a reassessment of connectivity in Thrace and point to more complex patterns of movement that integrate both rivers and mountains, raising broader questions about the scale, directionality, and social mechanisms of interaction among interconnected communities in the region.

2624. Pottery and Domestic Space in Neolithic Eastern Attica

Authors: Spyros Stylios (National and Kapodistrian University of Athens)
Format: Oral

This paper will present a contextual study of the pottery assemblage from the Middle Neolithic settlement of Varambas in eastern Attica. This will be examined in relation to the site's architectural sequence and spatial organisation. Excavation data suggest a significant architectural shift, from semi-subterranean pit dwellings to above-ground buildings with stone foundations and more elaborate internal features. However, macroscopic analysis of the complete ceramic assemblage reveals continuity in vessel forms, functional categories and patterns of everyday use throughout these architectural phases. By correlating ceramic evidence with architectural contexts, the paper explores how domestic activities were organised within changing built environments. Attention is given to the spatial distribution of pottery within buildings and activity areas, as well as to potential distinctions between domestic and communal spaces. The results suggest that, although domestic architecture underwent significant reorganization, everyday economic practices associated with pottery use remained stable. This paper challenges the assumption that architectural innovation necessarily reflects economic or functional change. Instead, the evidence points to a reconfiguration of domestic space and the lived environment that did not disrupt established, everyday household practices. This study emphasises the importance of integrating ceramic analysis with architectural context to better understand the intricate relationship between continuity and change in Neolithic daily life.

2135. A microcosm of micromammals in Neolithic settlements of Greece: evidence for early synanthropy or just environmental indications?

Authors: Katerina Papayianni (Greek Ministry of Education)
Format: Oral

Soil flotation for archaeobotanical investigations has promoted the recovery and study of micromammals from archaeological sites. Although rarely indicative of economic and subsistence practices or ritual activities, micromammals indirectly show the relationship between humans and their natural environment. They are traditionally used to indicate vegetation and climatic conditions around sites. The proposed presentation will synthesise micromammal evidence from several Neolithic settlements in Greece to discuss why they are found in and around areas of human use. The presentation will focus beyond taphonomic implications and taxonomic interpretations and will attempt to reevaluate the relationship between the Neolithic communities and their micro-environment: were the Neolithic people aware of such creatures? If yes, how they dealt with them? The paper will attempt to show that the embedded concepts of the Neolithic lifestyle (sedentism, food storage, sociality etc) have led to the 'anthropisation' of the ecosystem around sites and to the synanthropic behaviour of certain micromammal species.

2678. Disrupting the Village People Model: Urban-Like Spatial Practices in the Neolithic

Authors: Hrvoje Kalafatic (Institute of Archaeology Zagreb) – Rajna Šošić Klindžić (University of Zagreb, Faculty of Humanities) – Bartul Šiljeg (Institute of Archaeology Zagreb) – Martina Rončević (Faculty of Humanities and Social Sciences, University of Zagreb)
Format: Oral

Fortified circular settlements of the fifth millennium BC in Eastern Slavonia, Croatia constitute one of the most distinctive spatial expressions of the Neolithic in central and south-eastern Europe. Defined by carefully planned circular layouts, concentric ditches and palisades, and formally organised internal space, these sites challenge traditional models that portray Neolithic communities as small, loosely structured villages. This paper examines whether such settlements allow for a meaningful discussion of early urbanism, long before the emergence of cities in the conventional sense. Rather than seeking direct evolutionary links to later urban centres, the analysis approaches these sites as socially constructed spaces shaped by interaction, connectivity and mobility. The scale of construction, degree of spatial standardisation and evidence for controlled access imply coordinated labour, shared social norms and clearly articulated boundaries between "inside" and "outside". These characteristics suggest forms of collective organisation that extend beyond purely domestic or subsistence-oriented concerns. Instead of positioning these sites within a linear evolutionary trajectory leading towards later urban centres, this contribution approaches fortified circular settlements as deliberate and recurrent spatial solutions. The repeated appearance of settlements organised in and around one, two or multiple concentric enclosures points to the existence of a shared architectural grammar that can be approached as a typological catalogue rather than a series of isolated anomalies. Such patterned variability reflects locally embedded yet widely communicated principles of spatial organisation, combining enclosure, internal zoning and monumentality in different configurations. These practices can be described as urban-like without projecting later urban categories onto Neolithic contexts. By foregrounding repetition, planning and spatial form, the paper argues that fortified circular settlements represent stable and recognizable models of Neolithic community organisation, offering a refined framework for re-evaluating social complexity and settlement dynamics in fifth-millennium BC Eastern Slavonia.

908. Vinča burials from the Klenak site, Serbia

Authors: Dragana Vulovic – Nataša Miladinović-Radmilović (Institute of Archaeology, Belgrade) – Sanja Nestorović

(Laboratory for Bioarchaeology, Faculty of Philosophy, University of Belgrade)
Format: Oral

Archaeological finds from the Neolithic period in the Balkans, particularly on the territory of present-day Serbia, mostly come from settlement contexts, while evidence of burial practices is extremely rare. Despite the large number of known Vinča culture settlements in Serbia, traces of necropolises have been identified at only two sites (Botoš – Živanića Dolja and Gomolava), while other sites provide no evidence of funerary practices. The limited availability of data on Vinča burial practices not only complicates interpretations of their rituals and the treatment of the deceased, but also limits the anthropological analysis and the interpretation of the results themselves. In this presentation, we will present the results of the anthropological analysis of four skeletons belonging to Early Vinča burials (5300–5000 BCE) from a newly discovered necropolis at the site of Adžine Njive – Brajkovo II, near the village of Klenak in Serbia. We will also consider possible explanations for the relatively modest number of human remains dating to this period. This discovery, together with earlier findings of human osteological material, makes a small contribution but raises numerous questions regarding burial practices and the treatment of the deceased within Vinča culture communities.

86. Layers of group identity and cultural dynamics in the Late Neolithic of the Carpathian Basin

Authors: Katalin Sebok (Eötvös Loránd University, Budapest)
Format: Oral

With scientific methods becoming increasingly accessible over the past few decades, archaeology has rapidly evolved to a stage at which historical narratives are arguably less prominent, and the emphasis has shifted towards the reconstruction of 'natural' processes – including social and cognitive ones – and their transformation through time. While umbrella terms commonly associated with the concept of archaeological cultures have remained useful, the explosive growth in the quantity of data and the bewildering heterogeneity of the information now available have challenged established assumptions about the relevance of such terms and allow for their thorough reassessment. The Tisza culture complex, representing the Late Neolithic in the eastern part of the Carpathian Basin, is in its current form something of a poster child for the dated nature of top-down approaches in archaeology. Using the excavation results from three major sites – Pusztataskony-Ledence, Kisköre-Gát, and Polgár-Csőszhalom dűlő – as a point of departure, the presentation offers a brief outline of another interpretation of the related archaeological record. In this approach, the strands emerging from analyses of pottery and lithic assemblages, settlement structure, burial practices, and bioarchaeological research become the focus and interwoven to reach a higher level of understanding of past dynamics — as well as to redefine current labels and to revise their ideological, material, cultural, economic, and geopolitical relevance. Grasping the essence of such an unusually complex cultural phenomenon and its changes involves outlining levels of group identity, mobility and interaction patterns, and cultural coping mechanisms, particularly in areas highly exposed to cultural friction.

1732. LBK Hypothesis

Authors: Frantisek Trampota (Institute of Archaeology of the Czech Academy of Sciences, Prague)
Format: Oral

In mainstream interpretations of the spread of the agricultural way of life, the gradual process of Neolithisation is commonly explained as the outcome of technological innovation, which enabled early farming communities to achieve higher reproductive success and thus facilitated further expansion. However, an increasing body of archaeological evidence challenges the notion of a uniform mechanism underlying the spread of agriculture across Europe. A particularly striking phenomenon is the rapid Neolithisation of Central Europe, which stands in sharp contrast to the earlier, gradual and relatively slow expansion of the Neolithic in the Balkans. This paper aims to explain this discrepancy by situating the spread of the Neolithic within regionally specific environmental and social contexts. The study employs a comparative analysis of Early Neolithic populations in the Balkans and Central Europe, combining general archaeological knowledge with population proxy data derived from settlement numbers in both regions. By comparing demographic trends and settlement dynamics, the analysis highlights fundamental differences in population growth patterns and living conditions between the two areas. The results suggest that the rapid Neolithisation of Central Europe cannot be satisfactorily explained by agricultural innovation alone. Instead, unrestricted access to woodland resources emerges as a key factor, enabling large-scale construction of longhouses, improved living standards, and enhanced demographic growth.

120. New results on early Linear Pottery culture in the Hallstatt region

Authors: Gerald Raab – Michaela Schauer – Karina Grömer – Caroline Posch – Konstantina Saliari (Natural History Museum Vienna)
Format: Oral

Research into early Neolithic settlement processes in the Alpine region increasingly shows that models which link Linear Pottery Culture (LPC) exclusively to agriculturally favourable loess landscapes only represent part of the actual land use. The 2025 excavations at the Riezinger site in Hallstatt (Upper Austria) provide new, decisive evidence in this regard. An early Neolithic layer (SE 34), documented at a depth of around three metres, can be clearly attributed to the early LPC (ca. 5300 BC) on the basis of ceramic and lithic finds and represents the third known occurrence of this culture in Upper Austria till now. The location of the site in a geomorphologically and climatically challenging inner-Alpine basin raises the question of what factors determined the use of such

an area by early Neolithic groups. Instead of agricultural suitability, specific resources and transport geography aspects come into focus. Natural salt deposits played a central role in this. A radiocarbon-dated antler pickaxe from the Hallstatt mine (approx. 5000 BC) indicates early mining of rock salt and suggests that salt was already integrated into economic strategies and exchange networks in the early Neolithic period. The topographically favourable location of the site, with access to water, forest and pasture land, the lake Hallstatt and Traun river as a transport axis, encouraged flexible, multifunctional use of the landscape. Evidence of differentiated activity zones and an extensive lithic and ceramic inventory support this interpretation. Ongoing scientific analyses aim to further clarify the mobility, seasonal use and territorial strategies of early Neolithic groups in the inner Alpine region. The findings from Hallstatt thus contribute significantly to the discussion as to whether the Alps in the early Neolithic period should be understood as a marginal settlement area or as an integral part of dynamic economic and territorial systems.

375. Ethnogenesis as a conceptual framework for cultural transformations in the Neolithic. The Brześć Kujawski culture as a case study

Authors: Kalina Wiecaszek – Lech Czerniak (University of Gdańsk)
Format: Oral

The concepts of ethnogenesis and ethnicity have been avoided in archaeology for so long that they have almost been forgotten. Yet recent aDNA research on Neolithisation has made clear that without reactivating these concepts we are unable to adequately interpret the social consequences of migration and the confrontation of identities between hunter-gatherers and early farming communities. This situation forces a reassessment of long-standing concerns that interpreting material culture through the lenses of archaeological culture and ethnicity risks equating cultural or ethnic differences with biological ones. We argue that such fears overlook the major methodological advances and experience that archaeologists have gained over the past century. Abandoning these concerns allows ethnicity to be used as a powerful analytical tool that expands our ability to understand the lifeways and cultural transformations experienced by Neolithic communities. We understand ethnicity as a collective sense of fictive kinship that generates solidarity and obligations of cooperation, and ethnogenesis as a continuous process of creating, reproducing, and transforming group identities through manipulation of changing symbols, while accounting for habitus and the agency of things. As an example of an ethnogenetic process, we examine the formation of the Brześć Kujawski culture (4350-4000 BCE) in the Polish Lowlands. This case, rather than the emergence of an entirely new ethnic group, involved the renewal of an old Danubian Neolithic identity through its redefinition and consolidation around new symbols and a new historical narrative. Particular attention is given to the introduction of trapezoidal longhouses, interpreted as a key innovation that functioned in specific ethnographic landscape as an ethnic emblem - a symbol integrating the community by enabling mutual recognition and a collective sense of (fictive) kinship. Their widespread adoption triggered broader transformations in material culture as well as processes of settlement agglomeration and demographic growth.

2364. Less than typical: The Early Neolithic in Brandenburg, North-Eastern Germany

Authors: Sophie Schmidt (BerGSAS, Free University of Berlin and ESTER-Project, University of Kiel)
Format: Oral

This talk will focus on two narratives concerning the Neolithic which I found to be questionable in my PhD research on the 5th mill. BC in Brandenburg. The first narrative is concerned with our conceptualisation of Neolithic cultures as blocks in chronological succession and the second are the strict views on Neolithic subsistence strategies. In the research tradition of the Central German Neolithic, the Early to Middle Neolithic are clearly delineated, with a development from Linearbandkeramik (LBK) to Stroke Band Pottery (SBK) to Rössen Culture. These distinct cultural units are known to overlap slightly, but all in all they are – rightly so – given chronological significance. In Poland, the development is not quite as clear cut, as there is a stronger trend of regionalisation. Nonetheless, a similar pattern is described: LBK – SBK – several Polgar-Lengyel-Groups and Brześć-Kujawski Culture. In Brandenburg, at the "border" between the two areas, these distinct development blocks do not seem to exist. Here, we find LBK, SBK and Rössen sites, but SBK does not end when Rössen enters the stage. Also, the influence of Lengyel/Epi-Lengyel is similarly strong as in Poland, leading to mixed signals in the decoration of Rössen and SBK ceramics. Similar observations apply to the subsistence strategy of Neolithic people in this area. The leading subsistence strategy of Neolithic groups should be husbandry and crop farming. For the LBK in Brandenburg we are able to showcase both but also find rather large percentages of game. For the 5th mill. BC there are three sites with bone preservation. Of these, two show larger percentages of game than of husbanded animals. One site is especially rich in fish bones. Though the state of research is still fragmented it is possible to show that here some rather un-typical neolithic ways of life were practiced.

1888. Where the wild things were: investigating the Mesolithic–Neolithic transition through a wildlife lens

Authors: Nathalie Brusgaard (Leiden University)
Format: Oral

One the core facets of research on the Neolithic transition has been the domestication of animals and plants. The identification of domesticates continues to form a vital insight into the transitionary process, especially in regions such as western Europe where there are persisting uncertainties about the emergence of farming. Much (environmental) archaeological research has, in tandem, focused on the new relationships between humans and domesticates. In contrast, the change in an existing relationship – that of humans and wildlife – has not been systematically studied. Even after hunting and gathering ceased to be the primary subsistence

strategy, people continued to interact with wild animals. What is more, these interactions were now shaped by humans' need to protect animals and crops in their care. This paper introduces the new ERC-funded project WILDERFARM, which investigates how the rise of farming impacted human-wildlife relationships in western Europe. It reviews current knowledge on these transformations, focusing particularly on the Swifterbant culture in the Netherlands and zooming in on the interactions between humans and beavers. This paper argues that approaching the Mesolithic–Neolithic transition through a wildlife lens offers fresh perspectives on this pivotal period and it outlines how we can advance the discourse to conceptualise Neolithic way of life in a new way.

2107. On insiders and outsiders: Dolmens at the periphery of the Neolithic world (Southeast Norway) shed light on social encounters

Authors: Almut Schülke (University of Oslo, Museum of Cultural History)
Format: Oral

In recent years research on the neolithisation has shown temporally diverse occurrences of material phenomena and practices, which indicate diverse forms of coming into being of Neolithic lifeways in different areas of Europe. The variety of situations allows to approach Neolithic diversities from new interpretative angles. One of these are social encounters between hunter-gatherer groups and «Neolithic» newcomers, and the ways they might have communicated with each other and with what goals. This talk deals with an archaeological situation at the periphery of the Neolithic world which can shed light on such encounters in a new way: the few dolmens in Southern Norway, dolmens, which were erected around 3300 BC at the periphery of the Megalithic world. These dolmens are some of the rather few ritual expressions related to the phenomenon of the Northern group of the Funnel beaker Culture in the area and thus raise important questions on the significance and meanings of these monuments. For a better understanding of the social settings in which they were erected, these monuments are analysed in their socio-cultural context and within the long-term perspective of the 4th millennium BC. In the 4th millennium, there are continuities from late hunter-gatherer-societies, while at the same time Neolithic phenomena such as TRB-inspired pottery, use of polished flint axes and settling in areas which potentially are introduced. However, the dolmens seem to be erected at a time when other Neolithic influences cease. The paper discusses models of interpretation that can be applied to this setting to shed light on the contact between indigenous people and outsiders. This situation can generally contribute to a better understanding of the encounter between different groups, and especially hunter-gatherers and 'Neolithic' people in the Neolithic world.

2243. Revisiting the "Dual Model": Multiproxy Archaeological Perspectives on Neolithization in the Western Mediterranean

Authors: Oreto García-Puchol – Gianni Gallello (University of Valencia)
Format: Oral

The "Dual Model," developed to explain the process of neolithisation in eastern Iberia, was initially formulated in the 1980s based on archaeological material culture from major sites in the central Valencian region. The model identified significant differences in cultural and economic behaviours, establishing a duality between two distinct situations: sites representing incoming farming and herding communities, and contexts reflecting processes of acculturation among the last hunter-gatherer groups. Since its formulation, this narrative has been challenged by the expansion of the archaeological record through the discovery of new sites and the subsequent redefinition of settlement patterns, as well as, more recently, by the incorporation of a renewed range of archaeological proxies. These multiproxy datasets include ancient DNA from human remains, high-resolution radiocarbon dating programmes, biomolecular analyses addressing palaeoeconomic practices, sedimentary and palaeoenvironmental studies, and refined cultural proxies aimed at exploring cultural variability within a context of population expansion and interaction. This contribution seeks to synthesise this new body of evidence from eastern Iberia by reassessing the current explanatory paradigm and linking high-resolution archaeological records —generated through updated analytical approaches— with the Dual Model as a paradigmatic framework for understanding the neolithisation process in the western Mediterranean.

694. The Mesolithic-Neolithic Transition in Iberia

Authors: Michael Templer (Neuchâtel University)
Format: Oral

Iberia was a refuge area during the last glaciation; during the postglacial the population expanded so that by the Mesolithic many areas were well populated when the first Neolithic Impressed Ware migrants, followed by Cardial Ware migrants arrived by navigating from the the northwestern coast of Italy ca. 5600 BC. The geography of the Iberian Peninsula is complex, and the responses from the autochthonous populations to the Neolithic way of life differed from one area to another, so that their transitions from their mobile hunter-gatherer-collector way of life to that of sedentary or semi sedentary agro-pastoralists could take a few centuries to two millennia, making a nonsense of the simplistic academic binary dichotomy 'Mesolithic-Neolithic' applied to a region when the first evidence of Neolithic attributes appear. I have divided the Iberian Peninsula into 7 geographic regions based on the geography, population densities and the dates for the appearance of Neolithic attributes in each Region. Based on the archaeological record, I will present how the autochthonous populations responded to the arrival of the Neolithic and the duration of Transitions from hunter-gatherers to agro-pastoralists.

1852. Materiality of Neolithic silos: towards a new methodological approach. The case study from the northeastern Iberian peninsula

Authors: Alba Sánchez De La Blanca Ramírez – Francesc Oms Arias – Xavier Rubio Campillo (Universitat de Barcelona)
Format: Oral

This paper explores how the materiality documented within Neolithic silos can be used to distinguish between silos integrated into settlement life and those functioning primarily as storage facilities. Focusing on the northeastern Iberian Peninsula, especially in the known as "silos fields", the study examines silo contexts traditionally interpreted as isolated storage structures and reassesses them as potentially embedded within broader domestic and social landscapes. Drawing on a detailed analysis of material culture, faunal remains, combustion residues, and depositional patterns, this contribution evaluates the presence and significance of domestic indicators within silo fills. Through this approach, silos are examined not merely as functional storage units but as dynamic features whose material assemblages reflect practices of habitation, maintenance, abandonment, and transformation. Chronologically situated within the Neolithic, the case studies presented variability in the use and meaning of pit features and contribute to ongoing debates storage strategies, domestic space, and social practice. Rather than treating silos as purely functional, this contribution considers their materiality as a lens through which to question established narratives of Neolithic settlement and household organization.

56 ENTANGLED ECOLOGIES: NEW INTEGRATIVE APPROACHES TO UNDERSTANDING PAST HUMAN–ENVIRONMENT SYSTEMS

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Dominika Schmidtova (Institute of Archaeology of the Czech Academy of Sciences, Prague | Masaryk University) – Roberto Ragno (University of Cambridge) – Aikaterini Glykou (Stockholm University) – Ricardo Fernandes (Max Planck Institute of Geoanthropology | University of Warshaw | Masaryk University | Princeton University) – Jan Kolář (Institute of Archaeology of the Czech Academy of Sciences, Prague)
Keywords: environmental archaeology, isotopic analysis, radiocarbon dating, statistical modelling, agent-based simulation, human–environment interactions, agent-based simulation, human–environment interactions
Format: Regular session
Affiliation: Computational Modelling of Past Socio-ecological Systems - COMPS, Medieval Europe Research Community - MERC

SESSION ABSTRACT

Understanding past environments demands more than isolated single-strand datasets — it requires the integration of diverse lines of evidence in order to explore the interactions between humans, animals and plants within dynamic socio-ecological systems. This session focuses on novel multi-proxy approaches combining data from environmental archaeology (primarily faunal and botanical macroremains), isotopic analyses, aDNA analysis, radiocarbon dating, paleoecological archives, climate models, evidence from social and economic archaeology, and statistical modelling to examine these ecological entanglements prior to the Medieval landscape transformations that involved changes in arable regimes, animal herding strategies, and woodland management. As these processes may have occurred across a wide range of spatial and temporal scales, we will limit contributions to those concerning the period up to the end of the first millennium AD. We particularly welcome studies that address how social, economic, and environmental processes shaped — and were shaped by — ecological relationships. We encourage contributions that integrate Bayesian modelling, agent-based simulations, time-series analyses, and other quantitative frameworks as well as innovative methodological advances emerging from interdisciplinary collaborations. The latter includes the archaeological Big Data that allow for scalable investigations of environmental reconstructions in time and space and enhance our understanding of human–environment relationships. This session has a deliberately broad geographic and temporal scope, as it seeks to foster dialogue between specialists who employ novel analytical techniques and modelling tools to interpret past ecosystems holistically anywhere in the world.

CONTRIBUTION ABSTRACTS

2526. Entangled Disciplines? The Past, Present, and Future of Collaboration between Archaeology and Palaeoecology

Authors: Jan Kolar (Institute of Archaeology, Czech Academy of Sciences, Prague)
Format: Oral

Interactions between past human societies and vegetation are central to understanding long-term socio-ecological change. These interactions are intensively investigated in two closely related fields—palaeoecology and archaeology—whose shared temporal scope should, in principle, foster strong interdisciplinary collaboration. In practice, however, research on past human–vegetation dynamics often remains divided by disciplinary traditions, theoretical assumptions, and methodological approaches. This review identifies the most common theoretical and methodological limitations that hinder integration between these fields and proposes a new,

explicitly interdisciplinary framework for studying past socio-ecological interactions. The study addresses four key questions: (1) whether dominant narratives of past human–vegetation interactions are genuinely supported by both palaeoecological and archaeological evidence; (2) the extent to which the two disciplines share theoretical and methodological approaches; (3) whether the rise of big data and computational methods in the last decade has facilitated more frequent and productive interdisciplinary collaboration; and (4) what theoretical and methodological characteristics define the most innovative hubs of interdisciplinary research. To answer these questions, I will query bibliographic and citation data for articles published between 2000 and 2024 in major palaeoecological, archaeological, and interdisciplinary journals. In this presentation, I will offer a comprehensive review that not only maps current research practices but also provides a theoretical and methodological framework for future studies of past human–vegetation interactions so that these disciplines can collaborate effectively in close and integrative connection.

2127. Resilience as Response Diversity in Neolithic Wetland Settlements: An Analytical Framework Integrating Climate, Vegetation, and Behavioral Models for Archaeological Research

Authors: Nicholas Triozzi (Institute for Prehistoric Archaeology, Universität Bern | Oeschger Centre for Climate Change Research, Universität Bern) – Peter Ashwin (Department of Mathematics and Statistics, University of Exeter) – Catherine Bradshaw (Global Systems Institute, University of Exeter | Met Office Hadley Centre, Exeter) – Ignacio Del Amo Blanco (Niels Bohr Institute, University of Copenhagen) – Isma Abdelkader Di Carlo (Institute for Marine and Atmospheric Research, Utrecht University) – Hans Peeters (Groningen Institute of Archaeology, University of Groningen) – Anneli Poska (Tallinn University of Technology) – Jan Kolář (Institute of Archaeology, Czech Academy of Sciences, Prague) – Stefanie Jacomet (Universität Basel, IPNA) – Caroline Heitz (Institute for Prehistoric Archaeology, Universität Bern | Oeschger Centre for Climate Change Research, Universität Bern)
Format: Oral

Formal models for risk-sensitive decision making can reveal how particular combinations of subsistence activities minimize variance arising from climatic and environmental conditions. However, an analytical framework for assessing the extent to which the diversity of these activities promotes the capacity for human social-ecological systems (SESs) to absorb disturbances and reorganize and renew themselves is yet to be developed, and hence we are unable to reliably address resilience in ancient SESs. Here, we integrate features of behavioral ecology models into an adaptation of a population dynamics model of multiple interacting and mutualistic species to simulate the impacts of external (i.e., climate) variability on equilibria. We treat three alternative, yet complementary subsistence strategies (i.e., cultivation, pastoralism, and hunting) as interacting species in a heterogeneous environment. Both external and internal (e.g., risk sensitivity or opportunity costs) factors are assumed to place variable constraints on productivity and, consequently, the relative contribution of different food production activities to subsistence. We parameterize this dynamic as interaction effects between the three "species" using payoff matrices to define the relative costs and benefits of one strategy over another. We use downscaled TRACE21K-II output variables to simulate interannual variation in returns from each strategy. Our optimization model produces a time-series of the proportional contribution of each subsistence activity, assuming villages seek to maintain a positive energy budget. We then test the model predictions against macrobotanical and faunal remains recovered from lakeside settlements (i.e., pile dwellings) in the Northern Alpine Foreland spanning to the Neolithic (6.2-4.3 kya cal. BP). This research integrates optimal foraging theory, risk-sensitivity, population ecology, crop, vegetation, and climate models into a mathematical framework to understand resilience and vulnerability in past human societies.

1185. Floodplain subsistence strategy ín the Late Neolithic community of Hódmezővásárhely-Kökénydomb (Hungary)

Authors: András Füzesi (Hungarian National Museum) – Péter Csippán (Hungarian National Museum | Eötvös Loránd University) – Gabriella Darabos (Eötvös Loránd University) – Gabriella Kovács (Hungarian University of Agriculture and Life Sciences) – Enikő Magyari – Máté Merkl (Eötvös Loránd University)
Format: Oral

The Late Neolithic tell site of Hódmezővásárhely-Kökénydomb is located in the flooded area of the Great Hungarian Plain. The archaeological investigation was started in 1929, while new perspectives were opened by geomagnetic prospection in 2019. The field survey organized by Pál Raczky, Eszter Bánffy, and Knut Rassmann made it clear that the site has not just multilayered parts, but it was a well-organized settlement with a circular structure. Double ditches surrounded and separated the settlement into three sections, within which the burnt houses followed the lines of ditches. Since 2022, small-scale excavations have been organized using intensive archaeological methods to uncover one burnt house. Field methods were adapted to the multilayered character: documentation with densely constructed section walls, collection of finds per squaremeter and level. This way allowed wide analytical possibilities for the identification of multiple archeological features and activities. János Banner's earlier excavations discovered a lot of houses with rich furnishings, including unique ritual items. Anthropomorphic figures and altars upset the balance between subsistence and ritual activities in the narratives, but the new data show a different picture, with the flooded area at its center. The analysis of archaeological materials, especially animal and fish bones, is completed by examining pollen, wood-charcoal, and plant remains, as well as soil micromorphology. Stratigraphic and spatio-temporal correlations reveal distribution patterns that reflect the complex relationships between the economical, ecological, and socio-cultural spheres. The new project's excavation area is limited (98 m^2 total), but the frame of the narratives has been broadened by the analytical methods used and the theories of P-Arch and landscape. Special activities related to flooded areas include using trees from riparian forests, fishing, grazing, hunting various birds, and using different soils. Their intensity changed over the 82-177 year lifespan of the house, and this process may also have wider aspects.

2390. From Water Source to Sedimentary Archive: An Early Medieval Well as a Record of Human–Environment Interaction at Pohansko, Czechia

Authors: Michaela Prištáková (Masaryk University, Department of Archaeogy and Museology) – Hedvika Synková (Masaryk University, Department of Archaeogy and Museology | LAPE, University of South Bohemia) – Katarína Adameková (Institute of Archaeology of the Czech Academy of Sciences, Brno) – Michal Smíšek (Masaryk University, Department of Archaeogy and Museology) – Nela Doláková – Slavomír Nehyba (Masaryk University, Department of Geological Science) – Lukáš Kučera – Jakub Slačálek (Palacký University, Department of Analytical Chemistry) – Michal Kurka (University of Pardubice, Center of Materials and Nanotechnologies) – Petr Kočár (Institute of Archaeology of the Czech Academy of Sciences, Prague)
Format: Oral

Early medieval wells were important elements of settlement landscapes. They were built to secure water, but their role changed over time. Through use, maintenance, abandonment, and infilling, wells recorded human activities and decisions that shaped the local environment. As a result, they can be studied as sedimentary archives of past human–environment interactions. This study explores the archival potential of an early medieval well from the Pohansko site, located in the floodplain of the Thaya River in southeastern Czech Republic, with a focus on the life cycle of the structure. The study is based on a geoarchaeological analysis of the stratified sediment infill of the well. Multiple analytical methods were applied, including sedimentology, soil micromorphology, lipid biomarker analysis, physical and geochemical measurements, sedimentary ancient DNA (sedaDNA), and palaeoenvironmental proxies such as palynology, archaeobotany, and archaeozoology. Radiocarbon dating was used to establish the chronology of well use and infilling. A multi-proxy approach was applied to reconstruct the formation history, usage phases, and surrounding environmental conditions. Radiocarbon evidence and pottery finds places the use and infilling of the well in the 7th–8th centuries AD, making it one of the earliest such features linked to early Slavic settlement in the region. The well infill provides valuable insight into the composition of the surrounding landscape, with evidence of flooding, plant use, animal husbandry, and waste management within the settlement.

314. Molecular Biography of an Urban Centre: SedaDNA Reveals Two Millennia of Ecological Community Dynamics in London

Authors: Sam Hudson (University of Reading | London Natural History Museum) – Aleks Pluskowski (University of Reading) – Selina Brace (London Natural History Museum)
Format: Oral

The palaeoecology and palaeoenvironment of the city of London from its founding to the present day, is far less comprehensively understood than the more ubiquitous prehistoric sequences from the Middle and Lower Thames Valley. In particular, the changes wrought by urbanisation on the surrounding environs are understudied. In part, this is due to the scarcity and shallow breadth of palaeoenvironmental evidence from urban deposits within the city, but also due to a wider local depositionary change to alluvial sequences lacking in organic remains in the later Holocene. Here, we show that ancient sedimentary DNA analysis (sedaDNA) can be a useful tool for palaeoecological reconstruction in these more minerogenic sediments, which in many cases preserve DNA effectively. Data is presented from environmental samples from the Tower of London moat, Hampton Court Gardens, Lincoln's Inn Gardens, Holborn, and New Covent Garden, providing environmental evidence of land-use, livestock patterns, exotic planting, and crop exploitation in the Roman, Medieval, and post-Medieval city. Together with combined applications of more traditional methods such as pollen analysis and sedimentological analysis (pXRF, LOI), we aim to demonstrate that targeted sedaDNA sampling can bring a wealth of palaeoenvironmental evidence to deposits otherwise less valuable, even those outside of lakes and permafrost in more dynamic depositionary environments.

1706. Utilising advanced remote sensing techniques to reconstruct archaeological palaeohydrological landscapes in the Dead Heart of Australia

Authors: Oliver Hatswell – Ian Moffat – Amy Roberts – Jarrad Kowlessar (Flinders University) – Yandruwandha Yawarrawarrka Traditional Land Owners (Aboriginal Corporation) (Yandruwandha Yawarrawarrka Traditional Land Owners Aboriginal Corporation)
Format: Oral

The Coongie Lakes are a freshwater wetland system within Australia's Strzelecki Desert. Although Aboriginal peoples permanently inhabited the region at the time of European invasion and settlement, archaeological surveys have not revealed any cultural material older than ~3,000 years BP. This absence is notable given palaeoclimate evidence for extended water availability during the Pleistocene and longer Indigenous occupation histories in adjacent areas. Did Aboriginal peoples first populate this region in the Late Holocene, or is the absence of older archaeological evidence due to the region's inaccessibility and complex geomorphology? This research aims to explore this question by examining how flood-driven landscape dynamics shape the availability and stability of habitable areas. Much of the region receives less than 200 mm of annual rainfall and is intermittently replenished by large volumes of slow-moving monsoonal floodwaters from the desert margins. While Lake Coongie and parts of the main channel often contain water, most other lakes in the system are ephemeral and only inundate during major flood events. This research utilised supervised classification of daily MODIS satellite imagery alongside stream gauge data to explore water retention, lake

connectivity, and fill-and-drain sequences within the Coongie Lakes system. These datasets were compiled for multiple major flood events over three decades to identify patterns in water availability, assess how aeolian dunes influence water movement, and examine changes in lake behaviour. Such data is useful for understanding past contexts because they define the spatial distribution and persistence of surface water, informing habitability. These findings assist in understanding the extent to which the region was suitable for Aboriginal peopling, and the duration after a flood during which conditions were most favourable. By identifying areas with prolonged water availability, and therefore greater habitability, this research contributes to predicting where archaeological sites are most likely located within the Coongie Lakes system.

979. Agricultural strategies in the Neolithic of Central and Western Europe

Authors: Jelena Bulatovic (University of Gothenburg) – Simon Carrignon (University College London) – Natalia Riabogina (University of Gothenburg) – Jessie Woodbridge (University of Plymouth) – Adrian Timpson (University College London) – Ralph Fyfe (University of Plymouth) – Stephen Shennan (University College London)
Format: Oral

The practice of farming arrived in Scandinavia around 4000 BCE, approximately 1000 years after its introduction in regions located less than 300 kilometers away. Despite the advances in ancient DNA (aDNA) research that have illuminated population movements from that era, the reasons behind the observed resistance to agricultural adoption remain unclear. In this study, we integrate botanical and faunal data from the Big Interdisciplinary Archaeological Database (BIAD); product of the ERC synergy project COREX (Grant Agreement No. 95138)) with fossil pollen data to infer land cover and identify spatio-temporal patterns of change in select regions. To detect these patterns, we compiled zooarchaeological and archaeobotanical remains from France, Germany, the Low Countries, Poland and southern Scandinavia for the period 5500-3000 BCE. The BIAD dataset encompasses 2755 archaeological phases obtained from 2105 sites, comprising over 6.3 million animal remains (NISP) and approximately 5 million counts of botanical material. These data were utilized to test and compare three hypotheses that might explain the delay in the arrival of farming: 1. Local hunter-gatherers exhibited notable resistance, which was predominantly driven by their adept exploitation of aquatic resources; 2. Improved climatic conditions c. 4kBCE permitted migration into the northern frontier for successful cereal cultivation; 3. Agricultural strategies required time to evolve before they became suitable for the northerly climate and ecology, and therefore differed significantly from those that had been introduced to Central Europe 1000 years earlier.

2321. Entangled Ecologies in Transition: Modelling Land-Animal-Human Systems from the Iron Age to the Early Medieval Period in Europe

Authors: Ricardo Fernandes (MPI of Geoanthropology | University of Warsaw | Princeton University) – Dominika Schmidtova (Masaryk University) – Carlo Cocozza (MPI of Geoanthropology | Ludwig-Maximilians-Universität München) – Maaike Groot (Freie Universität Berlin) – Anthony King (University of Winchester)
Format: Oral

This paper proposes an integrated framework designed to examine the long-term transformation of European socio-ecological systems, with a focus on the critical transitions initiated by Roman imperial expansion and subsequent post-Roman fragmentation. We argue that deciphering the entangled ecologies of land management, animal husbandry, and urban-rural dynamics necessitates the synthesis of large-scale, multi-proxy datasets analysed through robust quantitative modelling. Directly responding to this session's call for scalable investigations, our study will integrate two major 'archaeological Big Data' resources: the RomAniDat archaeofaunal database and the combined IsoMemo isotopic archives of Isotòpia (c. 800 BCE – 500 CE) and the Compendium Isotoporum Medii Aevi (CIMA; 500–1500 CE). This integrated dataset will provide an unprecedented spatial and chronological scope, from the Late Iron Age through the early medieval period. Our methodology will employ Bayesian modelling and spatial-statistical analyses to investigate wide regional patterns. The core research questions are: (1) How did agro-pastoral practices, animal husbandry strategies, and dietary regimes change in response to the economic integration and urban demand of the Roman period? (2) What were the diverse ecological trajectories following the empire's political fragmentation, and how can we model variability in resilience and reorganisation? The project is specifically designed to test hypotheses regarding the intensity of ecological connectivity during the imperial period and the degree of regional diversification in land-use strategies in its aftermath. This study will demonstrate the potential of combining curated faunal and isotopic meta-datasets within explicit statistical frameworks to move beyond isolated case studies. It presents a scalable model for investigating how macro-historical social and economic processes are mediated by, and in turn reshape, foundational ecological relationships across millennia. The paper will conclude by discussing the anticipated challenges and opportunities of such large-scale data integration for holistic environmental reconstructions.

2515. Animal Husbandry Practices in Prehistoric Bohemia: Insights from Stable Isotopes and Zooarchaeological Data Modelling

Authors: Dominika Schmidtova (Institute of Archaeology of the Czech Academy of Sciences, Prague | Masaryk University) – Jan Kolář (Institute of Archaeology of the Czech Academy of Sciences, Prague)
Format: Poster

This paper presents the current state of research on human–animal interactions in prehistoric Bohemia, with a particular focus on animal husbandry practices reconstructed through stable isotope analysis and zooarchaeological data modelling. The study combines newly generated isotopic data (carbon, nitrogen, oxygen) from animal skeletal remains with a compilation of published datasets in order to explore diachronic changes in grazing strategies and land use. In the territory of the present-day Czech Republic, as well as in Central Europe more broadly, seasonal transhumance and direct forest grazing have been widely hypothesized as key components of animal management throughout prehistory. However, the extent to which these practices varied regionally and diachronically remains insufficiently understood. This study aims to assess whether regional and temporal differences in animal husbandry practices can be identified between the start of the Neolithic and the end of the Early Bronze Age (roughly 5400-1500 BCE) in modern-day Czech Republic. Preliminary results from stable isotope analyses are integrated with faunal data to investigate herding patterns, including the relative importance of open versus forested grazing environments. The results provide new insights into changing strategies of landscape management and the exploitation of a range of environments in prehistoric Bohemia and Moravia.

57 HOLOCENE ROCK ART IN THE IBERIAN PENINSULA: GRAPHIC EXPRESSIONS, MOBILITY AND COMMUNICATION NETWORKS

Theme: 7. Interaction, connectivity and mobility
Organisers: Maria Sanches (Faculty of Arts and Humanities-Oporto University | CITCEM-institucional DOI: https://doi.org/10.54499/UIDB/04059/2020) – Primitiva Bueno-Ramirez (Alcalá de Henares University) – Joana Teixeira (Faculty of Arts and Humanities-Oporto University | CITCEM-institucional DOI: https://doi.org/10.54499/UIDB/04059/2020)
Keywords: Holocene rock art, Mediterranean&Atlantic connections, Iberian Peninsula, Mediterranean & Atlantic France, Interregional contact networks, Collective identity
Format: Regular session

SESSION ABSTRACT

This session aims to address Holocene rock art in the Iberian Peninsula and adjacent geographical regions, as a marker of multiple connections: between the Mediterranean and the Atlantic, between North and South, visible through the circulation of ideas embodied in the mobility of people and the exchange of artifacts. Based on the stylistic characteristics and contexts analyzed, we intend to explore how the formal attributes of rock art/mobile art observable in each sub-region may be linked to specific social processes: mobility of ritual specialists; pilgrimages to shrines or places of community gathering; exchanges of artifacts; sharing of mythological narratives; or processes of emulation between communities. The goal is to go beyond purely typological readings to approach art as an active agent in the construction of collective identities, territorial negotiation, and cosmogonic transmission. Proposed articles may be related to, but are not limited to, the following themes: How do iconographic transformations reflect the ontological reconfigurations associated with neolithization in each region? To what extent does the representation of weapons and clothing linked to combat and personal adornments in the Bronze Age indicate a desire to adapt the landscape to new ideologies of settlement? What is the role of rock art in legitimizing emerging territorialities during the Late Neolithic and Chalcolithic periods, or the Bronze Age and Iron Age? We welcome the submission of recent overviews and case studies that can be broadly classified as part of the Holocene artistic cycles of the Iberian Peninsula and related geographical regions—Azilian art, painted and engraved schematic art, megalithic art, and engraved art (petroglyphs). Priority will be given to variables that allow us to infer regional and interregional contact networks, along with the creation of gathering places and various ideological communication strategies aimed at the cohesion of each group and communication with external groups.

CONTRIBUTION ABSTRACTS

716. Echoes from the sky? Engraved wheel-crosses in north-western Iberia (Portugal/Spain)

Authors: Diogo Marinho (Fundação para a Ciência e Tecnologia, FCT PhD scholarship at University of Minho | Lab2PT/IN2PAST) – Ana Bettencourt (Lab2PT/IN2PAST and History Department, University of Minho) – César González-Garcia (Institute of Heritage Sciences, Spanish National Research Council, INCIPIT, CSIC)
Format: Oral

The landscape is a dynamic entity shaped by the continuous interaction between humans and their surrounding environment, serving simultaneously as both a stage and an active agent in the construction of community identities. Within this context, certain natural features acquire symbolic and ritual significance that endures in collective memory, such as engraved rock outcrops. Among the various motifs found in rock art, the segmented circle stands out as a symbol of particular interest due to its possible association with ancient cosmologies and practices of a ritual or astronomical nature. This study builds on findings from research conducted in north-western Portugal, where around thirty sites with engraved rock outcrops featuring segmented circles have been identified. The present investigation seeks to extend this geographical and analytical framework to southern Galicia, Spain, where more than eighty new sites have recently been recorded. The main aim is to determine whether, on a broader territorial scale, the pattern of distribution, visibility, and orientation of these outcrops supports or contradicts the hypothesis already proposed, that such places may have served sacred or astronomical functions. To achieve this, the study employs methodologies from landscape archaeology and archaeoastronomy, integrating spatial, topographic, and astronomical data. It also examines the relationship between the outcrops and major circulation routes, as well as their proximity to settlements attributed to the Bronze Age and early Iron Age,

under the assumption that these motifs belong to those chronological periods. This research contributes to a deeper understanding of the significance of sites featuring segmented circles and, consequently, to the interpretation of the cosmologies of protohistoric populations in northwestern Iberia.

2063. Mapping Late Prehistoric Landscapes: Rock Art, Mythological Networks, and Settlement in the Carrazeda de Ansiães Plateau, Northern Portugal

Authors: João Santos (Faculty of Arts and Humanities - University of Porto | CITCEM - institucional DOI: https://doi.org/10.54499/UIDB/04059/2020 | MorphWorld | FCT)
Format: Oral

This presentation provides an in-depth understanding of the Late Prehistoric rock art sites (4th to 1st millennium BC) in the Carrazeda de Ansiães Plateau, Northern Portugal. Despite the territory's archaeological richness, no systematic field research projects focusing on the prehistoric settllement have been implemented in this area. Following Landscape Archaeology methodologies, we conducted fieldwork to relocate known sites and survey their surroundings, establishing comprehensive inventories through direct tracing and photographic documentation. This approach enabled us to establish correlations between rock art sites and other archaeological evidence in the search for Late Prehistoric settlements. The study of the rock art across all sites, including their superimpositions and graphic characteristics, allowed us to outline formal attributes, associations and identify the main cosmological "universes" of the plateau communities during Late Prehistory. The evidence demonstrates the sharing of mythological narratives within this territory. Although the grammar is predominantly schematic, it shows connections with surrounding territories in Portugal and Spain, indicating that close relations between communities extended over the long term, from at least the 3rd to the 1st millennium BC. Rock art studies reveal a territory frequented or occupied during periods when settlements have not yet been found (Middle and Late Bronze Age), emphasizing the need for systematic prospection to locate additional settlement evidence. Notably, Christian markings (crosses/crucifixes) are found at most of the engraved rock art sites, inviting interpretations related to the Christianization of these places, understood as pagan. This research aligns with Session #57"s objectives by examining how rock art served as an active agent in sharing mythological narratives, constructing collective identities, and establishing interregional contact networks. Within a Landscape Archaeology framework, these findings direct the investigation toward locating 2nd and 1st millennium BC settlements, whose material traces await discovery.

437. "Chaotic" palimpsests and structured compositions of rock art representations of weapons from the late Prehistory

Authors: Maria Sanches (Faculty of Arts and Humanities-Oporto University | CITCEM-institucional DOI: https://doi.org/10.54499/UIDB/04059/2020) – Mila Abreu (CCSP)
Format: Oral

This paper comparatively examines two engraved rock art sites in northeastern Portugal (Trás-os-Montes)—Fraga dos Fusos (Bragança) and Pedra Escrita de Ridevides (Alfândega da Fé)—both representing unique intersections between local engraving traditions and transregional iconographic systems operative throughout Late Prehistory. These case studies highlight how rock art functioned as an active agent in constructing collective identities and articulating interregional contact networks across north-western Iberia from at least the mid-to-late 3rd millennium through the mid-1st millennium BC, with hypotheses for even earlier Azilian representations. Both sites employ abrasion on schistose rock, producing characteristically linear and/or angular figures. Ridevides reveals a complex palimpsest where, although discrete stratigraphic layers cannot be identified, continuous re-engraving and transformation processes are evident. Earlier linear and schematic motifs were progressively resignified as hafted weapons (halberds, arrowheads, and a hafted spear morphologically similar to Fusos examples), particularly during the Ancient/Middle and Late Bronze Age. The final phase exhibits clear iconoclasm: pecked circular figures and anthropomorphs deliberately superimposed over earlier engravings. Fusos presents a contrasting strategy: an apparently unitary, structured composition associating sequences of linear (fusiform) figures with geometric forms—lozenge-shaped and pentagonal motifs simulating predominantly hafted spears, with others possibly representing standards or mirrors. These contrasting engraving strategies highlight how rock art mediated different social processes: Ridevides' palimpsest suggests multigenerational involvement with ancestral images, while Fusos evokes either (i) a processional scene—weapons oriented southwards towards the base of the Nogueira mountain, or (ii) a ritual deposit imitating metal weapon burial practices. Both case studies reveal the polysemic use of rock art loci, reiterating that supraregional artifact circulation networks simultaneously articulate with Atlantic and Mediterranean exchange systems. By materializing community participation in supraregional warrior iconography through locally-specific practices developed at aggregation sites, these sites evidence emerging ideologies that place confrontation as the axis of ideological and social valorization.

497. Schematic Rock Art and Mobility Networks in the Támega Valley during Late Prehistory

Authors: Lucía Rodríguez Álvarez (Universidad de Alcalá) – Beatriz Comendador Rey – Diego Herrero Alonso (Universidad de Vigo)
Format: Oral

Holocene schematic rock art in the interior of north-western Iberia has often been marginal to discussions of interaction and connectivity, which have traditionally prioritised coastal regions. This paper examines painted schematic rock art from the Támega

Valley (Monterrei, Galicia, and Trás-os-Montes, Portugal) as part of a transboundary cultural landscape structured by mobility and communication networks during the Late Prehistory (IV–III millennia cal BC). The analysis is grounded in recent doctoral research and adopts an integrated approach combining spatial distribution, stylistic attributes and archaeological context. Schematic rock art is considered alongside other material indicators of mobility, including lithic raw material circulation and decorated pottery, in order to evaluate its role within regional and interregional interaction processes. Rather than treating rock art as a passive reflection of social change, it is approached as an active component in the construction of meaningful landscapes and in the transmission of shared symbolic frameworks. The Támega Valley is interpreted as a strategic interior corridor articulating Atlantic and Mediterranean spheres. Within this context, rock art panels appear closely associated with routes of movement, areas of recurrent occupation and places of aggregation, suggesting their function as persistent graphic markers within communicative landscapes. These graphic expressions contributed to the negotiation of collective identities, the legitimisation of emerging territorialities and the circulation of ideas across communities located on both sides of the present-day border. By foregrounding an inland and traditionally under-represented region, this paper highlights the central role of schematic rock art in long-term networks of mobility and interaction across the Iberian Peninsula.

865. Engraved and carved dolmen pieces from Porto's Museum of History and Natural Science after more than a century of silence

Authors: Clara Tavares (Oporto University)
Format: Oral

This paper aims to trace the history of Prehistoric and Protohistoric art studies through a case study of the engraved and/or carved pieces from the Museum of Natural History and Science of the University of Porto, recovered from the "excavations of the Antas do Alvão" at the end of the 19th century. As this was a period of consolidation for such studies in Archaeology, our narrative will address: i) the methodology of the "amateur archaeologists" who excavated those dolmens; ii) the discussion surrounding the context of their recovery and its hasty public debate; iii) the originality of the pieces - engraved, proto-sculptural and sculptural - and the attempts to situate them within the cultural chronological framework of the time; and iv) their publication in the late 19th and early 20th centuries. Particular attention will be given to the creation of moulds and their dispatch to Emil Hübner. We also intend to disseminate knowledge of these pieces and of the reserach methods - namely petrological and technical execution analysis - currently underway to establish their authenticity. Drawing upon analysis of Prehistoric and Iron Age art in the Iberian Peninsula and the circumMediterranean region, we shall seek to weave the Alvão pieces into a narrative that traces the possible strands of local and inter-regional relationships at the heart of their production and subsequent concealment.

1653. In the Origins. Levantine Art and its Long-Lasting Connections

Authors: Juan Ruiz-López (Universidad de Castilla - La Mancha. LAPTE.)
Format: Oral

One of the most striking graphic expressions in Europe is the Levantine rock art located across eastern Spain. This phenomenon has frequently been considered an isolated one, without further explanation of its singularity. The cultural significance of this graphic expression is evident in the hundreds of rock art sites preserved, and in the long duration of their use, as manifest in the coexistence with other forms of rock art. In the last decades, evidence from the pioneering work of P. Bueno and other researchers indicates that Levantine rock art is connected to other artistic traditions in Western Europe when viewed from a broader perspective. The present paper will focus on the long-distance connections of Levantine art with other regions in Europe around, or immediately after, the Pleistocene-Holocene transition, and with supposedly different rock art styles in the Iberian Peninsula by means of some rock art sites such as Cueva de la Vieja, Fuente del Sapo, Cañada de Marco or Los Chaparros. Furthermore, the agency between these rock art styles will be explored and their relative chronology. All these connections will be used to support a hypothesis about the origin of Levantine art.

1863. Stylistic Variability and Diachronic Territorial Dynamics in Levantine Rock Art: A GIS-Based Spatial Analysis

Authors: Alfredo Sanchez-Hernandez (Universitat Jaume I) – Inés Domingo Sanz (ICREA | Universitat de Barcelona) – Dídac Roman Monroig (Universitat Jaume I)
Format: Oral

This paper presents a step further in the spatial analysis of Levantine rock art by introducing internal stylistic variability as a key analytical dimension. The study focuses on a specific territory in the eastern Iberian Peninsula, the province of Castellón. Using Geographic Information Systems (GIS) and cost-based spatial modelling, and moving beyond interpretations of this rock art corpus as a unitary artistic tradition, the research examines whether different stylistic expressions present differentiated spatial patterns in relation to landscape-scale patterns of movement and spatial organization. Spatial patterns linking rock art sites and stylistic variability are examined in relation to broader structures of mobility, understood as expressions of how space was used and re-used over time, offering insights into processes of continuity and transformation among the groups responsible for this art. Through this case study, the paper aims to contribute to ongoing theoretical and methodological discussions on the definition of Levantine rock art and its internal variability, emphasizing spatial practice and diversity rather than uniformity as a framework for future research.

1646. Connected arts? An initial approach based on the technological study of Levantine and Schematic art

Authors: Camila Muñoz-Soto – Juan Ruiz-López (Universidad de Castilla-La Mancha, LAPTE) – Vicente Jorquera-Jorquera (Universidad de Castilla-La Mancha)
Format: Oral

Traditionally, Levantine and Schematic art from the Iberian Peninsula have been viewed as distinct entities, primarily based on the morphology of the motifs (naturalistic versus schematic). The excessive focus on the chronology of Levantine art has delayed the exploration of other aspects of these artistic expressions, without considering the potential link between them. This communication therefore seeks to understand these two 'types' of art by analysing the technological processes involved in creating the paintings, such as how the raw materials were worked and what tools were used, as well as the places the depictions occupy within each panel and site. To this end, we will study representations at two sites in the Sierra de las Cuerdas in Cuenca, Spain, where motifs associated with both styles have been recorded as coexisting in the same place. The aim is to initially discuss the possible connection between these two traditions beyond the motif, through the way in which rock art is made, which could bring us closer to possible scenarios of communication or transmission of information.

2400. Material Traces of Style: Technical Traditions and Pigment Technologies in Spanish Levantine Rock Art

Authors: Esther López-Montalvo (French National Centre for Scientific Research-UMR 5608 TRACES)
Format: Oral

In Spanish Levantine rock art studies, stylistic variability has traditionally been approached through formal, thematic or compositional criteria, while technological aspects have often been treated as secondary or independent variables. This paper argues that technology constitutes a necessary dimension of style and that integrating technical practices into stylistic analysis is essential for understanding how variants operate within specific stylistic horizons. The research focuses on Paquipod human figures, a horizon characterised by wide territorial extension and pronounced internal variability. By confronting formal, thematic and compositional differences with the operational sequences of pigments, the study explores whether stylistic changes correspond to variations in technical gestures, raw material selection and pigment preparation, and examines the social and cultural significance of these relationships. The methodology combines stylistic analysis with a multi-analytical characterisation of pigments. Optical microscopy is employed to document microstratigraphy and textural features, while elemental composition is investigated through SEM–EDS and PIXE analyses. Statistical treatments of the elemental data allow the identification of patterns of variability and clustering, which are then compared with formal attributes and spatial distribution. This integrated approach makes it possible to assess how far the variants identified within the Paquipod horizon reflect shared technical traditions or distinct chaînes opératoires. At a territorial scale, the paper discusses how formal and technological criteria together contribute to delimiting the boundaries of this horizon and to identifying areas of continuity, interaction or rupture. By treating technology as an intrinsic component of style, this study offers a refined framework for interpreting stylistic variability, technical transmission and social practices in Spanish Levantine rock art.

1427. Contributions to an open-access inventory of Iberian figurines

Authors: Marta Francés-Negro (European University of Madrid | University of Alcalá) – Primitiva Bueno Ramírez – Esther Navajo-Samaniego – Alia Vázquez Martínez (University of Alcalá) – Jorge Soler Diaz (Archaeological Museum and Fine Art Museum of Alicante) – Ruth Maicas (Spain National Archeological Museum) – Antonio Carvalho (Portuguese National Archaeological Museum)
Format: Oral

Portable images commonly referred to as Ídolos in Iberian historiography are part of a broader European phenomenon usually classified as prehistoric figurines. These objects date from the sixth millennium cal BC, with their main period of production and circulation concentrated between the fourth and third millennia cal BC. They display considerable variability in form, size, and raw material, and most frequently represent stylised female bodies. Their marked regional clustering has traditionally supported interpretations that emphasize their role as expressions of social identity. Archaeological research has also identified workshops, alongside clear patterns of circulation and widespread evidence of reuse and recycling. The spatial distribution of these objects reveals complex networks of connectivity, as well as the circulation of shared graphic codes across the Subalpine, Mediterranean, and Atlantic regions. These dynamics highlight the broader significance of symbolic practices in Late Iberian prehistory and underline the role of portable imagery in the transmission of visual and social conventions. This paper presents an open-access database designed as a research, heritage management, and knowledge-dissemination tool aimed at systematizing the known corpus of Iberian Ídolos. The database addresses long-standing challenges related to institutional dissemination, terminological inconsistency, and uneven access to primary documentation. Data have been compiled through the systematic review of institutional databases, museum collections, and specialized literature, following standardized criteria for provenance, morphological description, raw material, archaeological context, and chronology. At present, the database includes more than 2500 documented objects, with further data integration ongoing, particularly concerning decorated plaques and figurines published in site reports or individual studies. By providing structured and accessible data, this project enables new analytical approaches to identities, gender, object biographies, and territorial and social practices, especially in funerary and domestic contexts. Framed within the principles of digital archaeology and open science, the database promotes transparent, collaborative, and socially engaged research.

924. Identity and craftsmanship in the Late Prehistory of Southeastern Iberia: the assemblage of decorated long bones from Almizaraque (Almería, Spain)

Authors: Francisco Martínez-Sevilla – Laura Romero-Pérez – Pedro Henróiquez-Valido (Área de Prehistoria. Universidad de Alcalá) – Rafael Mª Martínez-Sánchez (Universidad de Córdoba. Departamento de Historia) – Marta Francés-Negro (Área de Prehistoria. Universidad de Alcalá) – Ruth Maica-Ramos (Departamento de Prehistoria, Museo Arqueológico Nacional) – Rodrigo De Balbín-Behrmann (Área de Prehistoria. Universidad de Alcalá) – Mercedes Iriarte-Cela (Dpto. Ciencias y Técnicas Fisicoquímicas. UNED) – Primitiva Bueno-Ramirez (Área de Prehistoria. Universidad de Alcalá)
Format: Oral

Images constitute a fundamental component of the cultural and social expressions of human groups. In Iberia, portable representations of the human body from Late Prehistory show an exceptional diversity of forms and raw materials within the European context. Despite this variability, they share a recurrent iconography centred on facial depictions with so-called "sun-eyes," often accompanied by elongated noses and symmetrical transverse lines traditionally interpreted as tattoos. Some figures also include engravings interpreted as garments covering part or all of the body. While most figurines appear to represent individual figures, decorated long bones display sequences of repeated ocular motifs that suggest the depiction of multiple characters on a single object. These artefacts have therefore been interpreted as expressions of social pacts or, like other Iberian figurines, as representations of families and lineages functioning as markers of group identity. In the case of long bones, this symbolic role is reinforced by a stylised morphology combined with a carefully flattened base designed to ensure vertical stability, resulting in objects of greater height than most other Iberian figurine types. Moreover, they provide valuable information on the use of domestic and wild fauna in settlement and funerary contexts. Since the pioneering work of Siret in the late nineteenth century, the hypothesis that these objects were produced using pyro-engraving techniques and metal tools has been widely accepted in the literature. However, the Almizaraque assemblage remains the only example potentially associated with a workshop context. This study presents a technological and use-wear analysis of decorated long bones, together with the identification of the faunal species used as raw materials. Experimental replication was also conducted to reassess manufacturing processes, tool types, and the possible functions of these objects beyond traditional interpretations.

1805. The Painted Oculate Motifs of Serra de Passos/Santa Comba - Garraia (Northeast of Portugal)

Authors: Joana Teixeira (CITCEM / Faculty of Arts and Humanities-Oporto University)
Format: Oral

In Passos/Santa Comba - Garraia mountain (municipalities of Mirandela, Valpaços and Murça), one of the most important assemblages of painted schematic rock art in the Iberian Peninsula is found, within a chronological framework that may extend from the EarlyNeolithic through the Chalcolithic (c. 5000 - 2500 BC). Within this assemblage we highlight the oculate motifs. Passos/Santa Comba-Garraia contains the largest concentration of painted oculate motifs currently known in Iberia. Beyond their exceptional number what also makes it of special importance in this site is the unique typological diversity of their designs and techniques. Oculate imagery in Iberia is not limimited to rock art as it is also found in figurines, stelae and plaque idols, especially in the southern regions and in the Spanish Levant. In this presentation we aim to: 1) characterize the oculate paintings of Passos/Santa Comba - Garraia in terms of their locational context and typological diversity; 2) compare their formal attributes with the oculate imagery from other Iberian regions; 3) discuss these motifs as ontologically active elements in the construction of collective identities, territorial negotiation, and cosmogonic transmission among different regions and social groups; 4) hypothesize its intrinsic role in the identity of prehistoric communities at a regional scale.

2005. Visible routes of knowledge transfer II

Authors: Gail Higginbottom (Flinders University)
Format: Oral

'Visible Routes of Knowledge Transfer I' (EAA 2024) emphasised how dolmens and the elements that make them entail the answers to the central ontological question - "What is there?". Similar to that presentation, this paper continues to identify visible routes of knowledge transfer for past, present and future generations, and demonstrates the possibilities of how these 'knowledges' were transferred around Iberia. Using new detailed considerations and examples, this paper will demonstrate more fully how dolmens' relational place, or association with the world of death, is not constrained to the cult of the ancestors, but expands to encompass the passings and pasts of all things. It will underscore more fully what kinds of knowledge societies chose to pass on through time and across space, taking care to ensure the knowledge was transferred. Through the primary examination of Neolithic megalithic art in Galicia and Portugal, and rock art on both sides of Iberia, this work will show that dolmens and the elements that make them contain the foundational knowledges of societal survival, where Nature/Super-Nature is still given paramount status in the Cosmological Order of things, which is shared.

58 LOCALISM AND IMPERIALISM IN THE FOODWAYS OF EMPIRES

Theme: 7. Interaction, connectivity and mobility
Organisers: Jessica Feito – Alexandra Livarda (Catalan Institute of Classical Archaeology) – João Pedro Tereso (CIBIO-BIOPOLIS, University of Porto)
Keywords: foodways, imperial interactions, localism, archaeobotany, zooarchaeology, material culture
Format: Regular session

SESSION ABSTRACT

Foodways in past empires are often studied using large datasets and in broad strokes, tending to focus on empire-wide trends as manifested throughout imperial territories. These patterns, at times characterised as markers of a given empire, have shed important new light on aspects of imperial economy and societies. Research on economic connectivity, for example, as well as social identities and culture contact, have been greatly enriched by studies of past consumption patterns. Beyond big data studies focusing on imperial trends, foodways are also commonly examined in site-based analyses exploring local phenomena. However, the role of localism in the foodways of large entities such as empires is less often scrutinized in more detail. This session focuses on localism and imperialism in the consumption pattern of empires. The intersection of the two, such as local foods in imperial contexts, the impact of imperialism on local foodways, and/or the impact of local consumption patterns on imperial trends, is of particular interest. In considering local and imperial trends together, the highly complex nature of foodways in imperial territories may be further brought to light. Papers may utilise diverse evidence types, including archaeobotanical, zooarchaeological and bioarchaeological remains, ceramics, and more. Research focusing on any imperial society (e.g., Roman, Ottoman, Aztec, Achaemenid) is welcome.

CONTRIBUTION ABSTRACTS

35. Greek Locally, Roman Imperially: Food, Agriculture, and Husbandry in a Sicilian Town of Akrai/Acrae

Authors: Roksana Chowaniec (Institute of Archaeology, National institute of the Republic of Serbia)
Format: Oral

This presentation investigated the long-term changes in food strategies within the town of Akrai/Acrae, situated in the Sicilian interior and in its surrounding areas. The research is grounded in archaeological, archaeobotanical, archaeozoological, stable isotopes, and lipid-residue studies. The town Akrai/Acrae, located in Hyblaean Mountains, approximately 35km from the coast of Ionian Sea, preserves one of the most continuous and well-stratified sequences of domestic, artisanal, and industrial activity in the region, spanning from the middle of the 3rd century BC to the early 8th century AD. The comprehensive data gathered through methodological excavations and interdisciplinary studies allows for an in-depth exploration of the evolution of culinary preferences and the utilisation of plant and animal resources from the Greek period and subsequently after the Roman conquest of Sicily. These changes are visible in the assemblage of animals (farmed and wild) and plants used for the food preparation, along with the strategies employed in agriculture and husbandry. The arrival of the Romans in the Sicily and Akrai/Acrae gradually transformed agriculture, first through the introduction of various plants (e.g. fruit trees and later flax), at the same time, culinary preferences evolved, with the diet shifting toward a greater reliance on domesticated animals rather than wild game. The data from Akrai/Acrae contributes significantly to understanding the environmental, economic, and cultural transformations that occurred in Sicily, the first province of the Roman Empire, following its conquest.

587. In between empires: crops in Lisbon and the Lower Tagus (Portugal) in Roman and Medieval times

Authors: João Tereso (NOVA University of Lisbon, Institute for Medieval Studies)
Format: Oral

The Lower Tagus and the city of Lisbon are located at the westernmost edge of Europe, corresponding at different times to the western limit of empires and trade routes, while also constituting an important link between the Mediterranean and the Atlantic. In this sense, the region is key to understanding the timing and sociocultural context of the diffusion of different products since prehistoric times, including crops that would later form the basis of the diet of the communities that lived here. However, despite Lisbon being the place in Portugal with the highest number of archaeological interventions in recent decades, few archaeobotanical studies have been carried out in the region. This paper will present a synthesis of the existing carpological data from the Roman and medieval periods in the Lower Tagus region. When possible, this data will be integrated with other paleoenvironmental data and information derived from written documentation, while also placing the region within an Iberian context. At present, there are discrepancies in data availability, with a greater accumulation of information for the medieval period. During this time, a wide variety of plants are documented, including cereals, fruit trees and aromatic species, which contrasts with earlier periods. Nonetheless, it is clear that there are biases related to the preservation of plant macroremains and the nature of the archaeological contexts. This makes understanding chronological trends more difficult, which both calls for and complicates a broader integration of these data within wider Iberian perspectives.

1003. Seeds of Change: Archaeobotanical Traces of Tomatoes, Chilies, and Other Exotic Plants in Early Modern Lisbon

Authors: Mariana Rodrigues – José Bettencourt (CHAM – Centre for the Humanities, NOVA University of Lisbon) – João Tereso (IEM – Institute for Medieval Studies, NOVA University of Lisbon) – Dulce Freire (CEIS20 – Centre for Interdisciplinary studies; University of Coimbra)
Format: Oral

Early modern Lisbon has long been described as a central node in the circulation of plants and commodities generated by the Portuguese empire. While recent archaeobotanical research has demonstrated the arrival of American crops in the city, less attention has been paid to how different exotic plants occupied distinct roles within Lisbon's urban and maritime landscapes. This paper explores how imperial connectivity and local foodways intersected through the differentiated use, deposition, and consumption of non-European plants in seventeenth- and eighteenth-century Lisbon. The study draws on archaeobotanical macroremains recovered from waterlogged waterfront contexts in the former Boa Vista beach area (Boqueirão do Duro, Av. 24 de Julho/Boa Vista 5, EDP II, and Metro Lisboa). American-origin taxa, including cacao (Theobroma cacao), tomato (Solanum lycopersicum), chili pepper (Capsicum annuum), and squash (Cucurbita maxima/pepo), are examined alongside long-established fruits such as grape (Vitis vinifera) and fig (Ficus carica). Their spatial distribution and depositional contexts reveal marked contrasts between imported commodities handled within port infrastructures and crops integrated into everyday urban consumption. Cacao, coconut (Cocos nucifera), and sugarcane (Saccharum officinarum) appear predominantly in ship-related and waterfront working contexts, suggesting their role as bulk goods, ship provisions, or semi-processed commodities tied to imperial trade networks. In contrast, tomatoes, peppers, and squashes occur mainly in urban beach and landfill deposits predating the 1755 earthquake, pointing to their incorporation into local diets and small-scale horticulture. These patterns highlight selective adoption rather than uniform diffusion of exotic plants. Although a sampling bias is also considered. By focusing on context, deposition, and use rather than first arrival, this paper argues that Lisbon's foodways were shaped by local agency operating within imperial structures. The results underline the importance of urban-scale archaeobotanical evidence for understanding how global food systems were negotiated, transformed, and embedded in everyday life in early modern empires.

2684. Diet and Identity in 500 years of Colonial Mexico

Authors: Colin Smith (Universidad de Burgos | La Trobe University) – Rocío Covadonga Valladares Gutiérrez – Nico Cirotto – Julián Puig Guevara – Wayra Herz Zacarias – Rebeca García González (Universidad de Burgos) – Jorge Arturo Talavera González (Instituto Nacional de Antropología e Historia) – Cristina Valdiosera (Universidad de Burgos | La Trobe University)
Format: Oral

The AdMEXture Project is using a multi-disciplinary approach to explore inequality and identity following the polemic meeting of two imperial forces, the Spanish Monarchy and the Mexica Empire. One focus is the use of an osteobiographical approach to explore the life history of individuals, especially their diet, with key evidence coming from stable isotope data. The European colonisation of the Basin of Mexico resulted in unprecedented demographic changes, with the admixture of Europeans and Mesoamericans, and the creation of new social classes such as "mestizos". However, this also caused disruption to the indigenous way of life and ecosystem, disease and demographic decline. While identity and social class could be fluid, it has been suggested that food remained aligned with group identity, i.e. introduced European foods (crops and livestock) for Europeans and local foods for the local populations. This leaves an open question as to what food group did "mestizos" belong to (if these distinctions really existed and were maintained over time)? What was their food identity? We will present our first results and discuss the role of diet in defining the identity of individuals (or vice versa) in this complex, changing situation.

1699. Beyond the "Encounter of Two Worlds": Coexistence and Juxtapositions of Culinary Ceramic Technologies in the Atacama Desert (15th–18th Centuries)

Authors: Claudio Wande – Mauricio Uribe (University of Chile) – Ale Vidal-Elgueta (Pontifical Catholic University of Chile)
Format: Oral

In the hyperarid core of the Atacama Desert, in the Tarapacá region, millennia of local social developments gave rise to the Pica-Tarapacá Cultural Complex, within which segmentary societies articulated themselves around shared cultural notions, while each maintained distinct productive orientations. These societies connected the coast, pampa, precordillera, and even the highlands through diverse strategies that enabled them to inhabit and be nurtured by the most arid desert in the world. After nearly four centuries of local developments, this Complex confronted the expansion of the Inca Empire, which generated new relationships between people and practices of consumption. However, following a brief horizon of less than a century, local societies, already entangled with the Inca imperial project, were forced to face the colonizing advance of European empires, particularly the Spanish Empire. This process resulted not only in the so-called "encounter of two worlds" or syncretism, but in a baroque and complex web of relations involving imposition, violence, resistance, coexistence, and accommodation, which cannot be reduced to narratives portraying Indigenous communities as "passive recipients" of change. Among these transformations was the entanglement of ancestral local, Inca, and European flavours and bodies of culinary and technological knowledge. Adopting a long-term perspective, we examine

these intertwined pasts through ancestral and emerging ceramic assemblages that contained and mediated colonial culinary practices and foodways, which we discuss alongside archaeobotanical, zooarchaeological, and isotopic evidence. Comparing two key colonial enclaves at the margin of the imperial system, the Spanish port of Pisagua and Pica, an inland wine-production center, our results reveal a complex scenario in which concepts such as mixture and hybridity are insufficient to capture the coexistence of juxtaposed technologies and flavours that asymmetrically nourished new colonial realities.

1982. 'Black soup' or 'herbathé'? – Influence of the Ottoman and Habsburg Empires on Hungarian foodways in the 17th-18th centuries

Authors: Ágnes Kolláth – Gyöngyi Kovács (ELTE Research Centre for the Humanities, Institute of Archaeology)
Format: Oral

The territory of the medieval Hungarian Kingdom became a conflict zone between the mighty Ottoman and Habsburg Empires in the 16th-17th centuries, with each of them occupying a significant part of the country. The local Hungarians felt strong animosity towards both. Besides turning their homeland into a warzone for 150 years, the Ottomans were representatives of the Islam and eastern habits, while the Habsburgs tried to erase the local language and traditions, and force Roman Catholicism on the people. The customs of the Turkish and the Germans, although to a different degree, were both considered alien to many, desirable to some. They influenced every aspect of life, no matter how fiercely the inhabitants tried to maintain their own ways. These effects can be observed in the study of foodways as well. The clearest proof of cultural resistance is that Ottoman pottery types, even Chinese porcelain – then highly fashionable both in the west and the east – almost exclusively occur in archaeological sites, where the Sultan's army had a garrison, as the difference between table manners was impassable. Meanwhile, several of the meals themselves have been incorporated in the local cuisine. At the same time, few German and Austrian recipes were popular, but their good quality ceramic wares were widely used. The influx of these objects increased exponentially after the reconquest at the end of the 17th century and new local pottery types also emerged, signalling change for example in dairy practices. Zooarchaeological evidence from features containing layers from before, during and after the Ottoman occupation also highlights the differences between consumption patterns. Comparing these data with the numerous and colourful written sources and images of the era gives us a multifaceted view on the dual imperial influence on Hungary's early modern foodways.

60 LANDSCAPES IN MOTION: CHANGE AND RESILIENCE IN MEDITERRANEAN LANDSCAPES ACROSS THE LONGUE DURÉE

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Amanda Gaggioli (University of Memphis) – Effimia Angeli (Maria Curie-Skłodowska University)
Keywords: landscape, resilience, disaster, environmental archaeology, longue durée, Mediterranean
Format: Regular session

SESSION ABSTRACT

Relationships between environmental change and settlement patterns in Mediterranean landscapes from prehistory to the present have received increased attention, offering entry points to grapple with precarity, fragility, and disaster in places and times distant from our own. This session responds to the growing demand for longue durée landscape histories that weave together traditional archaeological sources with modern scientific data and newly accessible environmental proxies. By integrating these lines of evidence, this session aims to capture the complexity of socio-natural systems and their transformation within the broader dynamics of ancient Mediterranean society and culture. Rather than simply identifying disasters, catastrophes, or crises, this session focuses on resilience—how communities responded to and recovered from environmental pressures and hazards such as earthquakes, landslides, floods, coastal shifts, and volcanic eruptions as evidenced in sedimentary, botanical, faunal, hydrological, and isotopic paleoenvironmental records. It examines both immediate and enduring adaptive strategies in landscape modification, material practices, artifact distribution, settlement organization, and cultural memory. We seek to explore how short-term reactions became embedded in long-term adaptive strategies, and vice versa. Contributions are invited from across environmental archaeology, particularly those engaging with geoarchaeology, landscape archaeology, digital methods, and diverse archaeometric and archaeological scientific techniques, as well as those advancing theoretical debates in resilience, cultural ecology, historical ecology, political ecology, political geology, phenomenology, and decolonial approaches. Ultimately, Landscapes in Motion invites us to interpret Mediterranean landscapes as socially constituted, dynamic archives of resilience. Human-environment relationships were less about countering destructive forces in nature itself than about negotiating power, labor, and knowledge within communities that shaped possibilities for persistence, renewal, and transformation. Mediterranean landscapes, viewed in this way, offer frameworks for understanding resilience across temporal and environmental contexts, illuminating historical registers of survival that echo amid today's intensifying environmental risks.

CONTRIBUTION ABSTRACTS

214. Human impact and climate change in the natural environment of the Ionian Archipelago in Greece

Authors: Chendi Wang (Amsterdam Centre for Ancient Studies and Archaeology, University of Amsterdam)
Format: Oral

The Ionian Archipelago possesses a rich prehistoric and early historic cultural heritage; however, compared with other regions of Greece, its past natural environment remains relatively understudied. Research from other parts of the Eastern Mediterranean has demonstrated that alternating dry and wet precipitation regimes significantly influenced human activities, while human land-use practices, in turn, substantially shaped vegetation composition. Examining these reciprocal interactions through time is essential for understanding long-term climate–human–environment dynamics. This poster presents preliminary results from an ongoing study investigating land use and ecological change in the Ionian Islands from the Late Pleistocene to the Roman period. Focusing on Livadi marsh on Kefalonia and Keri lake on Zakynthos, we collect, analyze, and compare sediment cores in order to reconstruct vegetation history, fire regimes, and environmental change within a long-term framework. A multi-proxy approach is employed, integrating phytolith, pollen, and charcoal analyses, which are systematically compared with existing geological and archaeological datasets. By concentrating on local-scale environmental responses across extended timescales, this research aims to clarify how climatic variability and human activities jointly shaped Ionian landscapes. Ultimately, this study seeks to enhance our understanding of prehistorical land-use practices in the Ionian Islands and their environmental consequences, while also providing a long-term perspective relevant to contemporary landscape management and sustainable development strategies under current climate change conditions.

372. Settlement Transformations, Interaction and Connectivity in Chalcolithic Volcanic Cappadocia: New Evidence from Büyük Deller and the Aksaray Prehistoric Survey

Authors: Fadime Demirtaş (Aksaray University-Department of Archaeology) – Pınar Çaylı (Nevşehir Hacı Bektaş Veli University-Department of Archaeology) – Sevil Gülçur (İstanbul University- Department of Prehistory)
Format: Oral

The formation of prehistoric settlement patterns in Volcanic Cappadocia reflects not only the relationship between human communities and the landscape, but also networks of interaction and connectivity between communities. While early research in the region has primarily focused on the initial phases of the Neolithic period, knowledge of the Chalcolithic has largely relied on data from a limited number of excavated sites. Tepecik-Çiftlik, Köşk Höyük, Güvercinkayası, and Büyük Deller represent key reference points for understanding cultural development and settlement systems in the sixth millennium BC. These data suggest that settlements concentrated in lowland plains during the late Neolithic increasingly shifted towards rocky and elevated locations throughout the Chalcolithic period. This paper examines settlement transformations in Volcanic Cappadocia within the framework of interaction and connectivity by integrating evidence from sites identified through the Aksaray Prehistoric Survey (AKYA), conducted since 2021, with data from the excavations at Büyük Deller and Güvercinkayası. Rocky hilltop settlements such as Büyük Deller, Gelveri, Kayanınaltı, Uluyol Tepeüstü, Tilki Deliği Tepeüstü, and Gülçur Kayaüstü, together with lowland sites including Çakılbaşı and Sapmaz Höyük, indicate the simultaneous existence of different settlement strategies across contrasting topographic settings. Survey and excavation data are evaluated alongside preliminary assessments of ceramic typology and technology, as well as obsidian production techniques and raw material sources. Similarities and differences in ceramic production and obsidian procurement practices demonstrate the continuity of local traditions while also pointing to Volcanic Cappadocia's integration within broader regional networks. In this respect, material culture constitutes a primary indicator of intercommunity interaction, knowledge transmission, and circulation. The study argues that the spatial reorganization of settlement systems in Volcanic Cappadocia during the sixth millennium BC was not merely an environmental response, but part of a multidimensional transformation closely linked to interaction, connectivity, and indirect mobility practices observable through ceramic and obsidian evidence.

381. In search of the lost river: A new narrative of fluvial dynamics and human-landscape interplay in the Ebro Delta (Catalonia-Spain)

Authors: Giannis Apostolou (University of Oxford - All Souls College) – Alfredo Mayoral (Landscape Archaeology Research Group/Catalan Institute of Classical Archaeology) – Carles Ibáñez – Pep Cabanes (EURECAT Technology Center of Catalonia) – Ekta Gupta – Arnau Garcia-Molsosa (Landscape Archaeology Research Group/Catalan Institute of Classical Archaeology) – Marc Prades (University Rovira i Virgili) – Josep-Maria Palet (Landscape Archaeology Research Group/Catalan Institute of Classical Archaeology) – Jordi Diloli Fons – Samuel Sardà (University Rovira i Virgili)
Format: Oral

This paper presents new fluvial evidence for landscape evolution and human-environmental dynamics in the Ebro Delta (Catalonia, Spain) during the Holocene, based on a multi-scalar geoarchaeological approach. The deltaic environment of the Ebro River constitutes one of the largest wetlands in the Mediterranean basin encompassing a wide range of ecosystems and natural habitats. Despite extensive research on regional ecology and biodiversity, human-landscape dynamics prior to the Middle Ages remain poorly-understood. By developing a cross-disciplinary research programme that integrates drillings, radiocarbon dating, remote-sensing

applications, historic map regression, and archaeological excavations, we provide new insights into the palaeogeography of the region and its relationship to past habitation models. In particular, sediment cores demonstrate the existence of a previously-unknown, active deltaic plain in the southern part of the Delta between approximately 5000 cal BCE and 1000 cal CE. This floodplain sedimentary sequence records a mid-Holocene context of marine transgression, followed by prolonged fluvial aggradation characterised by recurrent floods and channel migration over nearly six millennia. Fluvial activity declined and ultimately ceased during the late Middle Ages, when it was replaced by the formation of extensive marshlands. One or several palaeocourses of the Ebro must have flowed southwards through this area from the early Neolithic onwards, while they may have also been associated with protohistoric settlements positioned in strategic locations, such as the Iberian site of L'Antic. During the Middle Ages, the river shifted northwards towards its present course. Altogether, the results enable to propose radically revised palaeogeographic and environmental scenarios for the Ebro Delta during key phases of the Holocene, going well beyond previous reconstructions. More broadly, this approach offers the stand of a new narrative in deltaic formation and transformation with major implications for understanding human–environment interactions as well as resilience and change in deltaic landscapes over the longue durée.

2260. Neolithic Landscapes in Transformation: Geoarchaeological Perspectives on the Onset of Enduring Human-Environment Relationships

Authors: Amanda Gaggioli (University of Memphis | Cornell University) – Effimia Angeli (Maria Curie-Skłodowska University) – Kristine Martirosyan – Olshansky (University of California, Los Angeles)
Format: Oral

The Neolithic marks a fundamental reconfiguration of human-environment relationships, as emerging agricultural practices reshaped landscapes at scales and intensities unseen in earlier periods. Rather than positioning the Neolithic as an early onset of the Anthropocene— this exploratory paper uses geoarchaeological evidence from two Neolithic sites — Masis Blur in Armenia and Halai in Central Greece — to examine the Neolithic as a critical starting point for longue durée anthropogenic landscape transformation with enduring consequences through antiquity and even into the present. Drawing on microstratigraphic, mineralogical, geochemical, and sedimentological analyses, the paper compares how early agricultural communities engaged with distinct but persistently dynamic environments: a seismically active, lacustrine and alluvial landscape at Masis Blur and a fluctuating seismic coastal setting at Halai. At both sites, geoarchaeological signatures reveal sustained human intervention in landscape processes, including architectural material sourcing, spatial reorganization, and the management of hydrological and geological instability. These interventions were not short-term responses to isolated environmental events but became embedded in longer-term patterns of land use, construction, and settlement organization. By placing these site-specific datasets in dialogue, the paper argues that Neolithic human-environment interactions constituted a foundational phase of anthropogenic landscape modification characterized by cumulative, path-dependent effects. These early transformations structured later environmental trajectories and social possibilities, highlighting the Neolithic as a formative moment in the deep history of human-shaped landscapes across the Mediterranean and adjacent regions.

160. Resilience at the Margins: Rethinking Prehistoric Settlement in the Underexplored Landscapes of Southwest Crete

Authors: Dawid Borowka (University of Crete)
Format: Oral

Southwest Crete remains one of the least systematically investigated regions of the island, despite its strategic position between the Libyan Sea and the mountainous interior. Archaeological knowledge of the Palaiochora area is still based on dispersed observations, short-term field visits, and a limited number of identified sites, primarily dating from the Final Neolithic to the Proto-Geometric period (ca. 4000–900 BC). This paper critically reassesses the current state of research and explores how existing evidence can be reinterpreted within a longue durée framework of landscape resilience. Rather than viewing the mountainous zones north of the Palaiochora coast as marginal or episodically occupied refuges, the paper argues that these landscapes played an active role in long-term adaptive strategies. Known sites such as Palaiochora Nerovolakoi, Archangel Michael, and Palaiochora Vigles suggest recurring patterns of settlement relocation, strategic use of elevated terrain, and continued occupation during periods of broader instability, including transitions at the beginning and end of the Bronze Age. By synthesizing legacy archaeological data, topographic observations, and regional comparisons, the paper highlights how short-term responses to environmental stress, seismic activity, and socio-political disruption became embedded in longer-term settlement logics. The contribution emphasizes the interpretive potential of underexplored Mediterranean landscapes and outlines how future non-invasive research can transform our understanding of resilience, mobility, and human–environment interaction in Southwest Crete across the longue durée.

1350. Untangling the Late Bronze Age Collapse: An interdisciplinary study of landscape dynamics and resilience strategies in the Larnaca Bay (Cyprus)

Authors: Ralf Vandam (Vrije Universiteit Brussel) – Gitte Stoffels (KU Leuven | Vrije Universiteit Brussel) – Polte De Weirdt (Vrije Universiteit Brussel) – Miltiadis Polidorou (University of Cyprus) – Ella Egberts (Vrije Universiteit Brussel) – Renske Hoevers (KU Leuven) – Soetkin Vervust (Vrije Universiteit Brussel) – Gert Verstraeten – Matthias Vanmaercke – Christian Schwarz (KU Leuven)
Format: Oral

The Late Bronze Age (LBA) collapse in the Eastern Mediterranean remains a compelling enigma, marking the end of a period of remarkable prosperity characterized by extensive interregional connectivity and complex socio-economic systems. Between the mid-13th and 12th centuries BCE, the region underwent profound political and socio-economic transformations, accompanied by documented environmental change. Rather than representing a single catastrophic event, the LBA collapse reflects a complex interplay of human and environmental dynamics. Advancing our understanding of this period therefore requires closer examination of how multiple interacting processes unfolded across time and space, and how local communities responded to and negotiated these challenges within their landscapes. This paper introduces Untangling the Late Bronze Age Collapse, an interdisciplinary research project supported by the Research Foundation Flanders, which investigates collapse dynamics and resilience strategies through a long-term, bottom-up analysis of the Larnaca Bay area in southeastern Cyprus before, during, and after the Late Bronze Age. The Bay of Larnaca, which was once a lagoon but now a salt lake closed off from the sea, represents a highly dynamic coastal landscape. It includes the site of Hala Sultan Tekke, a major Late Bronze Age hub of international exchange. Its archaeological and environmental archives offer exceptional potential for exploring vulnerability, adaptability, and continuity across the collapse period. Integrating archaeological prospection and refined chronological frameworks with geoarchaeological, palaeobotanical, and coastal modelling approaches, this paper outlines the project's research design and presents first results on landscape dynamics and settlement responses.

2197. Weighing anchored narratives: a new geoarchaeological history for the ancient Abdera's harbour beyond the "race to the sea" paradigm

Authors: Alfredo Mayoral – Arnau Garcia-Molsosa (ICAC-Catalan Institute of Classical Archaeology, Tarragona) – Mercourios Georgiadis (University of Crete) – Eurydice Kefalidou (National and Kapodistrian University of Athens) – Nikos Papadopoulos (GeoSat ReSeArch Lab, IMS-FORTH, Rethymno) – Ana Ejarque (ISEM, Univ Montpellier, CNRS, IRD) – Eftychia Kosmidou (Ephorate of Antiquities at Xanthe) – Josep Maria Palet (ICAC-Catalan Institute of Classical Archaeology, Tarragona) – Gerasimos Trasanis (National and Kapodistrian University of Athens) – Constantina Kallintzi (Emeritus Ephor of Antiquities)
Format: Oral

Ancient harbours in the Aegean have been object of abundant research, as they are excellent case studies to investigate long-term socioenvironmental interactions. In several sites, it has been shown that coastal progradation since late prehistoric times led to their landlocking and consequent relocation in a so-called "race to the sea". However, the abuse of this paradigm has also led to misinterpretations and groundless but long-lasting narratives. In ancient Abdera, an Ionian colony in coastal Thrace, it was traditionally assumed that the city and its harbour had to move southwards in the 4th c. BC to adapt their location to coastal advances and silting. Since 2020, we carried within APAX project new geoarchaeological research to reconstruct paleogeographic changes and geomorphological dynamics around Abdera since its foundation, and to analyze the Archaic-Classical harbour's interaction with changing coastal environments. We developed an integrated approach combining coring, trenching, radiocarbon dating, geophysics, geomorphological mapping, RSL modelling and remote sensing. The gathered data allowed us to reconstruct the life history of this ancient infrastructure from Archaic to Hellenistic times, but also sea-level and paleogeographic changes in the area, including a late Antiquity tsunami. Our findings challenge previous narratives about Abdera and its harbour, shedding light on the decisive chronosequence of events: 1) In the 4th c. BC, the city moved south certainly due to historical events as the silting of the bay was only incipient; 2) In the 3rd c. BC the coastal progradation started, more likely due to regional anthropogenic forcing of sedimentary budgets than to Nestos alluvial dynamics; and 3) In the 3rd-2nd c. BC, the Archaic-Classical harbour was silted as a consequence of the abandonment of the first enceinte. Ultimately, this research demonstrates how a thorough and chronologically precise geoarchaeological approach can outdate older interpretations replacing them with accurate data-driven socioenvironmental narratives.

2455. Landscape in Motion: River, Roads and Settlement in the Lower Mondego (Portugal)

Authors: Newton Ribeiro Machado Neto (Universidade de Évora)
Format: Oral

This communication analyses landscape change and settlement patterns in the Lower Mondego region (central Portugal) from the Iron Age through the Roman period to Late Antiquity. Central to this discussion is the Mondego River, which once formed a wide paleo-estuary, considerably broader than its present course, structuring mobility, connectivity, and territorial organization. Pre-Roman occupation established stable movement corridors linking Iron Age hillforts to zones of resource exploitation, along a north–south axis between coastal plains and mountain ridges. These inherited patterns were consolidated during the Roman period, reinforcing a settlement system shaped by enduring environmental and cultural factors. From the 2nd century BC, these corridors were integrated into a Roman administrative framework centred around the former oppida of Conímbriga and Aeminium and connected through estuarine navigation and the road network, linking the Lower Mondego to other regions of Lusitania and to the Roman Empire as a whole. During the 1st century AD, the territory was reorganized as part of the Roman province of Lusitania.The transition to the 2nd century saw a slowdown in civic construction and public investment. Rather than signalling decline, this phase reflects the consolidation of the landscape , with continued social and economic functionality. During the 3rd century AD, political instability and economic crisis triggered a second major transformation, marked by urban fortification and rural reorganization. The Germanic invasions further reshaped territorial centrality. Conímbriga became a ruralized landscape of ruins, while Aeminium retained its role as a strategic crossroads. The Lower Mondego case illustrates how landscapes are shaped

by environmental factors, inherited infrastructures, and selective continuity, with routes and settlement logics remaining embedded long after the transformation of the territory.

2431. On the Axis of the River: Roman Townscape in the Middle Axios Valley

Authors: Jakub Mosiejczyk (Institute of Archaeology, Nicolaus Copernicus University, Toruń)
Format: Oral

The Axios is the longest river in the historical region of Macedonia. Flowing through fertile valleys from its source in the Scardus Mountains to the Aegean Sea, it created favorable conditions for settlement in antiquity. These environmental advantages, together with strategic considerations, influenced the gradual urbanization of the region during the Roman period, reflecting a long-term interaction between human communities and a dynamic fluvial landscape. For four consecutive centuries following the end of the Macedonian Wars, the area underwent processes of Romanization. Macedonian cities experienced significant cultural transformations, with Stobi and Thessaloniki emerging as the principal economic, cultural, and political centers. This development was reflected in the administrative reforms of Emperor Diocletian (AD 293), which led to the division of the province into Macedonia Prima and Macedonia Secunda. Both centers were connected by an important route of exchange expressed through the organization of the Via Egnatia, whose exact course remains uncertain. Nevertheless, the Axios River remained the principal natural feature and a major axis of communication, while also shaping settlement distribution and spatial organization. As a result, smaller urban centers developed along its course, including Antigonea, Stenae, Idomenae, and Gortynia, supported by their rural hinterlands. A key testimony to this Roman townscape is the Tabula Peutingeriana. This paper addresses current issues in the study of Roman urban planning in the region, including the identification of ancient towns and the analysis of their development in relation to environmental conditions and long-term landscape dynamics. Particular attention is given to settlement adaptation and spatial continuity within a changing riverine environment. GIS-based spatial analysis integrates historical and archaeological data to explore these processes.

811. Historical maps and fluvial landscape dynamics during the Little Ice Age: evidence from the Rhône delta

Authors: Anna Kharlanova – Claude Vella (Aix-Marseille Univ, CNRS, IRD, INRAE, Coll de France, CEREGE, Aix-en-Provence) – Veronique Rinalducci (ciham, umr5648) – Philippe Rigaud (LA3M, umr7298) – Jules Fleury – Doriane Delanghe – Olivier Bellier (Aix-Marseille Univ, CNRS, IRD, INRAE, Coll de France, CEREGE, Aix-en-Provence)
Format: Oral

Mediterranean deltaic landscapes are dynamic systems shaped by long-term interactions between fluvial processes, climate variability and human activities. Historical maps constitute a key archive for documenting these dynamics, particularly in low-relief deltaic environments where river mobility is high and landscape change can be rapid. Such changes are especially pronounced during climatic cooling phases such as the Little Ice Age (LIA). The LIA is a recent period that coincides with abundant cartographic production. Although these maps were produced for non-geomorphological purposes, they provide a basis for spatial reconstruction when georeferenced and interpreted from a geomorphological perspective. In the Rhône Delta, georeferencing 16th-18th century maps enables high spatial and temporal resolution reconstructions of palaeochannel evolution, meander mobility and delta-lobe progradation. Earlier studies relied on qualitative interpretation of historical maps to analyse shoreline and delta-front evolution. Building on these approaches, the present work extends cartographic analysis and focuses on fluvial dynamics and meander-scale evolution, which have remained largely unexplored. Map-based reconstructions are compared with recent imagery, DTM and sedimentary archives to validate interpretations and refine morphodynamic chronologies. For the eastern Rhône Delta during the LIA, results reveal rapid phases of landscape reorganisation marked by avulsions, pronounced lateral channel migration and enhanced land-sea connectivity, supported by sedimentological evidence. These dynamics directly influenced human activities, including canal excavation and reorganisation, the development of saltworks such as those of "La Vernède", and the reuse of pre-existing pathways during defluviation phases. The Rhône delta thus provides a reference framework for exploring landscape mobility and for future comparative analyses across Mediterranean deltas.

1589. Change and Resilience of Zadar centuriae through the ages

Authors: Filipa Jurkovic Pešic (Department of Archaeology University of Zadar)
Format: Poster

The city of Zadar, located in coastal area of Croatia, became a Roman colony by the end of 1st century BCE. Beside the fortified city, ager of the Roman colony encompassed a larger area organized according to the Roman land-division system of centuriation. Traces of this centuriated grid are still clearly recognizable in the cultural landscape of Zadar, particularly in the modern street network within the city and in the remains of drystone walls, plot boundaries, and roads preserved outside the contemporary urban area. Although clearly legible in today's spatial organization, the ancient land division of Zadar remains little known to the general public. This research forms part of a broader scientific project whose main objective is the valorization of spatial and social transformations within the territory of Zadar's ancient cadastre, with a particular emphasis on documenting changes that occurred over time. The project is a response to the urban planning crisis - a crisis of space and a crisis of identity, as land that for thousands of years was exclusively agricultural is being transformed at an unsustainable pace. The poster focuses on four isolated centuriaes and the

changes that took place over a period of 2000 years. The area was centurated in 1st century during the Roman empire. Throughout the Middle Ages and until the 20th century the area was predominantly agricultural land. During 20th century the city rapidly expands, but despite the accelerated construction and rapid urban expansion spatial organization of contemporary streets largely follows the ancient cadastral framework. At great speed, the landscape that for thousands of years was agricultural land is disappearing. We have not managed to adapt or respond. Archaeology offers a way forward: through the stratigraphy of history and the gathering of memory.

62 THE NICOSIA CONVENTION: SESSION OF THE EAA ILLICIT TRADE IN CULTURAL MATERIAL COMMUNITY

Theme: 2. Crossing the divide. Archaeology and the open world
Organisers: Evelyne Godfrey (Uffington Heritage Watch) – Marianne Mödlinger (University of Innsbruck) – Andris Kairiss (ICOMOS-Latvia)
Keywords: Heritage Crime, Decolonisation, Art Market, Theft, Reconciliation, Justice
Format: Session with keynote presentation
Affiliation: Community on Illicit Trade in Cultural Material

SESSION ABSTRACT

The Council of Europe's Convention on Offences relating to Cultural Property, commonly known as the Nicosia Convention, was adopted in 2017 and entered into force in April 2022. The Nicosia Convention aims to foster international co-operation and to prevent and combat the trafficking and destruction of cultural property. It remains the only international treaty specifically dedicated to the criminalisation of offences related to the trade in cultural property, establishing a legal framework that includes: theft; unlawful excavation, importation, and exportation; illegal acquisition and placing on the market; falsification of documents; and the intentional destruction or damage of cultural property. While the Convention primarily targets tangible heritage and criminal liability, heritage studies and international policy frameworks - including those of, for example, UNESCO, ICOMOS, ICOM, and ICCROM - underline that the loss or destruction of cultural property produces non-material harm: the erosion of identity, collective memory, social trust, and cultural continuity. Such damage affects a broad spectrum of stakeholders - e.g., local communities, museum and heritage professionals, educators, researchers, and the wider public - who rely on the integrity of heritage for knowledge, belonging, and ethical accountability. Despite this, current legal instruments still lack explicit mechanisms to acknowledge or redress this non-material dimension of harm. This session of the EAA Community on the Illicit Trade in Cultural Material will examine the global context and implications of the Nicosia Convention, including but not limiting discussion to States that have ratified (Cyprus, Greece, Italy, Albania, Hungary, Latvia, and Mexico), while critically exploring these normative gaps and their implications for justice, reconciliation, and the restoration of cultural agency.

CONTRIBUTION ABSTRACTS

395. Unprecedented practices of cultural genocide organised by Russia on Ukrainian lands, and the problem of illicit trafficking of archaeological artefacts

Authors: Oksana Lifantii (National Museum of the History of Ukraine)
Format: Oral

The National Museum of the History of Ukraine (NMHU) has gained experience over the last decade in combating the illicit trafficking of cultural property and protecting Ukraine`s cultural heritage. It works in collaboration with the legal services (the National Police, the National Customs Service, the General Prosecutor`s Office, etc.). As a result of these collaborations, the NMHU's collections are replenished with new artefacts. Since 2014, a new problem has arisen with the occupation of parts of three regions of Ukraine, where illicit excavations provided by Russian occupiers have lasted for all these years. During the time of occupation of Crimean museums, only one small collection escaped "imprisonment" by the Russian state — the so-called Crimean gold collection, which was exhibited in the Netherlands in 2014. After 9 years of litigation, it finally came into safekeeping at the NMHU at the end of 2023. Since 2022, and the beginning of the Full-scale invasion, Russians have occupied more Ukrainian territories and looted museum collections there. In 2024, the Russian Ministry of Culture began issuing official permits for excavations in Zaporizhzhia and Kherson oblasts, parts of which the Russian occupied in 2022. At the same time, since 2022, the amount of illegally obtained archaeological materials returned to the state`s possession in Ukraine has significantly increased. Only in one "Horbatov's collections" case, the legal services confiscated almost 6,000 artefacts, some of which were recognised as probable property of Crimean museums. Thus, Ukraine is now forced to face illicit archaeological trafficking organised by non-state groups, and the Russian state meticulously planned a cultural genocide that includes massive illicit excavations aimed at eliminating the presence of the Ukrainian past in the occupied territories.

46. Beyond Material Damage: Addressing Non-Material Harm in The Context of Heritage Crime

Authors: Andris Kairiss (ICOMOS Latvia)
Format: Oral

This presentation critically examines the absence of meaningful recognition of non-material (intangible) harm in international legal responses to heritage crimes, with particular attention to the Nicosia Convention. While this Convention constitutes the only international treaty specifically dedicated to the criminalisation of heritage-related offences, its legal architecture remains narrowly focused on material damage, leaving the wider societal consequences of heritage crime largely outside the scope of legal assessment and response. Drawing on heritage studies and international policy discourse, the presentation argues that the destruction and damage of cultural property produces profound non-material harm, including the erosion of collective memory, identity, social cohesion, and cultural continuity. These harms affect not only states, but also communities, heritage professionals, educators, researchers, and the wider public, for whom cultural heritage constitutes a shared social resource and a foundation for cultural agency. Despite increasing recognition of these impacts in academic and policy contexts, they are not reflected in binding international legal norms, and almost not translated into enforceable legal consequences. The presentation will identify key structural weaknesses in the existing international legal framework, including the lack of legal concepts capable of capturing non-material harm, the limited recognition of communities as affected stakeholders, and the disconnection between criminal accountability and processes aimed at repair, reconciliation, and the restoration of cultural agency.

63. Criminalising Heritage Crime in Europe: Divergent Legal Approaches and the Nicosia Convention

Authors: Irina Olevska-Kairisa (Maastricht University)
Format: Oral

This presentation explores how heritage crime is criminalised and addressed across different European jurisdictions, focusing on the legal treatment of offences affecting cultural (and in particular, archaeological) heritage. Despite growing recognition of heritage crime as a serious threat to cultural resources, national legal systems continue to adopt divergent approaches, frequently prosecuting such acts under general categories of property crime, environmental offences, general harmful acts, etc. These differences result in uneven protection standards, inconsistent thresholds of criminal liability, and variable recognition of harm, particularly in archaeological contexts. Adopted in 2017, the Council of Europe's Nicosia Convention represents the only binding international instrument specifically dedicated to the criminalisation of offences relating to cultural property and aims to promote greater legal harmonisation through a shared catalogue of heritage-related crimes. However, an examination of its practical and theoretical application across European jurisdictions reveals persistent divergences in how States interpret and operationalise key concepts such as damage, intent, and the scope of protected interests. The presentation will illustrate these issues through selected examples of national practice, highlighting both emerging best practices and recurring legal and institutional challenges. Drawing on comparative examples and damage-assessment models, the presentation highlights how different legal systems continue to prioritise material loss and economic valuation, while underestimating non-material harm such as the loss of scientific knowledge, cultural meaning, and collective memory. The presentation concludes by reflecting on the potential of the Nicosia Convention to act as a bridging framework between heritage protection and criminal law, while emphasising the need for greater coherence and sensitivity to archaeological harm in national criminalisation practices.

2314. Illicit Trafficking of Cultural Property in Cyprus: Historical Context, Legal Responses, and the Example of the Nicosia Convention (2017)

Authors: Anna Demetriou (Paris 1 Pantheon Sorbonne - University of Bologne)
Format: Oral

The third-largest island in the Mediterranean Sea, Cyprus stands as a genuine treasure of civilization and culture. Its rich cultural heritage, both archaeological and ecclesiastical, has long made it a significant source country in the international trade in cultural goods. This status, however, has also rendered Cyprus vulnerable to the illicit trafficking of cultural property—a phenomenon that has developed and adapted to the political, social, and economic conditions of successive eras. Armed conflicts have historically intensified these vulnerabilities, as looting, illicit trade, and deliberate destruction frequently accompany military operations. In this respect, Cyprus, like many states in the Eastern Mediterranean, has not been exempt. The Turkish invasion of 1974 exemplified the continuation of longstanding patterns of cultural dispossession rather than an isolated episode. In response, the Republic of Cyprus has progressively strengthened its legal and institutional framework to address these challenges through the ratification of international conventions such as the UNESCO Conventions of 1954 and 1970, the UNIDROIT Convention of 1995, and the Nicosia Convention of 2017, the conclusion of bilateral agreements, and the adoption of targeted heritage protection measures. This study seeks to examine the phenomenon of illicit trade in cultural goods in Cyprus over time and to analyze the existing legal framework and preventive mechanisms, with particular emphasis on international conventions, especially the Nicosia Convention of 2017.

870. Loot, Legitimacy and Ownership: ending the trade archaeological artefacts

Authors: Evelyne Godfrey (Uffington Heritage Watch)
Format: Oral

A generation ago, Colin Renfrew's discussion on "Loot, Legitimacy and Ownership" centred on the ethical crisis caused by illicit excavation of antiquities. Looting destroys the archaeological context that is essential for understanding the past. Renfrew asserted that the Art Market was rife with unprovenanced artefacts. Attribution of false provenance was often facilitated by legal sellers of the artefacts, turning centres like New York and London into 'thieves' kitchens', driven by greed. Today, the market has spread online. Artefacts are sold openly across internet platforms. The volume of trafficked archaeological material has increased exponentially. With this, the ethical crisis that threatens the preservation of archaeological knowledge has only compounded. Renfrew called for greater international recognition and action to combat illegal trade. A legal instrument is now available, the Council of Europe's Nicosia Convention (2017). However, only one of the G7 nations - Italy - has ratified and implemented Nicosia. The USA, Britain, Germany, France, Japan, and Canada have not. To have a chance of safeguarding the archaeological context, the Nicosia Convention requires the support of these 'consumer' nations, not just the 'source' nations. Renfrew's proposed solution to the "illegal" trade was to promote "legitimate ownership". This policy has proved naïve and weak; if anything, over the past 30 years, it exacerbated the problem. Institutions and collectors in democratic countries argue that the acquisition was legal enough at the time. In conflict zones around the world, the evidence of the archaeological and historical record is denied while absurd political claims of new national 'ownership' are made. We must now see that the only legitimate ownership of the heritage is public, not private ownership. The resolution of the ethical crisis must reside in Heritage professionals, institutions, and democratic governments fulfilling their responsibility to protect the heritage by respecting the archaeological record.

600. Motivations of Illicit Indigenous Human Remains Trade: Insights from Historic and Present-Day Case Studies

Authors: Constanze Schattke (Department of Anthropology, Natural History Museum Vienna) – Damien Huffer (Adelaide University)
Format: Oral

Between 1877 and 1889, Austrian collector Andreas Reischek travelled to Aotearoa/New Zealand to document and collect natural history specimens. He also plundered Indigenous human remains/kōiwi from graves, which were later restituted in 2022. During the more than ten years Reischek spent in Aotearoa/ New Zealand, he wrote a diary, which represents an important and rare window into collecting practices and attitudes at the time. In this paper, we present an overview of an ongoing project to digitize and use qualitative digital humanities tools to close-read these diaries. Attitudes Reischek expressed to justify his activities are here compared to case study examples of how the buying and selling of Indigenous human remains within today's global, mostly online, human remains trade is rationalized. In a preliminary analysis, we explore some of the criminogenic elements surrounding human remains, which are at least occasionally classified as cultural heritage under State-level legislation within source, transit and market countries. The acquisition and sale of human remains in the past and today also represents a particularly emotional category of heritage crime. We demonstrate how the rhetoric of today's collecting community draws heavily on the same colonial attitudes that Reischek upheld, revealing the persistent use of similar 'neutralisation techniques' (sensu Sykes and Matza 1957) to justify theft, resale and collection. In accordance with the Nicosia Convention's mandate to monitor online trade, we provide detailed evidence that the Indigenous human remains trade is not only unregulated and ongoing, but also use insight from the past to further illuminate the motivations of today's dealers and collectors, which remain deeply rooted in colonialist ideologies of otherness. These findings will inform better-drafted legislation and contribute to more targeted public outreach.

1073. From Archive, trough OSINT to Court File: Cross-jurisdiction Recovery Strategies for the Torun Numismatic Theft

Authors: Mariusz Wisniewski (Ministry of Culture and National Heritage, Poland)
Format: Oral

A major theft of nearly four hundred of numismatic objects from a District Museum in Torun (Poland) created a long-running, multi-jurisdiction search problem. The theft conducted by a long time employee of the museum remained undetected for years while stolen coins entered polish and international market. Identical types appear on popular platforms, while only a small subset are the stolen, uniquely identifiable specimens. This paper presents a case study of how Ministry of Culture and National Heritage as a competent, national authority can combine forensic numismatic identification with OSINT-style market monitoring and jurisdiction-specific legal pathways to locate and secure stolen coins in different countries (Poland, Germany, Austria, Italy, USA and Australia). While a high-profile recovery (the "Holey Dollar") has already demonstrated feasibility, the broader challenge lies in routine, repeatable work across many lower-profile objects and diverse legal contexts. The author attempts to outline a three-layer workflow. Continuous discovery using auction archives, collector platforms, and image-based search, followed by specimen-level identification and rigorous discrimination of questionable results using repeatable micro-features (edge nicks, flan cracks, corrosion patterns, die wear, and museum documentation) which then should be backed by legal triage that selects the most effective route per jurisdiction (criminal seizure, civil recovery, customs/administrative measures, and voluntary returns). All steps work when

supported by structured cooperation with LEAs, administrative bodies, academia, museums and private and organizational, international partners. The Polish framework based on the 2017 restitution law implementing EU mechanisms for return of cultural goods provides the mandate for coordinated action, but practical success depends on adapting evidence packages and requests to each legal environment. It is theorized that the Nicosia Convention, for those countries which ratified it, provides a useful common language for aligning standards of due diligence, documentation, and cross-border cooperation reducing significantly workload for those dealing with stolen portable heritage.

1407. From Looting to Law: Archaeological Evidence from Syria and the Implementation Challenges of the Nicosia Convention

Authors: Isber Sabrine (Milá y Fontanals Institution —Spanish National Research Council)
Format: Oral

This paper presents an ongoing research project analysing the looting and illicit trade of Syrian antiquities from the 1980s to the present, with particular focus on the period following the outbreak of the Syrian conflict in 2011. While the destruction and trafficking of Syrian cultural heritage are well documented, significant gaps remain in reliable data concerning the actors involved, trafficking routes, timing of looting activities, types of materials targeted, and the cumulative impact on archaeological sites. The project applies an interdisciplinary methodology combining satellite imagery analysis, archaeological datasets, archival sources, and documentation produced in collaboration with local civil society organisations. This approach enables a more precise, evidence-based reconstruction of looting dynamics. Preliminary results indicate that at least 14% of Syrian archaeological sites have been affected by looting, with Early and Middle Bronze Age sites and Roman and Late Roman contexts particularly targeted. The evidence further suggests that looting has been primarily driven by organised criminal networks and armed groups, including terrorist organisations, which have used antiquities trafficking as a source of financing. These findings are examined in relation to the Council of Europe's Nicosia Convention, the only international treaty specifically dedicated to the criminalisation of offences against cultural property. While the Convention provides an essential legal framework addressing theft, illegal excavation, trafficking, and market placement, this paper argues that current legal instruments remain limited in addressing the wider archaeological and social consequences of looting. In particular, non-material harm—such as the erosion of cultural identity, collective memory, and social trust—remains insufficiently reflected in criminal law approaches. The paper calls for closer integration between archaeological evidence, community-based documentation, and legal mechanisms to strengthen the effective implementation of the Nicosia Convention, and reflects on the relevance of these issues for post-conflict recovery in Syria and comparable contexts.

63 CONTINUITY, INNOVATION, AND THE MAKING OF THE MYCENAEAN WORLD: RETHINKING MIDDLE HELLADIC (POTTERY) TRADITIONS

Theme: 7. Interaction, connectivity and mobility
Organisers: Peter Pavuk (Institute of Classical Archaeology, Charles University, Prague) – Iro Mathioudaki (AEGIS Research Group, UCLouvain)
Keywords: Regional identities and resistance, Cultural continuity and change, Technological transmission and adaptation
Format: Regular session

SESSION ABSTRACT

The study of Middle Helladic (MH) wares, many of which continued into the Late Bronze Age (LBA), provides essential insights into the dynamics of pottery production and the balance between cultural conservatism and innovation. Yet defining local styles and establishing synchronisms on the Greek Mainland remain difficult due to pronounced regional variability. Recent work from sites such as Lerna, Ayia Irini (Keos), and Mitrou highlights the need to reconsider the late MH and early Mycenaean phases within broader regional and inter-regional frameworks of production. The persistence, transformation, or disappearance of particular wares raises wider questions: where MH traditions endured longer, what does this reveal about production and consumption patterns, local autonomy, and the formation of distinct cultural zones across the Mainland? The issue of pottery forming techniques is also revealing. It illustrates well that technological change was not a simple replacement of one tradition by another, but a complex process of adaptation within existing practices. This session seeks to advance discussion on the chronological and typological assessment of MH wares continuing into the LBA and to refine the definition of the final Middle Bronze Age in Mainland Greece. Beyond pottery, it welcomes papers exploring continuity and change in settlement, funerary practice, and the limited evidence for cult and ritual, aiming for a more integrated understanding of this crucial transitional period. A clearer grasp of the mechanisms behind continuity and change in MH traditions has implications beyond Central Greece. It contributes to broader debates on technological transmission, tradition and innovation, cultural resilience, and social reproduction across the Bronze Age Aegean and the eastern Mediterranean. Understanding these long-term processes also helps to illuminate the conditions that enabled the emergence and eventual expansion of the Mycenaean palatial culture once the palaces were established.

CONTRIBUTION ABSTRACTS

671. Rethinking Middle Helladic (Pottery) Traditions

Authors: Iro Mathioudaki (Catholic University of Louvain) – Peter Pavuk (Institute of Classical Archaeology, Charles University, Prague)
Format: Oral

This paper presents our collaborative attempt to reassess the variability of Middle Helladic wares and styles at Greek mainland sites in the early Late Bronze Age. Focusing primarily on Central Greece, and drawing on our complementary research backgrounds, we address broader questions of pottery production, cultural conservatism, and inter-regional interaction prior to the full establishment of Mycenaean-style pottery. Recent excavations have shown that the diversity observed in the early Mycenaean Grave Circles is also reflected in other contemporary contexts, where similar combinations of wares occur. This raises key interpretative questions: how should such variability be understood? Should analysis prioritise inter- and intra-regional patterns, or seek to define spheres of cultural influence shaping the circulation of material culture? How, in turn, does this affect our understanding of Mainland Greece as a cultural entity? While recent research has made important advances, fundamental choices remain regarding the future direction of pottery studies in this large region. We argue for a balanced approach that combines micro-regional perspectives with an appreciation of wider networks, in order to clarify the interconnected character of the early Mycenaean world and to develop a more integrated interpretative framework. Important question also is, how (and why) this changes with the rise of the Mycenaean palaces.

1262. Resisting the Lustre: Central Euboean "Grey Power" and the Entrenched Traditions of Middle Helladic Central Greece

Authors: Christopher Hale (Institute of Archaeology and Ethnology, Polish Academy of Sciences)
Format: Oral

The transition from the MBA to the LBA on the Greek mainland is often explored in relation to the expanding distribution of Mycenaean Lustrous-Decorated pottery as a proxy for intensifying influence of the northeast Peloponnese on other areas of the Aegean. Recent scholarship has traced the first appearance of this material in central Greece (in very small quantities) to a late stage of Late Helladic I (LH I), and emphasis is often placed on the persistence of central Greek Middle Helladic (MH) traditions, which can pose challenges for relative dating. However, MH central Greece itself is increasingly being recognized as a complicated ceramic landscape with diverse regionalisms, so what exactly persists (and why) is often poorly explored. Emerging evidence suggests that central Euboea may have hosted a particularly specialized, intensive, well-connected, and highly influential pottery production industry, spanning the MH through to LH I or LH IIA. Central Euboean products (mostly Fine Grey Burnished) were widely distributed in high numbers throughout central Greece and elsewhere, varyingly influencing local production. On the other hand, genuine imports, alongside both Aeginetan and northeast Peloponnesian influence on central Greek products, can be recognized in some decorated pottery types dating from the late MBA, suggesting a complex multi-directional dynamic. The appearance of Mycenaean Lustrous-Decorated pottery in late LH I may then have come via long established routes of connectivity, and begun as one additional component of a consumption strategy which challenged dominant and entrenched practices embodied by the central Euboean tradition with its associated consumption practices. The central Euboean tradition itself may have reacted conservatively to resist these new innovations, resulting in the persistence of late MH types into the early LBA.

1208. From Fingerprints to Orbits: Reassessing NAA Provenance in the MH–LH Northeast Peloponnese

Authors: Daniel Frank (Independent Researcher)
Format: Oral

Neutron activation analysis (NAA) has been a cornerstone of Aegean pottery research for decades, enabling the definition of chemical "fingerprints" that illuminate production practices and the structure of regional and supra-regional exchange. At the same time, the interpretive step from statistical groups to provenance varies in reliability. Group assignments can be strengthened through evidence such as wasters, clay-source sampling, and coherent distributional patterns; yet equifinality remains common, as similar signatures may derive from multiple clay sources, recipe choices, or overlapping workshop traditions. The historical value of NAA therefore lies not only in "pinning down origins", but also in comparing chemically defined groups and their distributions across sites, phases, and regions. This paper synthesises NAA results for the Middle and Late Bronze Age with a focus on the Northeast Peloponnese along the Argolid–Corinthia–Saronic interface (Lerna, Tiryns, Midea, Katsingri, Tsoungiza), contextualised through key "orbit" comparanda in the central Aegean (Mitrou, Aegina/Kolonna). Building on a multi-scalar connectivity framework, it re-codes NAA group attributions into a comparable set of orbit-level categories and juxtaposes recurring import signals and production patterns by site and phase. Particular attention is paid to MH-derived and proliferatatedearly Mycenaean ceramic classes and the shifting corridors of interaction that structured their movement, especially maritime routes and island hubs. By reintegrating NAA groupings into a wider archaeological and historical perspective, the paper offers a provenance-based way to discuss continuity, innovation, and the formation of regional zones of pottery production and exchange from the late Middle Bronze Age into the early Mycenaean period.

1832. Crafting Complexity: Middle Helladic Traditions, Mainland Agency, and the Making of Mycenaean

Lustrous Decorated Pottery

Authors: Salvatore Vitale (University of Pisa)
Format: Oral

In this paper, I reconsider the critical role that Middle Helladic (MH) and Minoan traditions had in the development of Mycenaean Lustrous Decorated pottery (MLDp), initially one of the many "Minoanizing" classes that appeared across the Aegean at the beginning of the Late Bronze Age (LBA). To do so, I first focus on technology and style (with the latter intended as the interrelation among morphology, decoration, and syntax), and then discuss the meaning of production, distribution, and consumption patterns. Theoretically, I take an eclectic approach, using mobility, cultural entanglement, and human agency to better understand the formation process of MLDp within broader Aegean socio-political developments during the early LBA. After reviewing the current dataset, I suggest that at its onset, in Late Helladic (LH) I-IIA, MLDp represents a fusion between Cretan technologies and styles and deeply rooted MH features. These mainland characteristics included the use of updraft kilns, giving MLDp vessels their distinctive texture; the occurrence of shapes such as small piriform jars, alabastra, jugs with cut-away necks, and goblets; and a remarkable preference for tectonic decoration. In the "new cultural environment" that characterized the early LBA Aegean, I argue that the appearance of MLDp reflects the growing demand for "Minoanizing" objects by mainland communities, as well as the economic and political agency of new, emerging mainland elites. By the second half of LH I, these factional groups and their leaders favored the establishment of specialized workshops and mobilized the lucrative distribution of MLDp across the Peloponnese, central Greece, and the wider Aegean. At the same time, these elite groups used MLDp as a prestigious commodity in feasting ceremonies and burial arenas and exploited the power of its impactful new style to increase their leadership and establish their status within their local communities.

1838. Something Old, Something Borrowed, Something New: Aeginetan-Mycenaean Interactions at Mitrou, Central Greece, during the Early Late Bronze Age

Authors: Francesca Nani (University of Pisa)
Format: Oral

According to established narratives, Aeginetan pottery was extremely popular in the Middle Helladic period and quite rapidly decreased after the beginning of the Late Helladic (LH) phase. While this view still holds true for the Argolid, the site of Mitrou in Central Greece provides a different picture, with Aeginetan pottery peaking in popularity in LH IIA and continuing to be present in decent quantities up until LH IIIA2 Early. During this time, Mitrou's Prepalatial elites incorporated in their local arena a wide range of different imports, vividly displaying in feasting events a "mixed" assemblage comprised of local, Mycenaean, and Aeginetan vessels. Mitrou's contexts show that during LH II, Aeginetan fine pottery was undergoing technological and stylistic changes sparked by interaction with Mycenaean ceramics. While most Aeginetan vessels found at this site remained conservative, a small fraction of Mitrou's LH IIA-IIIA2 Early Aeginetan fragments show a gradual incorporation of innovative elements. These included the incorporation of Mycenaean-type shapes and motifs; the use of lustrous paints; and the occurrence of wheel-finished specimens. This situation provides a privileged case study to examine both local and regional dynamics during a time when important economic and socio-political shifts were occurring on mainland Greece. At Mitrou, I argue that the continued demand for Aeginetan pottery and the contexts of use demonstrate the agency of the local community in selecting and manipulating whichever imported class best served their agenda. At a broader scale, these changes demonstrate the continued efforts of Aeginetan producers to remain relevant in the competitive Aegean arena, where consumers' tastes were shifting towards Mycenaean pottery. These trends also suggest a redirection of Aeginetan exports towards Central Greece, via Kiapha Thiti and/or Kea, beginning in LH IIA and continuing until the emergence of Palatial centers definitively shifted the balance of power in the Aegean.

2168. Between Mitrou and Pefkakia: End of MBA and the process to Mycenaeanization at the coastal site of Raches (Central Greece)

Authors: Tobias Krapf (Swiss School of Archaeology in Greece) – Maria-Foteini Papakonstantinou (Ephorate of Antiquities of Phthiotis and Evrytania)
Format: Oral

The sea route along the coasts of Euboea and Central Greece played a crucial role in the northward expansion of Mycenaean (material) culture at the beginning of the Late Bronze Age (Late Helladic period). This region is furthermore characterised by the relatively long persistence of older traditions, partly in parallel with new Mycenaean elements. Located on the northern shore of the Malian Gulf, the Bronze Age site of Raches (Phournoi) has the potential to link developments observed in central Euboea and at Mitrou in the south with those at Pefkakia in the north, as well as with the nearby Spercheios Valley. A rectangular early Late Helladic building overlying a Middle Helladic apsidal house has been excavated by the Ephorate of Antiquities responsible for Phthiotis and Evrytania. Mycenaean pottery indicates a period of use extending until at least LH IIIA1. From the Middle to Late Helladic transition, a substantial quantity of matt-painted pottery has been preserved, displaying a reduced range of shapes and decorative motifs in comparison with the well-known local tradition of the Middle Helladic period (Δ1β). The non-Mycenaean pottery shows many characteristics in common with assemblages from other sites in Phthiotis and Thessaly. This paper presents the stratigraphy and ceramic development of Raches and places them within the interregional context of sites along the Euboean Gulf, with particular emphasis on the relationship between the continuity of traditional ceramic production and the contemporaneous introduction of Mycenaean pottery. On a regional scale, Raches is compared with sites in the Spercheios Valley in order to assess whether the process of Mycenaeanization differed between coastal and inland areas.

2024. Evaluating the persistence of mainland-style consumption practices into the Late Bronze Age at Ayia Irini, Kea

Authors: Natalie Abell – David Roberson (University of Michigan)
Format: Oral

In the late Middle and early Late Bronze Age, tablewares and associated consumption practices at Ayia Irini on Kea changed dramatically as part of the so-called Minoanization phenomenon. Locally produced and imported Cretan-style cups, bowls, jugs, jars, and cooking pots became common. Evidence for commensality is obvious in the form of huge deposits of Cretan-style conical cups in local households. The importance of commensal activities is suggested also by other large deposits of tablewares and the existence of ritual spaces like the Temple and the nearby hilltop shrine of Troullos. During these periods, Middle Helladic- and mainland-style tablewares continued to be imported and locally produced, suggesting ongoing connections between Kea and the mainland. This paper explores the ceramic evidence for these connections during the early phases of the Minoanization phenomenon and evaluates how traditional mainland-style consumption and commensal practices may have persisted within the Keian community. It also considers evidence for shifts in tablewares and consumption practices on the mainland through the lens of novel, often Minoanizing mainland imports at Ayia Irini in these periods.

2358. Quantifying and qualifying Late Helladic (LH) I at Eleon

Authors: Trevor Van Damme (University of Warwick)
Format: Oral

The Eastern Boeotia Archaeological Project, a synergasia of the Canadian Institute in Greece and the Ephorate of Antiquities of Boeotia, has carried out excavations at the site of Eleon in Boeotia, Greece since 2011. The most significant early Mycenaean discovery at the site is the Blue Stone Structure (BSS), a monumental burial enclosure containing pit, cist, and built chamber tombs. Within the graves, most ceramic vessels are matt-painted, Minyan, undecorated, or bichrome wares leaving their precise relationship with the Late Helladic subphases of the Argolid uncertain. In this paper, all identifiable lustrous decorated ware pottery fragments contained within the tumulus that sealed off the burials are analyzed together for the first time. Beyond establishing the extreme infrequency of their presence within the overall assemblage, which remains dominated by Minyan and undecorated wares, this research demonstrates that all of the lustrous decorated ware fragments are imports, primarily from the Argolid. Ultimately, this study concludes by establishing a relative date for the construction of the tumulus and a terminus ante quem for all the burials contained within within the Argive sequence.

890. Pottery of non-Mycenaean traditions during the early Late Bronze Age at the site of Kastro-Palaia, Volos

Authors: Dimitris Agnousiotis (Ephorate of Antiquities of Magnesia, Hellenic Ministry of Culture)
Format: Oral

The site of "Kastro-Palaia" is situated in the western part of the modern city of Volos and occupies a commanding position at the innermost recess of the Pagasitic Gulf, controlling the natural route leading toward the Thessalian hinterland. Archaeological research on the site and its wider area has been particularly intense from the early 20th century to the present, providing valuable information for the occupation during prehistory. Middle Bronze Age proved to have been a notably flourishing period, as evidenced by thick deposits, as well as by the presence of multiple architectural phases and numerous finds. The end of the period coincides with the MHIII and LHI phases that were identified not only in the settlement but also in the cemetery of the site. Palaia continued to experience a phase of peak prosperity and archaeological data indicate rather a smooth and gradual transition into a new era, without abrupt cultural changes. Indeed, new buildings were founded directly upon the underlying Middle Bronze Age deposits. As for pottery production, there is no indication of a sharp break from the past, as pottery related to Middle Helladic traditions continued to be produced in large quantities. On the other hand, several changes can also be observed: craftsmen experimented, techniques evolved and new shapes and decorative motifs were introduced. In LH IIA imported Mycenaean pottery appeared in the site but initially does not seem to have been particularly popular, as Middle Helladic culture was deeply rooted and persisted for a long time. The major turning point in ceramic technology occurred at the end of LHII, when the local workshops gradually adapted to the new demands and started producing Mycenaean-style pots. This new pottery came to dominate during LHIIIA, marginalizing Middle Helladic traditions.

841. Communities in transition in the Eurotas Valley: a Middle Helladic III/Late Helladic I small tholos tomb from Sparta

Authors: George Tsiaggouris (Ephorate of Antiquities of Lakonia) – Maria Tsouli (Ephorate of Antiquities of Lakonia, Head

of D.P.C.A.M.)
Format: Oral

This paper aims at tracing the transitional MH III/LH I period in Laconia, through the data that emerged from the recent rescue excavation of a "small tholos" tomb on the eastern outskirts of Sparta, carried out by the Ephorate of Antiquities of Lakonia. The discovery of this tomb, one of the earliest examples of "small tholos", complements the important range of grave types of this period which have come to light in the Eurotas valley during the last twenty-five years. The tomb, with an external diameter of 3.46 m. and maximum preserved height of 0,99 m., was extremely carefully built of thin slate slabs resting on a foundation ring of roughly worked stones. The corbelling of the tholos began immediately above the foundation ring. The way the superstructure of the tholos was formed is not clear since the tomb collapsed. The stomion was entirely made of thin slate slabs and blocked with dry - stone, while a dromos was probably not shaped. The tomb contained primary extended burials as well as secondary burials, two of which were furnished by a kantharos and a small jug, respectively. The use of this combination of vessels as grave offerings, namely a small open drinking vessel and a small closed vessel, has been attested in other types of graves of the period found both in Laconia and in other areas of the Mainland Greece. However, the choice of grave offerings of MH tradition in a tholos tomb, the most emblematic tomb type of Mycenaean funerary architecture, reflects the diversity and receptivity of Laconia to influences from other areas, while preserving selective elements of local tradition and identity, in a period characterized by complex social and cultural changes, which led to new social structures.

166. Continuity and change in late Middle Helladic and early Late Helladic Boeotia: an update

Authors: Laetitia Phialon (University of Fribourg)
Format: Oral

Boeotia in Central Greece is part of the regions where Middle Helladic (MH) traditions were long lasting into the Late Helladic (LH) period. For instance, although a few Mycenaean chamber tombs were used from LH II onwards in Thebes, the discoveries of late MH-early LH pit and cist graves in the settlement suggest that MH funerary traditions also continued well into the Late Bronze Age. However, one major difficulty remains: in the absence of Mycenaean decorated pottery from the LH I or LH II phases, it is very difficult to date the layers and structures uncovered in various Boeotian sites. The matt-painted polychrome pottery reported in recent publications on the subject must now be systematically considered within the framework of LH I development. This paper aims to explore regional continuity and change in Boeotia during a crucial transitional period, from the late MH to the LH II period, by examining structures and pottery of these phases, with a focus on the sociocultural forms of the Mycenaean emergence in central Greece (Phialon 2011), while incorporating new reflections on the landscape of ancient Greece (e.g. Knodell 2021). The data drawn from the recent archaeological reports (the 9th Ephorate of Prehistoric and Classical Antiquities), available since my last update (2018) on the funerary landscapes in MH and early Mycenaean Central Greece, will certainly shed new light on long-term processes of continuity and change in the late MH and Early LH Boeotia.

1817. Innovation, representation and fortification in Aegina Kolonna. New thoughts on the representative function of fortifications in the Early Mycenaean period

Authors: Benjamin Huber (Department of Classics, University of Salzburg)
Format: Oral

The island of Aegina is located in the heart of the Saronic Gulf, a strategic location that was key to the development of the settlement of Kolonna on its north-western coast into a major centre during the Early and Middle Helladic periods. Kolonna's function as a commercial hub, and its dominant role in trade, is most evident in the distribution of Aeginetan pottery across the Greek mainland and the Aegean. This prosperity is also reflected in the architecture, particularly the massive fortifications of the settlement. From EH III onwards, comprehensive measures were taken to fortify Kolonna, and by the Late Bronze Age, it comprised three different parts: the 'Inner City', the 'Inner Suburb' and the 'Outer Suburb', each of which was enclosed by walls and bastions. The latter's fortifications were built in the Late Middle Helladic period and show further phases of reinforcement in the Early Mycenaean period that differ completely from earlier phases. The walls were massively strengthened and extended by a rectangular tower with masonry resembling the Cyclopean technique. This process of 'monumentalisation' of the 'Outer Suburb' and thus a relatively small area of the settlement raises the question of the reasons for these architectural changes and innovations. Was it merely a military necessity to reinforce the fortifications further, or should we also consider issues of representation and display reflected in architectural appearance? As the Early Mycenaean period marks a time of fundamental societal shifts, accompanied by the development of new fortified settlements, the second aspect deserves further investigation. Were fortifications a means of demonstrating power and wealth in a landscape of competing regional centres? In examining the functions of fortifications, this contribution discusses the interplay of representation and architecture at the transition from the Middle to the Late Helladic period.

64 COASTAL-INLAND INTERACTIONS DURING THE THIRD MILLENNIUM BCE IN THE SOUTHERN BALKANS

Theme: 8. Beyond the Middle Sea: rethinking the Mediterranean in motion
Organisers: Kyle Jazwa (Maastricht University) – Christopher Nuttall (Swedish Institute at Athens)
Keywords: Coastal-Inland Interactions, Southern Balkans, Third Millennium BCE, Early Bronze Age
Format: Regular session

SESSION ABSTRACT

More than a half-century ago, Colin Renfrew famously described the Aegean in the third millennium BCE as having an "international" character, a reflection of the substantial evidence for the movement of items, people and ideas across the region. Since Renfrew first coined this term, the "international" character of the era has only become more apparent, with demonstrable links among settlements and regions throughout the southern Balkans. It is therefore unsurprising that coastal sites have received considerable scholarly attention: they were key nodes mediating long- and short-distance contacts, functioning as stopping points or links in a chain that could funnel materials, ideas, and people inland. This focus has been reinforced by modern research biases, as coastal zones – often affected by tourist development – tend to be more extensively explored than their inland counterparts, which remain comparatively under-investigated. Yet such a model, in which inland settlements are vaguely characterised as agricultural, pastoral, or extractive, risks oversimplifying the complexity of coastal-inland dynamics, and indeed echoes interpretative patterns applicable to many periods beyond the third millennium BCE. This session seeks to probe more specifically the relationships between coastal and inland sites and regions in the southern Balkans during this transformative era, exploring how people, places and resources were interlinked and how these categories themselves were constructed and experienced. We invite papers engaging with this topic at multiple scales of analysis: from detailed comparisons of individual sites to regional syntheses, diachronic perspectives, and theoretical considerations. Contributions addressing the influence of natural resource distribution, socio-political and cultural organisation, and climatic factors (e.g., 4.2 ka event) are particularly welcome. Equally important are reflections on archaeological biases and how they have shaped our understanding of the third millennium southern Balkans.

CONTRIBUTION ABSTRACTS

1164. Settlements on the Edge: Wetland Occupation along the Bulgarian Black Sea Coast during the Late Copper and Early Bronze Age

Authors: Nadezhda Karastoyanova (National Museum of Natural History - Bulgarian Academy of Science | National Archaeological Institute with museum - Bulgarian Academy of Science) – Kalin Dimitrov (National Archaeological Institute with museum - Bulgarian Academy of Science)
Format: Oral

The Bulgarian Black Sea coast represents a key zone of human occupation within the western Black Sea littoral, where wetlands offered diverse and highly productive resources. This paper focuses on the Late Copper Age (Chalcolithic) and the Early Bronze Age, examining human adaptation to dynamic coastal landscapes shaped by river deltas, lagoons, and changing shorelines. Holocene sea-level rise and coastal dynamics have led to the partial or complete submergence of several settlements, preserving valuable archaeological evidence in underwater contexts. The study is based primarily on new archaeozoological data from recent underwater excavations at the ancient harbour area of Sozopol. The faunal assemblages are dominated by wild species and demonstrate intensive exploitation of both terrestrial and marine resources. Of particular significance is the presence of tuna, a species not native to the modern Black Sea ecosystem, as well as remains of species no longer present along the Bulgarian Black Sea coast, such as the Mediterranean monk seal (Monachus monachus). The occurrence of tuna may serve as an important indicator of palaeoenvironmental conditions, suggesting different sea connections, water temperatures, or ecological regimes during the Late Copper Age and Early Bronze Age. In addition, the presence of oysters further contributes to the reconstruction of coastal palaeoenvironments and marine habitats. Special attention is given to evidence for the intensive hunting of dolphins, highlighting the economic role of marine mammals in wetland subsistence strategies. Comparative analysis with analogous wetland and pile-dwelling settlements along the Bulgarian Black Sea coast demonstrates that these sites represent specialised communities, whose economy relied predominantly on hunting rather than on mixed farming practices. The results provide new insights into specialised wetland adaptations and human–environment interactions along the Bulgarian Black Sea coast during the Late Copper Age and Early Bronze Age.

2151. Synchronization and cultural relations between Southern Bulgaria and the adjacent areas in the Early Bronze Age

Authors: Masao Semmoto (The Ancient Orient Museum, Tokyo)
Format: Oral

Bronze Age societies in the Aegean Sea and mainland Greece, driven by the expansion of West Asian urbanization and maritime trade networks into Europe, fostered intensified interactions with the southern Balkans at the second millennium BCE. To understand the factors and mechanisms of these relationships, it is crucial to elucidate the specific roles played by Thrace and Rhodope

Mountains in southern Bulgaria – the immediate hinterland of the North Aegean coast – within the chronological framework of the third millennium BCE (Early Bronze Age). This presentation reviews the chronological synchronisms of Early Bronze Age sites in southern Bulgaria and its surrounding areas by examining the radiocarbon dates and diagnostic archaeological materials, with a primary focus on pottery. Based on synthesizing these synchronisms, the presentation evaluates the patterns of continuity and discontinuity across the stages of the Early Bronze Age and discusses the cultural elements connecting southern Bulgaria with its adjacent areas.

904. Connecting Shores and Plains: The Role of Thrace in Southern Balkan Interactions during the Third Millennium BC

Authors: Zheni Vasileva – Petar Minkov (National Archaeological Institute with Museum at the BAS)
Format: Oral

Cultural and trade contacts during the 3rd millennium BC were fundamental to the development of Early Bronze Age societies in Southeast Europe and the Eastern Mediterranean. These interactions took place against a background of profound transformations following the end of the Chalcolithic period in the Balkans, driven by environmental change, demographic shifts, and increased mobility. As a result, social, economic, and cultural structures were reconfigured, giving rise to new forms of connectivity between coastal and inland regions. This research aims to examine the role of Thrace within these dynamic processes. Positioned between the Aegean–Anatolian world, the Balkans, the North Pontic region, and Central Europe, Thrace occupied a strategic intermediary role that facilitated long-distance exchange and cultural transmission. Archaeological evidence – including imports, local imitations, prestige goods, and indications of specialised craft production – demonstrates the intensity and multidirectional nature of these contacts. Particular emphasis will be placed on the importance of river corridors, land routes, and maritime connections in structuring Early Bronze Age interaction networks. The research addresses questions concerning material culture, trade and exchange systems, mobility and migration, technological transfer, and social transformation during the Early Bronze Age. Jewellery and metallurgy, as well as the development of local craft traditions within broader Aegean–Anatolian and Balkan interaction spheres, constitute key themes of the study. The research also engages with traditional centre–periphery models and seeks to reassess Thrace as an active participant in supra-regional networks.

1802. Early Helladic Settlement in Central Greece and the Influence of Coastal Proximity

Authors: Kyle Jazwa (Maastricht University)
Format: Oral

Coasts have often been attractive settlement locations because they offer direct access to marine resources and "international" trade networks. However, that selfsame setting can also bring many risks, such as increased exposure to natural and seaborne threats. This paper seeks to more precisely define the value and role of coastal access in Early Helladic ("EH") Greece. As a case study, the eastern central Greek mainland (Boeotia, Phocis, Phthiotis, northern Euboea) was chosen because several different types of coastal landscapes are present – coasts facing the open sea (Aegean), a strait (Euripus Strait), a gulf (Corinthian Gulf), and three lakes; this provides a unique opportunity to examine the influence of each type. To do so, an up-to-date survey of EH settlement in the region is first presented. Included in that examination are coastal proximity measures for each site and the influence of other environmental factors on coastal access, such as intervening mountains and ravines. Then, evident patterns among different collections of sites with similar accessibility to one or more of the coasts are considered. We find that, while most EH settlements were positioned within one half-day's walk to a coast and with relatively few intervening geographic hindrances, a distinct preference to avoid being located directly on the coast, especially facing the Aegean Sea and Corinthian Gulf, is evident. Once distance to the coast exceeds one half-day's travel, however, settlement becomes significantly sparser. Altogether, the results show that access to the coast appears to have been attractive for many EH communities, but other factors (e.g., competition) meant that the greatest ease of access was not a priority.

2356. An Early Bronze Age mainland center in the Aegean: mobility, technological innovation and craft specialization at Koropi (east Attica)

Authors: Kerassia Douni (Ephorate of Antiquities of East Attica, Greek Ministry of Culture) – Maria Mexi (Ephorate of Antiquities of East Attica, Greek Ministry of Culture)
Format: Oral

The third millennium BC in the Aegean is widely characterized by an "international spirit" expressed through intensified mobility of people, ideas and materials, technological transfer, and expanding exchange networks across coastal and inland zones. Within this context, mainland settlements should not be viewed solely as agricultural background to coastal exchange, but as active participants in the formation of regional interaction systems. The Early Bronze Age settlement of Koropi, located in the fertile Mesogeia plain (east Attica), provides an important case study for exploring these dynamics. Archaeological evidence reveals a community deeply embedded in networks of production, technological innovation, and exchange. The analysis of pottery demonstrates specialized ceramic manufacture, the adoption of new technological practices, and strong links with both nearby Attic sites (Askitario, Rafina, Agios Kosmas) and more distant regions such as the Cyclades, the Peloponnese, and Crete. These patterns indicate multidirectional flows of goods and knowledge. Equally significant is the evidence from ground stone technology. The abundance of macrolithic

artefacts—predominantly made from igneous rocks—and patterns in raw material selection and resource management practices showed that Koropi had a major role in the circulation and redistribution of andesitic raw materials from the wider Argosaronic region in the mainland. Data derived from the study of pottery and macrolithics points to organized production, technical knowledge, and participation of the site in both local and wider networks of trade and exchange. All these characteristics indicate that Koropi was not merely a self-sufficient agropastoral community but a center of innovation and craft specialization integrated into wider regional networks. The EBA Koropi highlights how inland sites participated in and structured both coastal and inland relationships, acting as mediators of mobility, resources, craft production and technological practices, and contributing decisively to the interconnected socio-cultural and economic landscapes of the prehistoric Aegean.

1724. Across the Saronic: Interaction and Exchange in the Third Millennium BC. Evidence from the Little Islandscapes of the Saronic Project

Authors: Christopher Nuttall (Swedish Institute at Athens)
Format: Oral

The Saronic Gulf has long been recognised as a key zone of interaction within the Early Bronze Age (EBA) Aegean, yet its role in structuring regional exchange during the Third Millennium BC remains unevenly understood. This paper draws on evidence generated by the Little Islandscapes of the Saronic Project (LISP) to examine patterns of interaction across insular and mainland settings within the Gulf. By integrating data from multiple small-scale island contexts, the study explores how exchange operated across short and longer maritime distances and how these interactions articulated with broader regional networks. Particular attention is paid to variability in connectivity and circulation between predominantly coastal EBA communities occupying different ecological and spatial positions within the Gulf. Evidence for interaction is explored through patterns of access to key resources, including the circulation of andesite ground stone tools and obsidian, alongside shared ceramic traditions linking island and mainland contexts, particularly with Methana. Rather than functioning simply as a maritime corridor between major centres, the Saronic Gulf is argued to have operated as a densely interconnected micro-region, structured through frequent short-distance movements and overlapping exchange relationships. These patterns highlight the importance of coastal settlement configurations in shaping interaction and contribute to wider debates on mobility, regional integration, and the organisation of exchange in the EBA Aegean.

66 TIMELESS OR TRENDING? GEMSTONES AND THEIR CULTURAL VALUES FROM AN ARCHAEOLOGICAL AND SCIENTIFIC PERSPECTIVE

Theme: 1. Widening perspectives in material culture studies
Organisers: Magda Pieniazek – Susanne Greiff (Tübingen University) – Marion Weber (National University in Colombia)
Keywords: Gemstones, Value, Materiality, Provenance analyses, Chaine operatoire, Exchange
Format: Regular session

SESSION ABSTRACT

Cultural values of materials and objects were in constant flux throughout antiquity. They emerged from an interplay between various features such as objective physical properties and artefacts' agencies, men's sensory perceptions, local traditions, foreign influences, changes in religious and socio-political spheres, available production and procurement technologies. Although gemstones like carnelian, rock crystal, amethyst, lapis lazuli or garnet were always considered precious due to their extraordinary color, hardness, exoticism, over time they acquired symbolic meanings that defined their roles in past cultures. Gemstone objects served as markers of social status and were believed to have amuletic properties. Their significance triggered the development of sophisticated lapidary technologies, and transregional exchange networks connecting distant areas like for example the Indus Valley and the Aegean as early as the Bronze Age. Despite their obvious importance, gemstones are among the least studied archaeological finds. Although scientific analyses such as LA-ICP-MS or micro-RFA have advanced considerably in recent decades, contributing to our understanding of provenances and exchange networks, they require more scholarly attention. The materiality of gemstones and trends in the relationship between stone type, color, pattern, iconography and function also definitely need further studies. In this interdisciplinary session, we will explore the value of gemstones from a comparative diachronic perspective. We want to share information on both archaeological and science-based reconstructions, particularly those using new methodologies. Specialists working with material from Europe and Asia from the Bronze Age to the Early Medieval period are invited to participate. Contributions from other areas that present ethnoarchaeological analyses are also welcome, such as studies of the documented use and symbolism of gemstones within Middle and South American native populations. We are also interested in presentations based on written sources, including specific accounts like Assyrian texts describing the use of stones in the art of conjuring and healing practices.

CONTRIBUTION ABSTRACTS

662. Regional Variations in Carnelian Bead Production Technology and Sourcing: Defining Indus style carnelian beads in West Asia and the Mediterranean

Authors: Jonathan Kenoyer (University of Wisconsin) – Geoffrey Ludvik (University of Wisconsin, Madison | Holy Apostles

College and Seminary)
Format: Oral

Advances in bead documentation methodologies have made it possible to identify regional styles of carnelian bead production that are differentiated by specific aspects of bead shaping, perforation and finishing. This paper will present an overview of the methodologies and results from studies of beads from the Indus region of South Asia, the Levant and the eastern Mediterranean. In addition to metric documentation of basic bead morphology, analysis of bead drill holes and perforation techniques are documented using dental impression material. These impressions are examined using a digital microscope for basic morphology and high resolution Scanning Electron Microscopy to define and differentiate the specific types of drills that were used. Drilling techniques identified to date include percussion, various types of stone drills, and metal drills with coarse or fine abrasives. Geochemical sourcing of the carnelian itself has been done on some archaeological beads using Laser Ablation-Inductively Coupled Plasma- Mass Spectrometry (LA-ICP-MS). A summary of the recent results indicates major sources for carnelian from South Asia, Iran, various part of Arabia, Turkïye and Egypt. In addition to select beads from sites in the Indus Valley and Mesopotamia, examples will also include beads from sites in Arabia, Egypt, the Levant, Turkïye and Greece.

1280. Drilling Technologies of Carnelian Beads: A New Perspective on Connections Between Central China and the Mongolian Plateau

Authors: Tang Longhao (Guangxi Normal Univercity)
Format: Oral

As an important ornament in human society, carnelian beads first emerged in China during the early to mid-second millennium BC and became widely popular in central China during the Western Zhou Dynasty (1046-771BC). At that time, social elites generously used them, along with beads made of other materials, as part of their personal ornaments, which were buried with their deceased owners. In the past, carnelian beads were thought to have came from West Asia, but with advancements in archaeological analysis methods, this view has faced increasing skepticism. This article analyzes the production technologies of carnelian beads from the Liangdaicun cemetery—the site with the largest number of carnelian beads unearthed from the Western Zhou period. We found that the three drilling technologies (geode, pecking, and stone drilling) exhibited in these carnelian beads are completely consistent with the drilling technologies of carnelian beads popular in the late Bronze Age of Mongolia (1400-1000BC). This proves that the technological tradition of carnelian beads in central China can be directly traced back to the Mongolian Plateau, and population migration is the most likely form of connection between them. Based on the historical context, we believe that the popularity of carnelian beads in the Western Zhou Dynasty was a political strategy of the rulers at that time. This strategy aimed to create a ritual system by utilizing materials favored by different ethnic groups in order to gain a cohesive identity and consolidate the newly established regime.

782. Carnelian and Amber in the Aegean Bronze Age: Changing Values over Time

Authors: Magda Pieniazek (Tübingen University)
Format: Oral

The value and meaning of Bronze Age materials and objects depended on a variety of factors, such as indigenous traditions, fluctuating exchange networks, the evolving needs of local societies, religious beliefs, socio-political organizations and available technologies. The meaning of such precious substances as amber and carnelian was a sum of these different factors in relation to their physical properties and men's sensory perceptions. Amber and carnelian were among the most prominent gemstones of the Aegean Bronze Age. While their color can be very similar, their other properties are quite disparate. The consumption patterns of both materials developed along different trajectories. They began their career as exotica, arriving from distant areas such as the Indus Valley or southern England. After this initial stage came a period of experimentation, during which local artisans tried to adapt both materials to local needs and preferences. This experimental phase ended with different outcomes for the two gemstones. Carnelian exchange flourished across the Mediterranean and Aegean Seas, and it was fully appropriated as one of the most important materials used in the production of seals and jewelry. In the course of the Late Bronze Age, it became integrated into burial rites and other spheres of local culture. In contrast, it is clear that, after a relatively short period of fascination, the importance of amber diminished. However, certain contexts suggest that, in later phases, amber may have been valued primarily not as a gemstone, but for its "magical" and possibly "amuletic" attributes.

396. Late Bronze Age Gemstone Production at Tell Atchana, Alalakh (Hatay, Türkiye)

Authors: Murat Akar (Hatay Mustafa Kemal University) – Magda Pieniążek (University of Tübingen)
Format: Oral

Tell Atchana-Alalakh, located at the crossroads of Anatolia, Mesopotamia, and the Levant in the Amuq Valley of Hatay, is one of the very few sites in Western Asia to have yielded an uninterrupted stratigraphic sequence spanning the entire second millennium BC. As the capital of the Kingdom of Mukish, the site preserves extensive Middle and Late Bronze Age administrative palace complexes, residential quarters, workshops, and funerary contexts. These contexts are exceptionally rich in material culture, including large corpora of epigraphic material—cuneiform tablets, cylinder seals, and seal impressions. Of particular significance is the wide range of workshops identified at Tell Atchana, providing valuable insights into palace-controlled production systems alongside household-level craft specialization. Evidence of specialized activities includes among others, ivory and stone carving, carpentry, metalworking and glass production. Furthermore, the remarkable quantity of gemstone objects and associated production debris indicates that Alalakh functioned as a significant center for jewelry production within the region. The presentation will focus on gemstone jewelry from Alalakh from both local and transregional perspectives. The assemblage comprises objects manufactured from carnelian, agate, onyx, amber, and other stones, embedded within exchange networks extending from Central Asia to the Baltic region. These networks involved not only finished objects but also the circulation of raw materials. Evidence for local bead production includes gemstone chunks, chips, semi-finished objects, and broken beads, which collectively document key stages of the chaîne opératoire. The spatial concentration of debitage in specific areas of the site suggests the existence of specialized production spaces or workshops. This contributes to a more nuanced understanding of craft organization and resource procurement in diachronic perspective, as well as Alalakh's role within broader Bronze Age economic and exchange networks.

570. Symbolic meaning of Mesopotamian beads and necklaces in the 1st millenium BC

Authors: Dorottya Láng (Hungarian National Museum | Eötvös Loránd University)
Format: Oral

A more detailed study of beads and necklaces has been relatively neglected in Mesopotamian archaeology. Regarding bead materials, a clear distinction can be drawn between their scientifically determinable materials and the categories that likely existed within ancient conceptual frameworks. Closely related to material is appearance - particularly color, pattern, and luster - which not only characterizes objects visually but also carries symbolic significance. Interpreting colors allows objects to be grouped into broader categories that may reflect shared symbolic meanings in antiquity. To approach the symbolic role that individual beads may have held in the past, multiple interpretative dimensions must be considered together, including form, color, pattern, appearance, function, and origin. An important complementary source for this investigation is the corpus of amulet-necklace texts, which provide insight into the composition of the necklaces. A critical comparison between these textual descriptions and extant objects in museum collections may reveal meaningful correspondences, although reconstructions of surviving bead strings do not always reliably reflect original ancient arrangements. Nonetheless, recurring patterns in amulet texts may contribute to more historically accurate interpretations of bead compositions. The magical connotations evident in amulet-stone lists clearly support an approach grounded in symbolic analysis. This raises broader questions about ancient aesthetics: what was considered beautiful, and how were aesthetic and functional values balanced in personal adornment? My research explores the potential of integrating material evidence with written sources to better understand the cultural, symbolic, and aesthetic meanings of beads and bead necklaces in Mesopotamia.

1827. Identification and Geographic Origin of Gemstones from the Collections of the Archaeological Museum of Thessaloniki, Greece

Authors: Maria Nikopoulou (Aristotle University of Thessaloniki, School of Geology) – Stefanos Karampelas (Aristotle University of Thessaloniki, School of Geology | Laboratoire français de gemmologie-LFG) – Evangelia Tsangaraki (Archaeological Museum of Thessaloniki) – Lambrini Papadopoulou (Aristotle University of Thessaloniki, School of Geology) – Christos Katsifas – Ioannis Nazlis (Archaeological Museum of Thessaloniki) – Vasilios Melfos – Nikolaos Kantiranis (Aristotle University of Thessaloniki, School of Geology)
Format: Oral

This study aims to emphasise the significance of mineralogy in identifying gemstones used in Hellenistic and Roman jewellery from the collections of the Archaeological Museum of Thessaloniki (AMTh). Most of the examined artefacts derive from excavations in Northern Greece with well-documented archaeological contexts, while a small number originate from handovers or confiscations and are of uncertain provenance. The study aims on the following: (a) mineralogical characterisation to resolve terminology conflicts between geologists and archaeologists; (b) the geological - geographic origins to locate potential ancient sources; and (c) the correlations between specific gemstones and types of jewellery. The identification of the gemstones was carried out through microscopic observation of inclusions and the application of mobile, non-destructive advanced methods, such as Raman Spectroscopy, Photoluminescence, Visible–Near InfraRed Spectroscopy, and Micro–EDXRF analysis. The results revealed one corundum and a significant number of beryls, garnets, and varieties of quartz and chalcedony. The corundum was classified as a sapphire of metamorphic origin, with characteristic fingerprint inclusions, indicating Sri Lanka as its possible geographic origin. Based on spectroscopic and chemical data, the beryls are classified as emeralds, most likely originating from Egypt. The garnets belong to the pyralspite group, with pyrope and almandine members prevailing. They are classified into three subgroups, each one related to a specific geological environment. The quartz samples are divided into macrocrystalline (rock crystals and amethysts) and microcrystalline (chalcedonies, agates, jaspers) varieties. Among them, a chrome chalcedony was identified, probably originating from Asia Minor deposits. The diversity observed in the types of gemstones used, as well as in their possible sources of origin, can further contribute to a deeper understanding of the economic, aesthetic, and symbolic values attributed to these artefacts during the Hellenistic and Roman periods, as well as of the complex trade networks in which their societies participated.

598. Crafting Value: Goldsmithing Quality and the value of Garnet Jewellery in the Early Middle Ages

Authors: Susanne Greiff (Archaeometry Research Group, University of Tübingen) – Elke Nieveler (LVR-Landesmuseum

Bonn)
Format: Oral

Value and significance are difficult to grasp when it comes to archaeological ornaments as our modern materialistic attributions of value to gemstones cannot be transferred linearly to the past. In a multi-year project entitled 'Weltweites Zellwerk' (Worldwide Cellwork), cloisonné-style jewellery items decorated with garnet gemstones were examined across Europe. The aim was to understand the systematic changes in the use of garnet in the Merovingian period, which manifested themselves in the 7th century in a significant reduction in the number of objects decorated with garnet and a change in style away from lavish garnet settings towards the use of individual stone inlays. The early Middle Ages in the Rhineland (Germany) are characterised by many burial sites with rich grave goods. Despite a high degree of looting, an extensive inventory of material culture has been preserved, allowing us to draw conclusions about temporal and spatial developments, especially between the 6th and 7th centuries. From the Rhineland burial grounds alone, 250 objects with around 1,000 garnets were examined. In a closely interlinked research strategy, the origin of the garnets was determined, investigations into the quality of the stonework and goldsmithing techniques were carried out, and these were finally placed in the archaeological context. The focus was on the question of how QUALITY can be defined in these contexts. Are there systematic links between stone quality, stoneworking quality, the origin of the stones, the quality of the goldsmithing and the status of the buried individuals? What changes do we see over time? Only through this intergrated systematic approach can we clarify the importance attached to quality in the context of garnet-decorated objects and how this is to be interpreted in relation to value and worth. The results allow us to approach these questions in a manner strictly oriented towards the archaeological material.

2029. Pre-Hispanic gemstone artefacts from the Sierra Nevada de Santa Marta, Colombia: Agate and carnelian

Authors: Marion Weber – Natalia Acevedo (Universidad Nacional de Colombia, sede Medellín) – Daniel Rodríguez-Osorio (Universidad del Norte) – Susanne Greiff (Eberhard Karls Universität Tübingen)
Format: Oral

Archaeological studies of Museum Collections that contain material culture from Pre-Hispanic societies of the Sierra Nevada de Santa Marta, in the northern Colombian Caribbean region, have registered the use of a variety of gemstones with different colours, such as green nephrite, variscite, serpentinite, steatite, black nelsonite, white quartz, and red jasper, agate and carnelian. Provenance studies of some of these lithic artefacts have proven that their raw material sources are local, for example serpentinite and nelsonite, but can also be traced to distant origins within the northern Caribbean, such as variscite. Red agate and carnelian are particularly abundant within the collections. Ornaments and pendants made of this hard material are characterised by differently shaped beads, zoomorphic figures such as frogs and caterpillars, as well as anthropomorphic figures. Though the origin of the agate and carnelian raw material is still under investigation, the source is likely to be within the geological formations of the northern Andean region of Colombia. The high abundance of agate and carnelian artefacts indicates that they were highly valued and suggest that they had important symbolism within the Caribbean Pre-Hispanic cultures. This importance is also seen today and red stones from the Sierra Nevada de Santa Marta are highly sought after and attributed curative and protective powers by some native societies.

1207. Stone beads and pendants of the Kogi people (Colombia): preliminary findings from an ethnoarchaeological study

Authors: Alain Queffelec (UMR5199 PACEA, CNRS, Univ. Bordeaux, Ministère de la Culture) – Pierrick Fouéré (INRAP | UMR5608 TRACES, CNRS, Univ. Toulouse Jean Jaurès) – Eric Julien (Association Tchendukua)
Format: Oral

Stone beads and pendants are still used today by the Kogi people in the Sierra Nevada de Santa Marta, Colombia, for a variety of cultural and symbolic purposes. These artifacts, known as tumas, bear a striking visual resemblance to the lapidary works attributed to the Tairona culture, who are widely considered the direct ancestors of the Kogi. In this study, we analyzed a collection of Kogi beads and pendants using the same methodological approach applied to archaeological artifacts from the Caribbean islands' Ceramic Age. Our analysis involved typological classification, mineralogical identification, and a detailed examination of the production techniques. Although this research is still in its preliminary stages, it has already yielded interesting findings one may compare with archaeological artefacts from Colombia or the Antilles. By comparing these results with the contemporary use of tumas among the Kogi, we also aim to explore potential interpretations of similar artifacts in past societies, interpretations that remain particularly elusive for Western scientists due to the cultural and temporal distance involved. Despite the impossible direct transfer of symbolic interpretations between current and past societies, understanding the modern context of tumas may offer valuable clues to deciphering their roles in pre-Columbian societies.

67 MERC FORUM: APPROPRIATING MEDIEVAL HERITAGE IN THE CONTEMPORARY WORLD

Theme: 2. Crossing the divide. Archaeology and the open world
Organisers: Maria Vargha (University of Vienna) – Saša Čaval (ZRC-SAZU) – Petar Parvanov (Bulgarian Academy of Sciences) – Pavla Tomanová (Institute of Archaeology, CAS)
Keywords: Medievalism, Heritage ethics, Identity and ideology
Format: Other
Affiliation: Medieval Europe Research Community - MERC

SESSION ABSTRACT

Across Europe and beyond, the Middle Ages continue to echo in public life, with medieval imagery and heritage being constantly reused, reimagined, and politicised. From ideological movements and heritage debates to films, video games, and digital reconstructions, medievalism is consistently utilised to shape identities and values in the present. This is resonant on another level: the streets, towns, and landscapes we often still inhabit are shaped by their medieval past, whose presence is thus familiar yet elusive. In this forum, we understand appropriation broadly — from creative reinterpretation to ideological instrumentalisation — reflecting both the vitality and the volatility of medieval heritage today. This session brings together scholars and heritage professionals to examine how medieval material culture, narratives, and symbols are appropriated in the contemporary world. We will discuss issues, such as how political movements, digital communities, and creative industries use the Middle Ages to support and legitimise their identities, ideologies, values or worldviews. Moreover, the forum interrogates how such appropriations reveal the ongoing entanglement of heritage, identity, and power in a globalised media landscape. The discussion aims to facilitate a shared framework for understanding and communicating medieval heritage through a more inclusive and reflexive dialogue with the public. Arguably, scholars and heritage professionals must become more comfortable in engaging critically and constructively with such uses of the past. Invited discussants from diverse disciplinary backgrounds will examine with the audience various examples from their own practice, addressing the ethical and methodological challenges posed by these "resonant pasts", while asking what responsibilities scholars of the Middle Ages hold in navigating the contested afterlives of medieval heritage in the present.

69 INTERACTION, CONNECTIVITY & MOBILITY IN THE BALKANS: DIACHRONIC PERSPECTIVES ON LAND USE AND HUMAN–LANDSCAPE RELATIONS

Theme: 7. Interaction, connectivity and mobility
Organisers: Samira Fischer (University of Erlangen-Nürnberg) – Gabriella Armstrong (Department of Anthropology, Stanford University) – Andrea Pambuku (Directorate of Archaeological Service, National Institute of Cultural Heritage) – Erina Baci (Department of Anthropology, University of Michigan)
Discussant: Tobias Krapf (Swiss School of Archaeology in Greece)
Keywords: Balkans, Landscape, Mobility, Interaction, Connectivity, Land Use
Format: Discussion session

SESSION ABSTRACT

Situated between the Adriatic, Aegean, and Black Seas, the Balkan Peninsula has been a nexus for interaction, connectivity, and mobility across time. Characterized by a plethora of diverse geographies, including mountain chains, fertile valleys, and strategic corridors, the Balkans preserve a complex record of human land use whose resulting social and material landscapes are equally rich and dynamic. Broadly defined, landscape archaeology is the study of how humans interacted with, perceived, and shaped the environments around them. It is then inherently interdisciplinary, drawing from a variety of disciplines in addition to being multiscalar—zooming out past the "site." Thus, landscape archaeology provides a comprehensive framework for understanding human-environmental relations in the past. This session aims to bring together and highlight the research being conducted by early-career scholars and archaeologists exploring land use, mobility, and human-landscape interaction across the Balkans from Prehistory through the Medieval period. By emphasizing landscape archaeology as both a theoretical and methodological bridge, this session aims to integrate diverse datasets and foster dialogue among scholars working across temporal, regional, and disciplinary boundaries. Despite its widespread adoption in other parts of the world, landscape approaches are still uncommon in the Balkans, where the cultural history paradigm remains the dominant theoretical approach. Therefore, one of the goals of this session is to transcend the "Balkanization" of research traditions and emphasise the Balkans as a unified, interconnected domain of long-term human–environment interaction, a pivotal stage for the study of landscape transformation and cultural connectivity across Eurasia.

CONTRIBUTION ABSTRACTS

1248. Corridors of Mobility and Connectivity: Human-Landscape Interaction in the Neolithic Strymon River Valley

Authors: Nena Chatzitheodoridou (University of Thessaly)
Format: Oral

Situated between the Aegean and the interior of Southeastern Europe, the Strymon River Valley has long functioned as a strategic corridor of interaction, connectivity and mobility within the Balkan Peninsula. This paper examines the Strymon River Valley as a diachronic landscape of movement, analyzing how Neolithic communities inhabited, engaged with and transformed this environmentally dynamic region and how patterns of mobility and land use developed through sustained human-landscape relations. Adopting a landscape archaeological framework, mobility is approached not as episodic or large-scale migration, but as a socially embedded practice expressed through riverine corridors, floodplains, mountain passages and environmentally contingent terrains. By integrating geomorphological, hydrological and palaeoenvironmental datasets with settlement distribution, the analysis moves beyond site-based perspectives to conceptualize the Strymon River Valley as a multiscalar landscape shaped through the interaction of environmental affordances, constraints and human agency. The study highlights the valley's multifunctional character as a locus of habitation, a conduit of circulation and a landscape continually reconfigured through reciprocal interactions between environmental processes and human activity. Diachronic patterns indicate that mobility strategies were not environmentally determined but actively shaped through interregional interactions across the Balkans. By framing the Strymon River Valley as an interconnected, transboundary Balkan landscape rather than a collection of culturally bounded regions, this paper contributes to ongoing efforts to move beyond culture-historical paradigms in Balkan archaeology. It argues that corridor-based landscape approaches offer a robust analytical framework for understanding long-term connectivity, land use practices and human-landscape relations across the Balkans from Prehistory onward.

2536. Rise over run: Spatial modelling of Neolithic and Copper Age copper artefact distribution according to the 'least-cost corridor' method

Authors: Norbert Faragó – Zsuzsanna Siklósi (Eötvös Loránd University)
Format: Oral

The spread of metallurgical products across Europe has remained a central focus of Prehistoric research for a century. Building upon the Neolithic roots of Balkan metallurgy and relying on the exploitation of local copper ore deposits, communities in present-day Serbia and Bulgaria produced significant quantities of copper artefacts. Lead isotope and chemical composition analyses demonstrate that these artefacts gradually reached distant regions. While the dynamics, mechanisms, scale, and socio-economic significance of this diffusion have long been subjects of archaeological debate, less attention has been paid to the precise routes utilised by the agents. Consequently, this study investigates the potential transport routes connecting mining districts to final deposition sites, spanning from the initial appearance of copper artefacts in the Late Neolithic Carpathian Basin (4700 cal BCE) to the Middle Copper Age (3900–3650 cal BCE). Specifically, we aim to identify the least-cost corridors (LCCs) based on energy expenditure and time allocation. Several scholars have drawn attention to the key role of waterways since the spread of Neolithization. The research takes this circumstance for granted, but little attention has been paid to the practical know-how of maintaining such networks in the catchment area of the River Danube. Although water transport surpasses walking in terms of speed, it requires higher social energy investment. Moreover, the possible role of water as a hindrance must be taken into account equally. Is it possible to identify a moment or period in the distribution of Copper Age artefacts when such a highly organised social network manifests itself? What kind of influential role can be attributed to watercourses and waterlogged areas in communities that maintain such intensive networks of relationships? By reconstructing potential transport corridors, we seek to contribute to a more granular understanding of the dissemination of metallurgical products and technologies across Europe.

2709. Examining Geological Affordances and Prehistoric Settlement in Kosova

Authors: Gabriella Armstrong (Stanford University) – Erina Baci (University of Michigan)
Format: Oral

This paper presents ongoing research examining the environmental factors influencing settlement patterns across Kosova from the Neolithic to the Iron Age (6500-500 BC). Inspired by Galaty et al.'s (2022) analysis of environmental factors in driving broad settlement shifts in Dukagjin over time, this research applies a similar framework but at a broader scale. The data used in this analysis are from the Atlas of Archaeological Sites in Kosova (AASK) a database of nearly 1000 archaeological sites compiled from published archaeological data in the Archaeological Maps of Kosova Volumes I–III (2006, 2012, 2017). The analyses presented here evaluate whether patterns in prehistoric site distributions, observed from previous clustering and distance analyses, such as nearest neighbor, and Ripley's K, were influenced by geological features, particularly soil and bedrock types, and slope. Here, the assessment of how landscape features may impact long-term settlement strategies allows for a more nuanced understanding of larger human-environment interaction and land use trends in the region. By linking archaeological and geological datasets, this study contributes to discussions in Balkan landscape archaeology, offering insights into the drivers of prehistoric mobility, land use, and settlement choice. These results also refine ongoing research questions and methodologies demonstrating the value of interdisciplinary, multi-scalar landscape approaches in a region where such analyses remain relatively underutilized. Furthermore, these types of regional approaches are useful for integrating local data, at the country level, into broader Balkan and European frameworks regarding settlements and landscapes in prehistory.

2612. Halfway There – Life Between Rivers, Sea, and Mountain Peaks

Authors: Morana Vukovic (Archaeological Museum Zadar)
Format: Oral

The Velebit mountain, extending over more than 100 kilometres along the eastern Adriatic coast, was long regarded as an archaeologically marginal area. Systematic research conducted over the past two decades has challenged this view, demonstrating continuous human engagement with this rugged karst landscape from the earliest prehistory to the present. This paper focuses on the southern sector of Velebit, where the mountain slopes are structured by the deeply incised canyons of the Zrmanja and Krupa rivers and bordered by the Adriatic Sea. Although largely depopulated today, archaeological evidence indicates that this area played a crucial role in prehistoric lifeways. Multiple ecological zones provided access to freshwater and fertile river valleys, marine resources along the coastal foothills, extensive pastures suitable for year-round grazing, and diverse mountain resources. Fortified hillforts (gradine) reflect the strategic organisation of space, including territorial control, surveillance of movement, and the regulation of communication and exchange networks. Numerous tumuli, widely distributed across the landscape and often associated with hillforts and communication routes, further articulate the structured use of space. Their continued reuse in recent pastoral contexts highlights the long-term persistence of spatial practices. Settlement and mobility patterns display a strong degree of continuity. Many Bronze and Iron Age routes remain embedded in the contemporary landscape as local paths, pastoral tracks, and formal hiking trails. Modern hamlets frequently occupy the foothills of prehistoric hillforts, while oral traditions preserve knowledge of the landscape's deep past. Prehistoric monumental features, particularly large tumuli positioned at key topographic and strategic nodes, continue to function as persistent landmarks, marking routes, passes, boundaries, and symbolically charged places. Drawing on results of systematic archaeological field survey conducted since 2018 by the Archaeological Museum Zadar, this paper examines the Velebit massif as a dynamic cultural landscape shaped by mobility, connectivity, and long-term spatial continuity.

223. Beyond Marginality: Landscape Archaeology of the Rhodope Mountains in the Balkan Context

Authors: Vassilis Evangelidis – Despoina Tsiafaki – Melpomeni Karta – Varvara Ioannidou (Athena RC)
Format: Oral

Mountain landscapes in the Balkans have long been framed as peripheral or marginal zones, culturally conservative and situated beyond the effective reach of political and economic centers. Rooted in culture-historical paradigms, this view has obscured the dynamic roles of upland environments as spaces of interaction, mobility, and sustained human–environment engagement. This paper challenges such narratives through an archaeological study of the Rhodope Mountains as dynamic landscapes shaped and/or redefined from the 7th century B.C. until the Roman period. Drawing on data produced by the THRACE-CONNECT project—an H.F.R.I.-funded project mapping mountainous landscapes and movement networks in Aegean Thrace from the Greek colonization to the Imperial Era —the study examines patterns of land use, mobility, and settlement organization across the upland Rhodope. Employing a multiscalar methodology that integrates GIS-based spatial analysis, route modeling, and site-distribution data, it reconstructs how mountainous terrain actively mediated connections between the Aegean coast and the interior rather than functioning as a barrier. The analysis highlights both transformations associated with new social and economic structures and strong continuities rooted in earlier Thracian landscape practices. These findings suggest that external influence was negotiated and adjusted through pre-existing movement corridors and local spatial logics. By situating the Rhodope mountains within broader Balkan networks, this paper reconceptualizes mountain zones as active agents of regional connectivity and long-term landscape transformation, illustrating how landscape archaeology can move beyond narratives of marginality to reveal the dynamic role of upland environments in shaping human–environment interactions across the peninsula.

1719. Burials Betwixt and Between: The Liminal Deathscape of Phaleron

Authors: Angelica Caraballo-Santiago (University of California Santa Barbara) – Katrina Kuxhausen-Derose (University of California Los Angeles)
Format: Oral

A deathscape presents the intertwined spatial, material, and social dimensions through which death is experienced, managed, and memorialized in a landscape over time. This paper argues that the coastal cemetery of Phaleron served as a liminal deathscape through which the emerging Athenian polis could manage a wide spectrum of deaths, including infants, non-elites, travelers, criminals, and more. Phaleron was not a distant, isolated burial ground, but a mortuary landscape situated within a corridor of movement between urban and rural, land and sea, and inclusion and exclusion. Phaleron's placement in a marshy, coastal zone meant that the boundaries between land and water repeatedly blurred and reasserted themselves. Such a landscape resisted clear demarcation and lacked economic use-value, operating as a wasteland that gained meaning from its fluidity. The sandy, mutable soils allowed for reuse, ambiguity, and partial erasure, making Phaleron uniquely suitable for the management of socially diverse populations. It stands in stark contrast to the performative monumentality, civic identity, and political ideology found in the Kerameikos on the Sacred Way into Athens. Phaleron's long-term use, shifting shoreline, and repeated depositions reveal the transient nature of the deathscape as a dynamic spatial process. Recent bioarchaeological research demonstrates how mobility, bodily treatment, and burial variability were materially embedded into the deathscape of Phaleron. The proximity of infant pot burials to violent adult inhumations, the range of ages represented, and the contrast of grave goods show how the deathscape accommodated multiple identities in a single, shared space. Phaleron is distinct from the insular deathscape of the Kylindra infant cemetery, where age specifications and ritual repetition anchor and restrict community practice. This comparative study foregrounds death as a driver of land use, positioning the deathscape of Phaleron as an active component within a wider landscape of interaction, connectivity, and movement in the Aegean.

2693. Landscapes of Connectivity: Settlement, Cult, and Mobility in the Berat Region (Albania) from Late

Antiquity to the Middle Ages

Authors: Andrea Pambuku (Directorate of Archaeological Service, National Institute of Cultural Heritage)
Format: Oral

This paper examines long-term patterns of human–landscape interaction in the Berat region of central Albania from the 3rd to the 14th centuries AD, adopting a landscape archaeology and settlement pattern approach. Situated along the Osum River valley, the Berat region constitutes a well-defined micro-region that historically functioned as a major corridor linking the Adriatic lowlands with the mountainous interior of the Balkans. Its strategic geography fostered mobility, communication, and cultural exchange, shaping settlement organization, religious topographies, and systems of territorial control across Late Antiquity and the Middle Ages. Rather than treating archaeological sites as isolated entities, the study conceptualizes Late Antique basilicas, medieval churches and monasteries, fortifications, and associated settlements as components of an interconnected cultural landscape structured by connectivity and movement. The research is grounded in a geospatial archaeological dataset compiled through the integration of published scholarship, archival sources, and field-based documentation. Using GIS, archaeological evidence is analyzed in relation to environmental variables such as topography, hydrology, slope, and ancient communication routes, particularly Roman roads that continued to influence movement patterns into the medieval period. A central focus of the paper is the role of religious architecture as a spatial anchor within this landscape. Cult monuments frequently cluster near roads, river crossings, fortified centers, and productive zones, indicating their active role in organizing territory and facilitating mobility. The diachronic perspective reveals patterns of continuity and adaptation rather than rupture, highlighting the resilience of inherited infrastructures and the enduring influence of Late Antique spatial frameworks on medieval landscapes in the Berat region.

999. Living well and long-living: the case of Orlovets-Papaz cheshma, a multiperiod site in the Lower Danube basin

Authors: Vanya Petrova (National Archaeological Institute with Museum) – Nadezhda Todorova (Sofia University St. Kliment Ohridski)
Format: Poster

Multiperiod open-air sites provide long-term and diachronic evidence of how human communities adapted to, modified and interacted with their environment over time. This paper presents ongoing research into the multiperiod site of Orlovets-Papaz Cheshma (meaning 'Priest's Fountain' in Turkish), located in the central part of the Lower Danube plain in northern Bulgaria. The site has yielded evidence of recurrent, non-continuous occupation spanning several millennia, from the beginning of the 5th millennium BC to the 5th century BC, covering the Early Chalcolithic, Final Chalcolithic, Late Bronze Age, the Early and beginning of Late Iron Ages. Integrating data from plant macro-remains, anthracology, zooarchaeology, clay provenance analysis and high-resolution artefact studies enables us to investigate continuity and change in settlement patterns, resource exploitation and land use, as well as subsistence strategies, in response to varied cultural choices and traditions, and/or climatic and environmental dynamics. The rich collections of plant macro-remains and faunal assemblages testify to the varied roles played by agriculture and animal husbandry in each period, while hunting and gathering strategies seem to have retained their importance over time. Nevertheless, the availability and proximity of water sources seem to be a critical factor in the long-term occupation of the same spot.

71 COMMUNITY IN CONTEXT: INTEGRATING ARCHAEOLOGICAL AND BIOMOLECULAR EVIDENCE FROM MEDIEVAL CEMETERIES

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Guido Alberto Gnecchi Ruscone – Maria Spyrou – Maxime Poulain (University of Tübingen) – Ksenija Djukic (University of Belgrade)
Keywords: aDNA, isotopes, cemeteries, community, Middle Ages
Format: Regular session
Affiliation: Medieval Europe Research Community - MERC

SESSION ABSTRACT

Advances in biomolecular methods, such as stable isotope analysis and, more recently, ancient DNA, have enabled the generation of extensive biomolecular data from medieval cemeteries. These approaches have often been used to address broad-scale questions, for example, long-term human diffusion processes and their impacts on ancestry, diet and infectious disease burden across wide geographical expanses. Recently, an increasing number of biomolecular studies are shifting the focus to investigate the lived experiences of local communities, bringing insights into mobility and kinship practices, amongst other things. The medieval period, with its rich archaeological, historical, and art-historical sources and its large and diverse cemeteries, offers a unique opportunity for such integrated, multi-scalar studies. By combining biomolecular and contextual evidence, researchers can now address and provide answers to more complex social questions. The goal of this session is to foster knowledge exchange and discussion between archeologists, historians and geneticists who study medieval communities (early to late Middle Ages) through biomolecular methods (isotopes, ancient DNA), combined with anthropological, archaeological or historical perspectives on cemeteries, their material culture and the socio-economic and -political systems in which they were embedded. We welcome the submission of research projects and case studies that connect global processes (migration, trade, pathogen spread) with local experiences (diet, health, mobility, identity) and which further enhance cross-disciplinary collaboration between archaeological and biomolecular approaches. Possible themes fitting the focus of this session include: impact of migration on local communities; social structure and identity through spatial organization and kinship patterns in cemeteries; local responses to global epidemics through pathogen DNA and skeletal analyses; within community infectious disease burden for elucidating the timing and dynamics of pathogen transmission; dietary and health inequalities between social groups, or in marginalised communities, via isotopes and ancient DNA.

CONTRIBUTION ABSTRACTS

2646. 'Ways of Being Related' in migration period Britain, an investigation of kinship, cemetery and material culture

Authors: Duncan Sayer (University of Lancashire)
Format: Oral

Recent ancient DNA evidence points to migration as a significant factor in social change in early Medieval Britain. 75% of the ancestry within a population of the 278 individuals we published in Gretzinger et al 2022 had Continental Northern European ancestry. But we should not overlook the 25% which remain as a sizable influential population - not a isolated outpost of separate Roman Briton's but a amalgamation of relationships and lifeways. This 25% includes 'other's', West Africans, Romano British in different combinations of ancestries that define diversity and immortality relatedness. In this paper I will look at aDNA, migration and kinship. Early Medieval communities were making new and diverse ways of being related and marking these in material culture and mortuary proximity, as much as in their genes. In this paper I will explore different manifestations of kinship present in migration period cemeteries and will focus on sites like Oakington, West Heslerton, Dover Buckland, Updown and Worth Matravers. I will argue that it social change was as much a mixing up of kinship rules as a result of migration, gene flows or cultural change. I will also introduce new a new project that bring together DNA Isotopes and excavation to explore the idea of relatedness in the early middle ages in different ways.

2074. Biological Relatedness and Community Organization in the Moravian Principality

Authors: Denisa Zlámalová – Renáta Přichystalová (Department of Archaeology and Museology, Masaryk University) – Šárka Krupičková (Institute of Archaeology, Czech Academy of Sciences) – Sylva Drtikolová Kaupová (Department of Anthropology, National Museum, Prague | Institute of Archaeology CAS, Prague) – Bendeguz Tobias (Institute of Medieval Research, Austrian Academy of Sciences, Vienna) – Lumír Poláček (Institute of Archaeology, Czech Academy of Sciences) – Matej Ruttkay (Institute of Archaeology, Slovak Academy of Sciences, Nitra) – Jiří Macháček (Department of Archaeology and Museology, Masaryk University) – Johannes Krause (Max Planck Institute for Evolutionary Anthropology, Leipzig) – Zuzana Hofmanová (Max Planck Institute for Evolutionary Anthropology, Leipzig | Department of Archaeology and Museology, Masaryk University)
Format: Oral

A recurring challenge in studying Medieval cemeteries is their long-term use, which often disturbs earlier contexts. To investigate the emergence of Early Medieval societies—especially in regions lacking contemporary written sources—we focused on the 9th-century Moravian principality (also referred to as Great Moravia), one of Central Europe's earliest polities. Its cemeteries ceased functioning soon after the polity collapsed, offering a rare snapshot of a society existing for roughly 85 years. Our study includes over 600 samples from individuals from eight cemeteries across present-day Czechia, Slovakia, and Austria. The newly forming society was evidenced to be shaped by ongoing integration rather than descent from a single founding population, as revealed by its mostly shared ancestry background with genetic outliers suggesting social permeability. Distant relatedness links revealed that various sites were connected within the principality despite their geographical distance and that the individuals themselves were only weakly clustered by their burial site. Though the burial communities were composed of related individuals, the society was not only centered on relatedness (like Avar-period and rural cemeteries) nor mostly composed of unrelated individuals (like the 5th-6th century Eastern Germany). Elite burial spaces were often shared by multiple kin groups, and several high-status individuals lacked close relatives at their site. Nonetheless, elite markers tended to cluster within certain pedigrees and among individuals with higher overall relatedness connectivity. This indicates that elite status was not restricted to biological lineages, yet kinship still played a meaningful role in elite formation, alongside the integration of outsiders and possibly Christian practices such as godparenthood. Overall, Early Medieval communities in the Moravian principality were neither biologically closed nor organized solely around kinship. Instead, community belonging was socially produced through the incorporation of newcomers, negotiated access to elite status and burial spaces, and marital strategies that crossed local boundaries.

938. Shared ancestry across religious boundaries in medieval Córdoba, Spain

Authors: Diego Esteve-Gómez (University of the Basque Country EHU) – Enrique Hiedra Rodríguez (Universidad de Córdoba) – Carles Lalueza-Fox (Institute of Evolutionary Biology, CSIC-Universitat Pompeu Fabra | Natural Sciences Museum of Barcelona, MCNB) – David Reich (Department of Human Evolutionary Biology, Harvard

University | Department of Genetics, Harvard Medical School | Howard Hughes Medical Institute, Harvard Medical School | Broad Institute of MIT and Harvard) – Iñigo Olalde (University of the Basque Country EHU | Department of Human Evolutionary Biology, Harvard University | Ikerbasque–Basque Foundation of Science)
Format: Oral

The Islamic conquest of the Iberian Peninsula in the eighth century marked a turning point that profoundly shaped the social, cultural, and demographic landscape of the region for the following seven centuries. During the period of the Emirate (711–929) and the subsequent Caliphate of Córdoba (929–1031), the city of Córdoba emerged as the political and administrative capital of al-Andalus, attracting populations of Arab, Berber, and broader Mediterranean origin, while a substantial part of the local population remained in place. Processes of conversion, Arabization, and sustained interaction among these groups have long been the subject of extensive debate from historical, philological, and archaeological perspectives. In this context, archaeogenetics offers a novel approach, providing direct biological evidence that allows us to reassess these socio-demographic dynamics from a comparative perspective. With its rich funerary record, the city of Córdoba offers an exceptional context to directly compare communities associated with different religious traditions within the same urban setting. In this work, we recover and analyse genome-wide data from 42 individuals from two contemporaneous medieval cemeteries excavated in Córdoba: a Christian necropolis located in Ronda del Marrubial and an Islamic necropolis from the Zumbacón area (SC-3 Zum). The two sites are separated by approximately 500 metres and date to the Emiral and Caliphate periods. Preliminary results indicate that, despite adhering to different religions, most individuals from both cemeteries share the same ancestral origin in the pre-Islamic populations of southern Iberia. Overall, our results point to a largely local origin of Córdoba's Muslim population during the Emiral and Caliphate periods and suggest that religious conversion, rather than large-scale mobility, played a central role in shaping the religious landscape of Al-Andalus. Future archaeogenetic analyses of additional cemeteries will be necessary to assess whether these patterns are consistent across the wider urban population of medieval Córdoba.

2000. Archaeological and Biomolecular evidence from Fara Olivana (Bergamo): migration, social structure, dietary and material culture of the "Lombards" in Italy

Authors: Caterina Giostra (Catholic University of the Sacred Heart - Milan) – Maria Fortunati (former Archaeological Superintendency of Lombardy) – Guido Gnecchi Ruscone (Senckenberg Centre for Human Evolution - University of Tübingen) – Cosimo Posth (University of Tübingen) – Daniel Winger (University of Rostock) – Maurizio Marinato (University of Padua) – Alessandra Mazzucchi (Osteoarc APS ETS) – Emanuela Cristiani (Sapienza University of Rome)
Format: Oral

A project funded by the Italian Ministry of University and Research focused on migration, biological composition, social structure, diet and occupational activities, cultural interactions, and dynamics of integration within allochthonous communities that arrived in Italy at the end of the 6th century. The written sources identify these groups as the Lombards, who came from Pannonia (modern-day Hungary) together with other minority groups and were founders of the Lombard Kingdom (568-774 AD). These are central themes in Early Medieval history and archaeology and have long been debated in the specialist literature from a theoretical and methodological perspective. The interdisciplinary approach adopted involved the integration of archaeological data, ancient DNA analysis, multi-isotopic analyses for mobility (Sr, O) and diet (C, N, together with dental calculus analysis), and anthropological study. Moreover, for the first time, data derived from archaeometric analyses of typical artefacts - considered type fossils of allochthonous material culture - were also combined. The case study presented is the recently discovered necropolis of Fara Olivana (northern Italy). The 113 graves brought to light can be dated between the last three decades of the 6th century and the second half of the 7th century. Archaeological factors such as chronology, spatial organization, and the nature of the finds (including laboratory analyses) are integrated with genetic ancestry, kinship, mobility, status, and the circulation of material culture. All individuals uncovered were taken into consideration. The result is a community rich in experiences emblematic of the period, which can be compared with other Italian contexts and, above all, with Hungarian sites already investigated using a similar interdisciplinary approach and the application of genetics.

2233. Paired Lives and Shared Environments? Biomolecular Insights from Double Burials in Medieval Wallachia

Authors: Franceska Ştirbu ("Vasile Pârvan" Institute of Archaeology) – Sterling Wright (College of Health Solutions, Arizona State University) – Laura Weyrich (Department of Anthropology, Pennsylvania State University) – Ana García-Vázquez (Research Institute of the University of Bucharest) – Estelle Herrscher – Guy André (Aix Marseille Univ, CNRS, Minist Culture, LAMPEA) – Adrian Bălăşescu ("Vasile Pârvan" Institute of Archaeology) – Valentin Radu (National History Museum of Romania | Research Institute of the University of Bucharest) – Gabriel Vasile ("Vasile Pârvan" Institute of Archaeology)
Format: Oral

Recent advances in biomolecular archaeology enable the integration of multiple lines of evidence to produce highly detailed reconstructions of past communities. This study combines ancient DNA analyses of dental calculus with isotopic data on diet and mobility to investigate skeletal remains from the largest cemetery in medieval Wallachia, located in Buftea, Romania. Dating from the 14th to the 17th centuries, the site includes 10 double burials, one of which also features a reburial, offering a unique perspective on the

social and biological aspects of this population. Bioanthropological and paleopathological analyses revealed a high prevalence of mortality among subadults, as well as non-specific infectious disease markers, including periostitis and osteomyelitis, likely intensified by nutritional deficiencies and potential calamity events. Stable isotope analyses of carbon (δ13C), nitrogen (δ15N), sulphur (δ34S), oxygen (δ18O) and strontium (87Sr/86Sr) were used to reconstruct paleodiets, asses nutritional stress and identify mobility patterns among 21 individuals, both adults and subadults. Dental calculus samples from 18 of these individuals were further examined using aDNA metagenomic approaches to characterize the oral microbiome and explore indicators of oral health and diet. These biomolecular results were integrated with archaeological evidence and historical sources to situate dietary practices and population movement within a broader social and environmental context. By combining microbial, isotopic, and archaeological data, this study highlights variation in individual lifeways and demonstrates how biomolecular approaches can illuminate medieval burial populations as socially and biologically dynamic communities. This research represents the first fully integrated biomolecular investigations of a medieval cemetery in Romania and underscores the value of combining oral microbiome and isotopic analyses to reconstruct community structure, health, and mobility in southeastern Europe. This work was supported by a grant of the Ministry of Education and Research, CCCDI - UEFISCDI, project number PN-IV-P6-6.1-CoEx-2024-0042, within PNCDI IV.

2561. Life and death in the medieval rural community: a case study from southeastern Estonia

Authors: Marie Anna Blehner (University of Tartu)
Format: Oral

While much of Europe had entered the Middle Ages during the first millennium, this transition in the territory of present-day Estonia occurred primarily in the 13th century, following the Northern Crusades and the consolidation of Christianity. This period was marked by profound societal, religious, and cultural transformation, including the establishment of urban centers, the construction of churches, and changes in mortuary practices. Despite the spread of Christian norms, certain local traditions persisted, leading to the development of rural village cemeteries that were not directly associated with churches. The Loosi cemetery represents one such burial site and provides a valuable case study for examining the coexistence of Christian and local burial traditions in a rural medieval context. The study focuses on six burials distinguished by rich grave goods or unusual characteristics in the context of rural village cemeteries. Using an interdisciplinary bioarcheological approach, it integrates osteological analysis, ancient DNA, and stable isotope data to reconstruct aspects of health, diet, mobility, ancestry, and kinship within a rural medieval community. Osteological analysis provides evidence of age at the time of death, the sex of the individual, health, diet, and pathological conditions. Ancient DNA data offers insights into genetic ancestry and kinship relationships, while stable isotope analyses of carbon, nitrogen, sulfur, and strontium illuminate dietary practices and mobility. By combining multiple lines of evidence, this study – based on the author's Master's thesis – demonstrates the potential of interdisciplinary methods to reconstruct individual life histories and broader community dynamics. The findings contribute to a more nuanced understanding of rural life in southeastern Estonia during the Late Middle Ages and underscore the methodological value of integrated bioarcheological research.

1868. A multifaceted isotopic ($\delta^{13}C$ and $\delta^{15}N$) approach to diet and social identity in monastic and secular medieval Barcelona

Authors: Victor Morcillo (Géosciences Environnement Toulouse, CNRS, Observatoire Midi-Pyrénées | Department of Anthropology, McMaster University) – Benjamin T. Fuller (Géosciences Environnement Toulouse, CNRS, Observatoire Midi-Pyrénées) – Carme Rissech (Departament de Ciències Mèdiques Bàsiques, University Rovira i Virgili) – Klervia Jaouen (Géosciences Environnement Toulouse, CNRS, Observatoire Midi-Pyrénées) – Lluís Lloveras (Departament d'Història i Arqueologia, University of Barcelona)
Format: Oral

This paper presents a multifaceted study of dietary practices and social differentiation in medieval and post medieval Barcelona (13th–16th centuries), combining contextual archaeological analysis, anthropological study of human remains, and stable isotope analysis ($\delta^{13}C$, $\delta^{15}N$) of both humans and animals. This research focuses on individuals recovered from the monastic contexts of Santa Caterina and Sant Agustí, two important religious institutions with distinct historical trajectories and social connections within the city. Santa Caterina, founded in 1219 by the Dominican Order, was one of Barcelona's most influential monastic houses, closely linked to political and ecclesiastical elites. Sant Agustí, established in 1349 and associated with the Augustinian Order, developed strong ties with the urban craft community, particularly the Guild of Tanners. Archaeological excavations conducted between 1993 and 2007 uncovered numerous burials distributed across different funerary spaces, including cloisters, cloister corridors, and external areas of the churches. These spatial patterns provide key contextual information related to status, privilege, and social identity. Isotopic data were obtained from 49 humans and a comparative assemblage of associated fauna (including domestic animals and fish), allowing for a interpretation of dietary practices. Results reveal clear dietary differences in animal protein consumption not only between monastic and secular individuals, but also within the religious community itself, highlighting distinctions between friars, privileged lay individuals, and non privileged secular populations. These differences are expressed both in burial location and isotopic signatures, suggesting a close relationship between food access, social position, and funerary treatment. Finally, this study constitutes a pilot phase of a larger ongoing project, which will expand the number of human and faunal samples and further integrate material culture, funerary context, and isotopic evidence to refine interpretations of diet and social identity.

1988. Through teeth and text: introducing an interdisciplinary study of human mobility in the Medieval

Low Countries

Authors: Lieke Bes (AMGC, Vrije Universiteit Brussel | SHOC, Vrije Universiteit Brussel | Ghent University) – Isabelle De Groote (Ghent University) – Christophe Snoeck (AMGC, Vrije Universiteit Brussel) – Bart Lambert (SHOC, Vrije Universiteit Brussel)
Format: Oral

Our knowledge of human mobility in the Low Countries during the medieval period (500-1500 CE) is still fragmented. This topic is worth studying, as the ways in which people moved played a major role in population growth during the Early and High Middle Ages as well as urbanization during the 11th to 13th centuries, after which the newly formed cities facilitated movement further by serving as connected hubs. The Low Countries were urbanized early on and more extensively when compared to the rest of Europe. A diachronic analysis of human mobility in this area during the entire Middle Ages will therefore be necessary to shed light on what facilitated these processes. For this doctoral research project, human mobility will therefore be studied at sites from the Early, High, and Late Middle Ages. A combination of biomolecular and physical anthropological methods, as well as historical sources will be used. Isotope analysis (O, Sr) and analysis of dental non-metric traits will be applied to several collections of human remains from cemeteries across the Low Countries. These analyses are supplemented with isotope data for diet reconstruction (C, N). For urban sites from the 14th and 15th centuries, the isotopic and dental non-metric data will be confronted with historical records in the form of poorterboeken. While these registers of newly incoming citizens contain crucial information on the movement of people toward the cities, they also suffer from great social and gender biases. By applying an interdisciplinary approach, the movement of people can be studied within the historical context of rising urbanization, while testing the possibilities and limitations of different types of data for this kind of research. In this paper, the project will be introduced and preliminary results from the first High Medieval site of Sint-Pietersplein (Ghent), will be presented.

839. Resting places of plague victims (541-750 CE). Archaeogenetic study in isolation and integration from the Black Sea to the Atlantic

Authors: Solenn Troadec (Institute of Archaeology of the Czech Academy of Sciences Prague | MHAAM) – Mathieu Ott (Inrap Midi-Méditerranée | UMR5140 Archéologie des Sociétés Méditerranéennes) – Alina Hiβ (Max Planck Institute for Evolutionary Anthropology, Leipzig) – Valérie Delattre (Inrap | UMR 6298 CNRS ARTeHIS)
Format: Oral

In 2020, the world rediscovered the meaning of pandemics. The impact of COVID-19 on modern populations and the treatment of their dead echoed health crises faced by ancient societies. In the early Middle Ages, however, these events remain imperfectly documented in written sources. The project developed by the Max Planck-Harvard Research Center for the Archaeoscience of the Ancient Mediterranean (MHAAM) aims to adduce new evidence to the Justinianic Pandemic through an interdisciplinary approach. This paper presents the first results of this interdisciplinary endeavor in France. Through collaborations with the Institut National de Recherches Archéologiques Préventives (Inrap), the CNRS and other French institutions, our team created a geodatabase of atypical burials in early medieval France (c. 500-1000 CE). This inventory served as the basis for the selection of individuals for aDNA genetic analyses. The identification of atypical burials is based on a flexible definition, designed to adapt to the diversity of burial practices observed at different scales in this period. By comparing results from these individuals to the rest of their communities treated in more traditional ways, and with other victims identified throughout Europe, this project provides the necessary geographical and chronological coverage to understand various reactions to pandemics from different communities. This paper brings archaeology back to the center of genetic studies. It depicts a more nuanced and humane perspective on early medieval European communities experiencing epidemic events, and their associated funerary practices . On a wider scale, this project follows the historical roads of infection and aims to develop a truly European archaeology of plague, its influence on the continent, and the resilience of past societies.

1196. Biturica Pestilentia. Interdisciplinary Perspectives on the Justinian Plague from the Burial Site of Le Pressoir (Central France)

Authors: Raphaël Durand (Service Archéologie Bourges Plus | UMR 5199 PACEA) – Dominque Castex – Sacha Kacki (UMR 5199 PACEA)
Format: Oral

Excavated in 2009, the site of Le Pressoir in Saint-Doulchard, near Bourges (France), uncovered part of the medieval cemetery associated with the local church. Previously thought to date back to the 10th century, the cemetery now appears to originate from the 6th–7th centuries, as suggested by archaeological excavations. On the immediate outskirts of this burial ground, a boundary ditch revealed an unusually high number of graves—some containing multiple burials—indicating one or more episodes of exceptionally high mortality. Initial post-excavation analyses quickly confirmed a mortality pattern typical of an epidemic. Paleogenetic research, conducted in collaboration with the Max Planck Institute, further revealed remarkably well-preserved pathogen traces, with a significant number of individuals infected by Yersinia pestis. Since 2021, these findings have been supplemented by isotopic studies aimed at exploring potential links between diet and infection, as well as determining the geographic origins of the buried population. While the latter question remains under investigation, preliminary dietary results highlight notable differences between infected individuals buried on the margins of the cemetery and the rest of the deceased. In addition, recent cementochronology

research revealed specificities of the plague's demographic impact on adults. Combining hagiography, archaeology, and biological anthropology, the Le Pressoir site provides an exceptional case study for understanding the final repercussions of the Justinian Plague within the Frankish kingdom.

1749. Venice's Lazzaretto Vecchio: A Biomolecular Archive of the Second Plague Pandemic

Authors: Emily Gaul (Microbial Archaeogenomics, University of Tübingen) – Antonino Vazzana – Carla Figus – Matteo Romandini – Vittoria Bianchi (Department of Cultural Heritage, University of Bologna) – Philip Slavin (Division of History, Heritage and Politics, University of Stirling) – Stefano Benazzi (Department of Cultural Heritage, University of Bologna) – Cosimo Posth (Archaeo- and Palaeogenetics, University of Tübingen | Senckenberg Centre for Human Evolution and Palaeoenvironment, Tübingen | Archaeogenetics, Max Planck Institute for Evolutionary Anthropology) – Maria Spyrou (Microbial Archaeogenomics, University of Tübingen | Senckenberg Centre for Human Evolution and Palaeoenvironment, Tübingen | Archaeogenetics, Max Planck Institute for Evolutionary Anthropology)
Format: Oral

Within recent years, ancient DNA has emerged as a tool radically advancing our understanding of the evolutionary history of the bacterium Yersinia pestis, the aetiological agent of plague. The lineage responsible for the Black Death is now known to have originated in central Eurasia, from where it spread to Europe undergoing frequent resurgences over a period of approximately five centuries. Despite the publication of over 100 Y. pestis genomes from the Second Plague Pandemic, imprecise dating of lineages and sporadic sampling through time and space impede the synthesis of genetic data with evidence from other disciplinary approaches. Here, we present the case study of the Lazzaretto Vecchio, which functioned as a site of treatment and quarantine for those afflicted with plague in Venice from 1423 until the mid-17th century CE. A total of 170 individuals recovered from tomb and mass burials at the site underwent multiple bioarchaeological analyses, yielding detailed insights into the disease's victims spanning two centuries. Genome-wide Y. pestis data generated for 37 individuals, show that the recovered strains fall into four distinct genetic clusters, consistent with successive waves of plague affecting the city. Furthermore, observed patterns in the spatial distribution of Y. pestis diversity across the mass graves enabled the assessment of demographic differences among victims associated with distinct outbreaks, including age, sex, genetic ancestry and detected co-infections. Our findings underscore the value of high-resolution approaches in facilitating novel, multidisciplinary perspectives on Y. pestis evolution and its interplay with host population dynamics during past plague pandemics.

1273. First Bioarchaeological and Molecular Evidence of Leprosy (Mycobacterium leprae) in 13th-Century Serbia: A Study from Čačak

Authors: Ksenija Djukic – Željka Matić – Ana Vučurević Petreski – Veda Mikašinović (University of Belgrade, Faculty of Biology) – Vujadin Vujadinović – Aleksandra Gojgić (National Museum of Čačak, Serbia) – Milica Keckarević Marković – Dušan Keckarević (University of Belgrade, Faculty of Biology)
Format: Oral

Leprosy remains one of the most socially and biologically significant diseases of the medieval period, yet its presence in the territory of modern-day Serbia have long relied solely on historical testimony. This study presents the first combined osteological and molecular confirmation of leprosy from a medieval context in Serbia. Skeletal remains derive from a 13th-century necropolis excavated in 2023 at the Bate Janković Street site in Čačak (central Serbia), where 16 graves were investigated. Bioanthropological analysis identified 16 individuals (two adult females, two males, seven adults of indeterminate biological sex, and five non-adults). After skeletal changes compatible with leprosy were noted in one individual, ancient DNA analysis targeting M. leprae was performed on affected bones (palate, tibia and fibula) and an upper molar. Subsequently, all individuals from the cemetery were screened for molecular evidence of infection. The results indicated that one individual (grave 17), a young female aged 20-25 years, displayed a consistent pattern of craniofacial and postcranial lesions. Observed pathological features included active cribra orbitalia, porous and newly formed bone on the palatine, marked resorption of the anterior alveolar bone with loss of the maxillary incisors, new bone formation in the left paranasal sinus, and severe osteomyelitis of the tibia and fibula. This set of skeletal changes is consistent with leprosy. Molecular methods including specific PCR amplification followed with sequencing confirmed the presence of M. leprae. In addition, a second molecularly positive case was identified (Grave 10), a male aged 35 – 45 years, despite the absence of skeletal lesions specific for leprosy. This study provides the first direct physical evidence of leprosy in medieval Serbia and demonstrates the value of integrating routine bioanthropological with bimolecular detection of M. leprae for reconstructing the paleoepidemiological and historical distribution of leprosy in medieval Europe.

1998. Strontium and oxygen isotope analysis of human remains at the North Sea emporia: Dorestad in comparison

Authors: Lieke Bes (AMGC, Vrije Universiteit Brussel | SHOC, Vrije Universiteit Brussel | Ghent University) – Julie Luyt – Petrus Le Roux (University of Cape Town) – Letty Ten Harkel (Leiden University)
Format: Poster

Isotopic (O, Sr) investigations into the people buried at Early Medieval (7th – 9th c.) emporia sites around the North Sea and the Baltic

area have produced results that give insight into mobility among the populations of these trading hubs. Previous studies by various researchers include the sites of Ribe (Denmark), Birka (Sweden), Domburg (Netherlands) and Dorestad (Netherlands). Current research has yielded 87Sr/86Sr and δ18O data from 20 additional Dorestad individuals from De Geer II. Based on the strontium data, at least one individual has an origin outside of the current-day borders of the Netherlands. Another three spent part of their childhood outside the immediate surroundings of Dorestad. The oxygen data suggests two individuals may have moved in childhood, but the shift in δ18O could also be caused by changes in diet or local climate. In this poster presentation, these results are compared to those from previous studies on the aforementioned other emporia sites, including the previously published data from Dorestad site Veilingterrein. While at each site, non-local individuals could be detected based on δ18O and/or 87Sr/86Sr values, the numbers are likely underestimated due to overlapping baseline ranges around the North Sea. Dorestad, Domburg and Ribe are almost isotopically indistinguishable. This obscures investigations into mobility between these settlements. This is an issue, considering the emporia were closely connected to each other. Analyses of different burial practices and material culture of the individuals for whom isotopic data is available at Ribe and Birka have provided additional information, but this is difficult for Dorestad where all burials have been interpreted as Christian and contain little to no grave goods, and Domburg which is extremely poorly preserved. Additional methods like aDNA analysis or a proxy thereof, such as dental non-metric trait analysis, might shed more light on mobility between the North Sea emporia.

72 HIGHLAND LIVES, HIDDEN LANDSCAPES: ARCHAEOLOGICAL RESEARCH IN THE MOUNTAINS OF GREVENA

Theme: 7. Interaction, connectivity and mobility
Organisers: Nikolas Dimakis (National and Kapodistrian University of Athens) – Sonia Dimaki (Hellenic Ministry of Culture/ Ephorate of Antiquities of Grevena) – Mercourios Georgiadis (University of Crete) – Chrysanthi Kallini (Aristotle University of Thessaloniki) – Arnau Garcia-Molsosa (Catalan Institute of Classical Archaeology)
Keywords: Mountain archaeology, Landscape archaeology, Pindus, Grevena
Format: Regular session

SESSION ABSTRACT

The Grevena region, situated in the rugged Pindus highlands of Western Macedonia, Greece, remains one of the least archaeologically explored areas in the southern Balkans. Yet its mountainous terrain preserves a rich and multi-layered cultural landscape, shaped by millennia of human presence - from Paleolithic foragers and transhumant pastoralists to Hellenistic fortified communities and Byzantine outposts. This session invites contributions that explore the archaeological record of the Grevena mountains and its broader cultural, historical, and environmental context. We are especially interested in research grounded in the methods and theoretical frameworks of mountain archaeology and landscape archaeology, including - but not limited to - survey and excavation projects, remote sensing and LiDAR applications, geoarchaeological and bioarchaeological studies, and heritage management strategies. We aim to initiate a dialogue among researchers working in Grevena and the wider Pindus range, highlighting both the challenges and opportunities of archaeological practice in highland zones. Special attention will be given to interdisciplinary approaches that consider the mountains not merely as marginal spaces or natural boundaries, but as dynamic arenas of interaction, connectivity, and resilience. By bringing together recent and ongoing archaeological work in the region, this session seeks to place Grevena on the scholarly map of highland archaeology in southeastern Europe, and to reflect on how mountainous environments shape, and are shaped by, human activity across time.

CONTRIBUTION ABSTRACTS

2563. Fortified Sites and Spatial Organisation in the Uplands of Grevena

Authors: Gerasimos Trasanis (National and Kapodistrian University of Athens)
Format: Oral

This paper examines fortified sites in the Regional Unit of Grevena from the Iron Age to the Late Roman period. Adapted to the extensive forests and the rugged terrain the ongoing research is based on a field survey combining conventional archaeological recording with GIS and drone documentation. To date, more than twenty-five naturally and/or artificially fortified sites have already been identified and relocated. Focusing on construction techniques, building materials, size, construction investment, and topographic location, the paper identifies local architectural patterns in the Grevena fortifications. These show close affinities with neighboring Upper Macedonian areas, yet remain distinct from the larger and more complex fortification systems of Lower Macedonia and southern Greece. By analyzing their features along with their dispersion on the landscape, the paper reassesses their function within changing social, political, and economic conditions. Finally, it highlights their role in shaping both local territorial organization and the long-term 'mountain' identity of communities in Grevena.

2173. The site of Kastri in Polyneri Grevena. The ancient acropolis between Macedonia and Epirus

Authors: Chrysanthi Kallini – Stella Drougou (Aristotle University of Thessaloniki) – Nikolaos Chatzidakis (Freelance)
Format: Oral

The ancient acropolis at Kastri, the rocky peak at a height of 1,100 m, which located between the villages of Polyneri and Alatopetra in the northeastern Pindos, occupies two natural plateaus. Access is relatively smooth from the southeast, while in the northwest the hill turns into a steep and inaccessible rock. On the first slope from the top of the hill a large building complex was uncovered, and it was confirmed that the acropolis was fortified with a strong enclosure over most of its area. The building complex on the large plateau includes three main structures: a temple, a large Doric stoa, and another large building, which together form a square open towards the top of the hill. According to the excavation findings, this complex must have been created at the end of the 4th century BC and survived until the middle of the 2nd century BC. The comparison of the acropolis at Kastri with similar sites in ancient Epirus like Gitana, Elea, Kassopi, shows that the urbanization of ancient Upper Macedonia and Epirus took place in the 4th and 3rd centuries BC. These cities developed in mountainous areas, naturally protected, and these citadels were the political and administrative centres of the regions. The spatial organization of these spaces was part of a broader building program, which included the construction of strong fortifications and various religious, political, and administrative buildings. The role of the ancient site at Kastri appears to be significant, as it contributes to our understanding of the importance of mountainous regions at the crossroads of the two neighboring kingdoms in terms of political and economic developments, as well as cultural exchanges during the Hellenstic period.

163. Mapping the Invisible: The Philippaioi Project (Phili.P)

Authors: Nikolas Dimakis (National and Kapodistrian University of Athens)
Format: Oral

The Philippaioi Project (Phili.P) is a five-year interdisciplinary research programme (2024-2028) jointly conducted by the National and Kapodistrian University of Athens and the Ephorate of Antiquities of Grevena, aiming to reassess the archaeological potential of the mountainous landscapes of Upper Macedonia through a systematic study of the fortified hill at Philippaioi, in the Grevena region. Situated at an altitude of approximately 1,150 m and extending over c. 9 ha, the site preserves substantial architectural remains, funerary features and dense surface material, yet has remained largely unexplored owing to the geomorphological complexity, dense vegetation and long-standing research bias towards lowland contexts. Phili.P introduces an integrated methodological framework that combines intensive surface survey, architectural documentation and targeted test excavations with advanced non-invasive techniques, including drone-borne LiDAR, multispectral photogrammetry, geophysical prospection and GIS-based landscape analysis. These approaches allow high-resolution mapping beneath forest cover and facilitate the reconstruction of settlement organisation, defensive systems and activity zones within a highly structured upland environment. Complementary bioarchaeological, geoarchaeological and micromorphological analyses provide insight into subsistence strategies, resource exploitation and site formation processes, while an ethnographic component documents local perceptions and memory practices connected to the archaeological landscape. Preliminary results from the first field season demonstrate the presence of a fortified acropolis-like nucleus, extensive terracing systems and a long sequence of occupation from the Early Iron Age to the Hellenistic and Roman periods, challenging the traditional view of the Macedonian highlands as marginal or transient spaces. By foregrounding both habitation and mortuary evidence, the project seeks to reconstruct patterns of everyday life, mobility and social organisation in upland settings. Phili.P contributes to current debates on mountain archaeology by demonstrating the centrality of highland communities in regional networks and by offering a transferable methodological model for the investigation of complex, low-visibility landscapes in the eastern Mediterranean.

802. Tymphaia-Upper Macedonia. Highland Lives and Deaths in Monachiti-Megali Petra

Authors: Georgia Karamitrou-Mentessidi (Greek ministry of culture) – Eleni Mentesidou (International Hellenic University)
Format: Oral

The archaeological site of Megali Petra at Monachiti, in the Grevena Prefecture, provides new evidence for highland settlement organization and funerary landscapes in Tymphaia, a region of ancient Upper Macedonia. Situated on a steep rocky hill at an altitude of approximately 1,100 m, the site forms part of a wider network of fortified upland communities, reflecting adaptive strategies shaped by environmental constraints and the defensive potential of mountain terrain. Rescue archaeological investigation has substantially enhanced our understanding of the spatial articulation and long-term use of this highland landscape. Fieldwork documented two extensive plateaus on the hill functioning as burial areas, where tombs with associated grave assemblages indicate intensive funerary activity during the Roman period. This funerary evidence is associated with architectural structures on the same hilltop, demonstrating the close integration of habitation and mortuary zones within a single upland settlement complex. At the same time, the confiscation of bronze finds belonging to the group of the "Macedonian bronzes," reportedly originating from the site, suggests an earlier phase of activity and occupation. Together, these data point to a diachronic pattern of landscape use in which settlement and burial practices were continuously embedded within the same topographic framework. By approaching Megali Petra as a dynamic highland cultural landscape, this study contributes to current debates in mountain archaeology, highlighting mountainous environments not as marginal peripheries but as active arenas of social organization, connectivity, and long-term resilience.

The Monachiti case study thus refines our understanding of human adaptation to upland environments and advances the archaeological mapping of the Grevena highlands.

1461. Prionia of Grevena. Evidence of Settlement and Early Cult Practices in the Mountains of Tymphaia

Authors: Aikaterini Anagnostopoulou (Greek Ministry of Culture | University of Ioannina) – Georgia Karamitrou-Mentessidi – Dimitra Theodorou (Greek Ministry of Culture)
Format: Oral

Within the framework of the construction of the Egnatia Odos (Grevena–Panagia section), rescue excavations were conducted at the sites of Paliomonastiro and Ivani at Prionia in Grevena Prefecture in ancient Tymphaia, a region of Upper Macedonia. At the first site, a section of a Hellenistic settlement was uncovered, featuring two kilns and seven burials, while at the second site, a settlement of the Hellenistic period was revealed, accompanied by artifacts from the Archaic-Classical period and the Late Bronze Age. The Late Helladic III period (LBA) is attested by the presence of Mycenaean pottery and handmade Macedonian matt-painted pottery, as well as 18 pithoi, stone tools, clay spindles, and loom weights, indicating a range of productive and domestic activities. The Archaic funerary assemblages include two pit burials of young girls with rich grave goods, such as bronze and silver pins and fibulae, bracelets, silver earrings, a silver ring, necklaces and amulets, along with scattered small finds. Of particular interest is a bronze ring with the inscription ΧΑΙΡΕ ΚΑΙ ΣΥ. Additionally, the remains of eight animals (three sheep/goats and five dogs) were identified, together with fragmentary bones of cattle, pigs, and deer. Interpretation of the archaeological evidence suggests that the site likely functioned as a sanctuary with a semi-out door character, possibly dedicated to the worship of Artemis as Kynigetis and Agrotera, adapted to the mountainous and forested environment. The findings provide the first evidence of Mycenaean presence in the Grevena area and attest to the circulation of Macedonian matt-painted pottery. The Archaic burials and the scattered artefacts indicate settlements with a strong economy and extensive trade as well as cultural connections, demonstrating that Upper Macedonia from the 6th -5th centuries BCE was integrated into the broader Greek cultural sphere, characterized by a high standard of living and cultural development.

225. The archaeological site of Agios Konstantinos: a transition area from the highlands of Grevena to the Thessalian and Macedonian plain.

Authors: Peli Plika (International Hellenic University)
Format: Oral

The archaeological site at Agios Konstantinos in the village of Dimitra, SE Grevena, offers an opportunity to reassess the role of upland–lowland interfaces in western Macedonia as zones of mobility, resource negotiation, and interregional connectivity. This paper argues that the site functioned diachronically as a nodal point within a geographically and culturally transitional zone linking the Grevena highlands with the Thessalian and Macedonian plains. The archaeological record, spanning from the Hellenistic to the Byzantine period, includes a Hellenistic farmhouse with associated workshop areas and a multi-phase basilica accompanied by an extensive cemetery and a kiln associated with workshop activity. Rather than representing isolated occupation phases, these remains indicate recurrent investment in settlement, production, and ritual activity at the same strategic location, suggesting sustained engagement with movement corridors and local resources. The continuity and changing character of use indicate that Agios Konstantinos operated as a point of communication, economic mediation, and cultural interaction across ecological and regional boundaries. The site thus provides material evidence for understanding transitional landscapes not as peripheral margins, but as active mediating environments shaping long-term settlement and economic strategies.

227. Built for the Dead: Monumental Funerary Architecture in Roman Grevena (2nd–4th c. AD)

Authors: Vasileios Vlachos (National and Kapodistrian University of Athens)
Format: Oral

This paper addresses the monumental funerary architecture of the Roman period in the region of Grevena, focusing on the complete set of funerary monuments identified and studied to date at the sites of Megalo Seirini, Leipsokouki, and Kivotos. The material forms a distinct architectural corpus of underground vaulted tombs, displaying a degree of typological coherence both within the local unit of Tymphaia and the wider region of Upper Macedonia, as well as in comparison with examples from other parts of the Roman Empire. The study aims at the typological classification and chronological assessment of the monuments, combined with their comparative analysis. By synthesizing the architectural evidence, the paper examines the broader contexts in which architectural choices were shaped and considers their relationship to local building traditions and wider Roman models. Beyond typology, the material is placed within a broader architectural and geographical framework, exploring how common architectural types and forms appear, are adapted, and acquire local inflections. In this perspective, the funerary monuments of Grevena are approached as part of the diversity that characterizes funerary architecture across the Roman provinces.

198. Bioarchaeological Insights from Grevena: A Diachronic Osteological Analysis of Hellenistic to Ottoman Rural Populations

Authors: Maria-Eleni Chovalopoulou – Nikolaos Dimakis – Samuel James Cockerill – Maria Aikaterini Kourmpatsou – Stavroula Tzampouri – Theofania Mantzorou (National and Kapodistrian University of Athens)
Format: Oral

This paper presents a diachronic bioarchaeological study of human remains from four excavations in the region of Grevena, northern Greece, spanning the Late Hellenistic, Roman, and Ottoman periods. The assemblages derive from the sites of Tsigodentro, Leipsokouki, Sirini, and Pefkakia and offer a rare opportunity to explore long-term patterns of health, activity, and demography in rural populations of the region, which remains comparatively understudied in bioarchaeological terms within the wider region of Macedonia, Greece. Despite variable preservation and, in some cases, extensive commingling due to post-depositional disturbances, osteological analysis allowed the reconstruction of key aspects of the biological profile and the assessment of living conditions. The Late Hellenistic assemblage from Tsigodentro includes four individuals, while the Roman-period contexts of Leipsokouki and Sirini yielded a minimum of five and at least eighteen individuals respectively. The Ottoman cemetery at Pefkakia is represented by five individuals, three of whom are non-adults. Indicators of physiological stress, including enamel hypoplasia and evidence of infectious lesions, are particularly evident among non-adults, pointing to challenging living conditions during early life. The Roman assemblage from Leipsokouki is characterized by marked skeletal robusticity, suggesting sustained engagement in physically demanding activities. The material from Sirini, although fragmentary, exhibits a range of pathological and activity-related stress indicators, including dental calculus, carious lesions and enamel hypoplasia, as well as multiple fractures, collectively pointing to both chronic oral health stress and intense physical activity. Taken together, these assemblages provide insight into both continuity and variability in health status and activity patterns among rural communities in Grevena across more than a millennium, significantly contributing to the existing knowledge on human lifeways in historical-period Macedonia. Finally, the recovery of well-preserved petrous portions highlights the potential for future aDNA analyses, which may further elucidate biological relationships and population dynamics in the region.

866. The Early Neolithic Vrastero in southern Grevena

Authors: Sonia Dimaki (Hellenic Ministry of Culture) – Merkourios Georgiadis (University of Crete)
Format: Oral

The identification of the Early Neolithic site at site at Vrastero in 2022 led to a systematic study of this site. The widespread pottery remains along with several recognizable stone tools in the surface led to a systematic survey of the area. Four trenches were also opened to trace the stratigraphy and cultural remains that belonged to this site. The preliminary results from Vrastero provide the image of a significant site that acted as a production centre for various types of objects and tools. Some were made for local consumption like pottery, most of the flaked tools and stone objects. Others like stone tools, especially grindstones, were massively produced on site and most probably they were exported to other contemporary settlements. The local pottery is a very important group that provided the opportunity for understanding the character of ceramic production and consumption in this part of western Macedonia, between north-western Thessaly and the area of Kozani. Furthermore, the structural remains allowed an assessment of the building materials employed and the local architectural tradition in comparison to the surrounding regions. Overall, a preliminary assessment will elucidate the conditions and economy of an EN settlement in a part of Greece that is known to a limited extent.

643. Animal Husbandry Mobility and Mountain Landscapes in the Grevena Region (Northern Pindus): Ethnographic and Folklore Perspectives

Authors: Evangelos Karamanes (Academy of Athens)
Format: Oral

Focusing on the mountainous region of Grevena in the Northern Pindus, this paper explores forms of mobility related to animal husbandry through the perspectives of Greek ethnography and folklore studies. For centuries, the Pindus highlands have constituted a privileged space for nomadic and semi-nomadic pastoral groups, whose seasonal movements shaped economic practices, social organization, and cultural perceptions of mountain landscapes. The contribution draws on a critical review of classic and later ethnographic research conducted among pastoral populations in mainland Greece, including emblematic studies by Alan Wace and Maurice Thompson on the Pindus Vlachs, as well as later approaches to agropastoralism of Koupatsarei and the Voio area communities of builders (masons, master masons, folk architects-experts). Emphasis is placed on the comparatively lesser-known work of Greek scholars associated with the Folklore Archives / Hellenic Folklore Research Centre of the Academy of Athens, following the foundational studies of Demetrios Loukopoulos on pastoral life in Roumeli in the interwar period. Within this scholarly framework, Grevena is examined as part of wider networks of transhumant mobility linking the Northern Pindus to lowland winter pastures in Thessaly and Macedonia. The geomorphology of the region—combining high-altitude summer grazing with accessible plains—favoured forms of transitional livestock farming that enabled the long-term exploitation of mountain environments. The paper addresses key issues debated in the literature: the specialization of specific cultural groups in animal husbandry and the regulation of access to pastures; the coexistence and interaction of pastoral and agricultural activities; diachronic transformations of pastoral mobility in relation to socio-political change; and the relationship between mobility, gender, and other mobile professional groups. By foregrounding ethnographic and folkloric evidence, the paper highlights Grevena as a key case study for understanding mountain landscapes as dynamic spaces of interaction, connectivity, and resilience.

2535. The Mountain as a Stage: Towards a "Poetic" Landscape Archaeology in Grevena

Authors: Sofia Baltzoi (Independent Researcher)
Format: Oral

This paper proposes a "poetic" and participatory approach to landscape archaeology in the mountainous environments of the Pindus, through the case study "Place, Space and Memory", developed during the NKUA excavation at Agios Georgios (Grevena). Student participation provided the starting point for methodological experimentation, in which repetitive walking, rhythmic modulation, silence, listening, and collective attention transformed a routine route into a reflective research practice. Movement and walking are treated not as mere transit, but as sensory protocols that activate place awareness and embodied knowledge. Rhythm, effort, and environmental conditions reshape perceptions of distance, slope, stratified terrain, soundscape, and temporality. The ritual dimension and performativity of these practices are used not to reconstruct the past, but as analytical lenses through which to examine body, place and time relations in contemporary archaeological practice. These methods complement conventional field techniques, particularly in relation to scale, visibility, and lived engagement with mountain terrain. By emphasizing collective memory and local community involvement, the paper frames archaeological knowledge as a dialogical process that links scientific interpretation with lived experience, intergenerational storytelling, and community heritage awareness. Bringing these strands together, the contribution frames the mountain not as a marginal boundary, but as a dynamic arena of connectivity, resilience, and the long-term co-shaping of people and landscape.

1098. Geophysical Survey at Philippaioi in Grevena: preliminary results from a highland settlement

Authors: Nikolas Dimakis (National and Kapodistrian University of Athens) – Grigoris Tsokas – Konstantinos Polydoropoulos (Aristotle University of Thessaloniki) – Nikolas Kordatos (Independent researcher) – Dimitris Tsokas (Aristotle University of Thessaloniki)
Format: Poster

Recent geophysical prospection was conducted for the Philippaioi Project (Phili.P) of the NKUA at the archaeological site of Philippaioi, focusing on an approximately 14 sqkm riverside area located at the foot of the hill that dominates the site. The survey aimed to assess the subsurface archaeological potential of this sector prior to excavation and to refine hypotheses concerning the spatial organization of the settlement within a highland landscape. The applied geophysical methods revealed a series of distinct anomalies consistent with anthropogenic features, including linear and rectilinear patterns, localized high-response zones, and clustered signals indicative of built structures or activity areas. The spatial distribution of these anomalies suggests organized use of space rather than sporadic or ephemeral occupation, pointing to zones of particular archaeological significance within the surveyed area. These results provide a critical framework for the planning of forthcoming systematic excavations of the Philippaioi Project, allowing for targeted investigation of key areas and more efficient allocation of research resources. Beyond their immediate practical value, the geophysical data contribute to broader discussions on settlement planning, land use, and the articulation of habitation space in mountainous regions of western Macedonia. The Philippaioi case study highlights the importance of non-invasive methods for revealing hidden archaeological landscapes and advancing our understanding of highland communities that remain underrepresented in regional archaeological narratives.

2509. Arsalia-Agios Georgios (Grevena): preliminary economic data from a late Roman rural site

Authors: Noe Conejo (University of Carlos III of Madrid) – Simona Perna (University of Barcelona) – Irene Liesk (Birkbeck University of London) – Sonia Dimaki (Hellenic Ministry of Culture/Ephorate of Antiquities of Grevena)
Format: Poster

Excavations carried out to date have revealed evidence of a Roman rural settlement consistent with a Roman villa at the site of Arsalia-Agios Georgios (Grevenà). During the 2025 campaign, three large trenches were dug, allowing for the documentation of a wealth of material culture related to the site's most recent occupations, which date back to late antiquity. This poster presents, first, the current state of knowledge of the site; second, an analysis of the numismatic and ceramic evidence documented in recent campaigns; and third, a list of all known materials found in the vicinity. The aim is to present preliminary data from an interdisciplinary perspective on the economic behavior of Arsalia-Agios Georgios. Fundamentally, it reflects on the identification of possible consumption patterns through the study of ceramic evidence and the inclusion of the site in monetary supply networks through documented coins, in terms of its occupation levels in late antiquity. In this way, it provides new data for in-depth and future reflection on the functioning of the rural world of the region in a complex and constantly changing period.

74 THE FUTURES OF COMMUNICATING ARCHAEOLOGY

Theme: 2. Crossing the divide. Archaeology and the open world
Organisers: Robin Skeates (Durham University) – Sofia Fonseca (ICArEHB, Algarve University | German Archaeological Institute, DAI) – Laura Coltofean (Research Cluster 5: History of Archaeology, Römisch-Germanische Kommission)
Keywords: Archaeological communication, Digital archaeology, Open access, Public engagement, Ethics, Diversity, equality and inclusion
Format: Regular session
Affiliation: Community on Archaeology and Tourism, Community on Teaching and Training of Archaeologists - CTTA

SESSION ABSTRACT

It is easier than ever for archaeologists to access information and exchange ideas using a variety of communication forms. But rapidly developing technologies and changing behaviours present opportunities and threats to the future of archaeological discourse. These raise fundamental questions, which speak directly to the conference theme of 'Crossing the divide'. This session, organized in the centenary year of Antiquity journal, seeks to explore how archaeologists will communicate knowledge in an open, interconnected, and increasingly digital world. It asks how emerging tools such as artificial intelligence, virtual and augmented reality, and participatory platforms may reshape the ways we research, publish, and engage publics. We also invite reflection on questions including: • Will the proliferation of scholarly communications render the peer review system unsustainable? • What will it cost to produce and access scholarly publications; who will pay and who will profit? • Will access to publicly funded archaeological research products become more open and equitable? • Will authors lose copyright control over their intellectual assets? • How will the rhetoric of archaeology change? In what languages will archaeology be communicated? • What impact will archaeological communications have, academically and societally? • Will archaeological information and interpretations become more politicised and polarized? Who will speak for archaeology? • Will archaeologists become more attuned to the diversity of their publics and reach previously marginalized groups? • Will bad science and misinformation erode public trust in archaeology? We welcome contributions from archaeologists, heritage professionals, educators, communicators, museum curators, and publishers who are experimenting with new forms of communication or critically analysing their impacts. Case studies, creative experiments, and theoretical reflections are equally encouraged. Ultimately, this session aims to identify the values and practices that will sustain archaeology's dialogue with society — bridging divides between specialists and audiences, print and digital, past and future.

CONTRIBUTION ABSTRACTS

1996. Communicating Archaeology in a Digital World: Training, Participation, and the Ethics of Open Knowledge

Authors: Sofia Fonseca (ICArEHB, Algarve University | German Archaeological Institute, DAI) – Jörg Linstädter (German Archaeological Institute, DAI)
Format: Oral

Archaeological communication is undergoing rapid transformation as digital platforms, online education, and participatory media reshape how knowledge is produced, shared, and debated. While these developments expand access and visibility, they also challenge established models of authority, peer review, and intellectual ownership. This paper reflects on the opportunities and tensions emerging from this shift through the lens of recent initiatives in digital training, open educational resources, and public engagement in archaeology. Drawing on experiences from international online learning programmes, webinars, and collaborative heritage projects, the contribution examines how new communication formats influence who participates in archaeological discourse, in what languages knowledge circulates, and how expertise is negotiated between professionals and wider audiences. Particular attention is given to questions of equity and access, including the role of open platforms in supporting underrepresented regions and communities, and the risks of misinformation, digital inequalities, and platform dependency. The paper argues that the future of communicating archaeology will depend not only on technological innovation but also on ethical frameworks and inclusive practices that prioritise transparency, accessibility, and dialogue. By analysing current experiments in digital and participatory communication, it seeks to identify principles that can sustain meaningful engagement between archaeology and society, bridging divides between academic and public knowledge, global and local perspectives, and analogue and digital modes of communication.

230. The Quiet Majority: How Development-led Archaeology is Leading the Way

Authors: Emilia Zelewicz (Arcadis UK Consulting LTD)
Format: Oral

The field of archaeology is undergoing rapid transformation as development-led archaeology is expanding exponentially. Today, 88% of investigations are conducted by commercial teams (CIfA 2025), positioning consultancies and commercial archaeologists as the primary leaders in this evolving sector. Social Value legislation (Social Value Act 2010) obliges heritage professionals to communicate their findings to the public —fostering well-being, belonging, and equal access to archaeological knowledge. This paper examines how development-led archaeology is adapting to these shifts, leveraging emerging technologies to enhance assessments and increase public engagement. For nearly a decade, Arcadis has been at the forefront of innovation, integrating AI, VR, and advanced digital platforms into our projects—from 3D barrow reconstructions and interactive story maps to tactile workshops with overlooked groups. These technologies are now central to Arcadis's strategy to improve quality of life with every project we deliver. Looking ahead, emerging technologies are set to democratise access and understanding, while collaboration between heritage professionals, communities, and developers is making meaningful engagement a priority, from project design to completion. This paper will

show how Arcadis' adoption and development of these tools have strengthened site assessments and empowered communities to connect with their heritage in more meaningful ways.

1412. Evolutionary "Cheesecake" and the Midpoint: Why Structural Storytelling is a Powerful Tool for Archaeological Communication

Authors: Tera Pruitt (Cambridge School of Art, Anglia Ruskin University)
Format: Oral

As archaeology enters an increasingly digital and interconnected era, the discipline faces intense competition from pseudoarchaeological narratives that often leverage powerful, "page-turning" story structures to engage the public. While academic communication often relies on a "flat" delivery of facts, multidisciplinary research in neuroscience and psychology suggests that human brains are neurochemically hardwired to respond to specific storytelling frameworks. This paper argues that archaeologists can bridge the divide between specialists and the public by adopting evidence-based storytelling practices—specifically the Midpoint. Drawn from study of the Hegelian Dialectic and its relationship with the neurochemistry of the brain, the Midpoint is defined as a focal point of high tension or a significant plot turn located in the conceptual middle of a narrative. The Midpoint serves as a vital cognitive waypoint that maintains audience attention and prevents "tuning out." Drawing on a comparative analysis of structural successes and failures in museum exhibits and commercial fiction, this presentation explores how the lack of a defined midpoint can lead to untethered interpretations and a loss of audience trust. Furthermore, it examines how pseudoarchaeological stories, such as the Bosnian Pyramids, utilise engaging structures to create a "rush of insight" and "aesthetic relief" that academic archaeology frequently lacks. By mastering the "science of storytelling," archaeologists can produce more memorable, impactful, and competitive factual narratives that sustain a meaningful dialogue with society in the 21st century.

2474. Illustration and Imagined Narratives as Method: A Case Study from Late Iron Age Mallorca

Authors: Margalida Coll Sabater (Pompeu Fabra University)
Format: Oral

This paper proposes archaeological illustration and imagined narratives as forms of artistic making that can function simultaneously as a research method and as a durable bridge between specialist knowledge and society. Using a case study of Late Iron Age burial practices in Mallorca (Balearic Islands), I show how "making"—archaeological drawing and sequential images alongside constrained first- and third-person imagined narratives—can be used not only to communicate results, but also as a methodological tool that actively generates new research questions during analysis. Grounded in sensory archaeology, the approach responds to the limits of conventional descriptive and typological writing, which often sidelines dimensions of lived experience. By treating narrative and illustration as structured interpretive experiments explicitly bounded by the archaeological record, the method foregrounds issues that remain underexplored in mortuary studies: senses and atmospheres, emotion, gendered practice, childhood, disability, and ageing. Iterative image–text production makes interpretive assumptions visible (what must be inferred, what remains unknowable), prompting alternative hypotheses and more reflexive argumentation. The paper reflects on the academic and societal impacts of sharing these outputs as combined visual–narrative research results rather than as uncontextualized reconstructions. These materials are currently disseminated through peer-reviewed academic publications, public outreach articles, and a project website dedicated to archaeological dissemination. Because they are legible beyond specialist audiences and can be co-read, critiqued, and discussed with diverse publics, they support more inclusive dialogue while remaining grounded in archaeological evidence.

845. The future of Antiquity

Authors: Robin Skeates (Durham University)
Format: Oral

As Antiquity nears its centenary, it is appropriate to look—contextually and critically—back at how archaeology has been published in this prominent journal, and forward to assess the opportunities and challenges posed to academic journals by the rapidly changing world of publishing. Established journals are having to respond to a range of interconnected pressures: the move toward open-access publishing models, the unsustainable growth in new submissions, the rise of predatory journals, growing use of AI by researchers, and increasing geo-political tensions. This paper will reflect on these dynamics, focussing on four questions of ethical significance. First, how can global academic publishers and journals respond to the decolonial critique of their perpetuation of power structures that marginalize non-Western perspectives and researchers? Second, what can journal editors and authors do to sustain linguistic diversity in the face of the growing dominance of English as the lingua franca of science? Third, what can we all do about the peer review crisis facing scientific publishing? Fourth, as solo authors are replaced by science teams, how should contributions to research be credited?

2337. Trade and Crossover Publishing as Pathways for Communicating Archaeology Beyond Academia

Authors: Laura Coltofean (Research Cluster 5: History of Archaeology, German Archaeological Institute)
Format: Oral

This paper explores the potential of archaeologically themed trade and crossover books as means of communicating archaeological knowledge to audiences beyond academia. Drawing on a series of interviews with scholars trained in archaeology, Egyptology, and the history of science who have expanded their academic publishing to include trade and crossover books, it examines how these authors navigate the balance between scholarly rigor and accessibility, how effectively they convey complex archaeological and historical narratives, and how diverse readerships engage with and respond to their books. The paper also discusses the authors' motivations behind the shift to trade and crossover publications, as well as whether these publishing formats offer specific professional advantages and opportunities over traditional forms of scholarly communication. Finally, it evaluates the extent to which trade and crossover publications contribute to expanding the relevance of archaeology in society and support a more nuanced and accurate public understanding of the human past.

1374. Learned Societies and the Challenges (and Opportunities) of Communicating with Diverse Audiences through Traditional and Non-traditional Means

Authors: Ben Thomas (Society of Architectural Historians)
Format: Oral

Academic writing, as seen in the multitude of professional journals and monographs published each year, presents and elucidates complex ideas objectively and thoroughly through well-supported arguments. But even great academic writing often struggles to find broad audiences and cannot compete with the sheer volume of people who access information via the internet, social media, and television and video sources. Furthermore, technological innovations that access global communication networks mean that anyone with a computer and access to the internet can present their ideas to a global audience without having to undergo any sort of professional review or vetting. Consequently, we are flooded with bad science and misinformation and finding credible writing from reliable sources is difficult even for academic experts. In this presentation the author examines how learned societies are responding to the challenge of communicating with a variety of audiences through traditional and non-traditional means. How do these organizations evaluate the effectiveness of their communication? Also, in addition to supporting the creation and dissemination of sound academic knowledge, do these organizations highlight and amplify credible writing and direct people towards reliable, fact-based information?

338. Slow Knowledge in a Fast Media World: Communicating the Past in an Age of AI

Authors: Sarah Mcclure (University of California, Santa Barbara)
Format: Oral

Digital platforms, artificial intelligence applications, and short-form communication are reshaping how people learn, expertise is judged or ascribed, and trust in knowledge is created. In this evolving landscape, archaeology may play an important role in the development of new approaches. Our discipline is grounded in material evidence, careful documentation, considered and nuanced interpretations, and an acceptance of uncertainty. It is precisely these aspects that are increasingly recognized as important domains for honing critical thinking as people navigate algorithm-driven information systems. Rather than treating new technologies only as threats, archaeologists are well positioned to contribute to conversations about ethical AI use and enhancing educational curricula. Archaeologists also need to engage with this new educational and media landscape to highlight the importance of our discipline, foster public support, and promote archaeology for future generations. Current political, social, and cultural turmoil in the United States provides a timely case study for these challenges. Archaeology in the U.S. is currently under threat, with severe cuts in research and heritage funding, and legal and policy changes that are undermining long-standing practices of heritage management. Archaeological heritage and our ability to train future archaeologists is at risk, yet public interest in archaeology remains strong. In this paper I suggest that the future of archaeology both in the US and elsewhere depends on how effectively we engage with and communicate within this changing educational and media environment. Drawing on my experiences writing op-eds while teaching large undergraduate classes, I highlight communication strategies that can effect change, sometimes in surprising ways. By engaging audiences on topics they already care about, rather than trying to "sell" our work, and disseminating our research in ways that are accessible, archaeologists can build trust, counter misinformation, and help bridge political and cultural divides between experts, technologies, and the public.

582. When digital is not enough: experiencing slowness in archaeological communication

Authors: Marco Paladini (Ca' Foscari, University of Venice)
Format: Oral

In contemporary debates on archaeological communication, effectiveness is often associated with the ability to make content increasingly attractive through digital tools and multimedia solutions. This contribution challenges this assumption, arguing that, in certain contexts, an increase in technological mediation does not necessarily lead to a deeper understanding of the archaeological setting and may, at times, hinder it. The paper is based on the observation of guided visit experiences conducted in the northern lagoon of Venice, characterized by a slow engagement with space through navigation on traditional low-speed boats. In this context, slowness of movement and direct immersion in the lagoon environment are not merely logistical conditions, but function as a communicative device in their own right. The extended duration of the experience encourages attention to the landscape, spatial relationships, and environmental transformations, creating the conditions for an understanding of context that precedes explicit archaeological

interpretation. Archaeological narration thus builds upon an experience already developed through movement, time, and direct perception of the environment, organizing and interpreting elements previously observed by participants. Within this process, the emotional dimension acts as a factor of attention and engagement, without replacing or overshadowing cognitive content. These dynamics emerge across different audiences, from school groups to adult visitors, suggesting that communicative practices based on simplicity and slowness can be both effective and inclusive. Rather than opposing digital and non-digital approaches, the contribution proposes a critical reflection on the limits of technological mediation and on the need to calibrate tools and languages in relation to context and modes of experience. From this perspective, slowness does not represent a rejection of innovation, but a conscious choice that foregrounds material reality, storytelling, and direct experience as central components of archaeological communication, while also suggesting the potential applicability of similar slow-experience approaches in other contexts.

1566. Communicating Archaeology in Pisidia (Turkey): Landscape-based engagement and public practice

Authors: Isilay Gürsu (British Institute at Ankara)
Format: Oral

This paper examines how archaeological knowledge produced through long-term research in Pisidia (Southwest Turkey) has been translated into contemporary public engagement through the British Institute at Ankara's (BIAA) cultural heritage initiative. Building on decades of archaeological work in the region, it focuses on the Pisidia Heritage Trail as a methodological framework for communicating archaeology beyond conventional site-based or museum-centred formats. The trail—a 350 km walking route linking twelve archaeological sites and their associated villages—is analysed not simply as a public-facing outcome, but as an infrastructure for engagement that foregrounds movement, scale, and embodied experience. By situating archaeological remains within lived rural landscapes, the trail enables forms of understanding that emerge through walking, encounter, and duration, rather than through didactic interpretation alone. Drawing on approaches from public archaeology, anthropology, and heritage studies, the paper argues that heritage communication in Pisidia operates as a relational and context-specific practice, shaped by long-term presence and everyday interactions between people, places, and material remains. It further considers the role of digital mediation—particularly three-dimensional reconstruction—as a complementary communicative tool. Rather than aiming to resolve absence or uncertainty, these digital interventions are used to make fragmentary archaeological features intelligible while preserving ambiguity and interpretive openness. Together, these approaches demonstrate how public archaeology can operate across bodily, spatial, and visual registers, mediating connections between past and present in a region where archaeological remains are deeply embedded in contemporary rural life. The paper contributes to wider debates on how archaeological knowledge can be communicated in ways that are situated, experiential, and responsive to local contexts.

2710. Communicating Archaeology by Making It Useful: Veterans, Mental Health, and Public Value

Authors: Christina Seehusen – Thomas Mikkelsen – Andres Dobat (Aarhus University dept. of Archaeology and Cultural Heritage Studies)
Format: Oral

How can archaeology engage publics who are rarely reached through conventional forms of heritage communication, and what societal impacts might such engagement generate? This presentation responds directly to the session's focus on diversity, equity, and impact by presenting Veterans in Archaeology, a Danish community archaeology initiative that reframes both archaeological communication and archaeological purpose. Museum professionals demonstrate remarkable creativity in ways of communicating archaeology, e.g. experimenting with digital platforms, immersive technologies and innovative narrative forms. While such approaches are vital, we argue that an often-overlooked modality lies in shifting the central question from "how do we attract (new) audiences?" to "what can archaeology do for specific audiences?" This perspective foregrounds public needs and benefits, positioning archaeology as an active social resource rather than a communicative product. Veterans in Archaeology engages military veterans suffering from psychological injuries; a group frequently marginalised or dissociated from cultural institutions. Participation is structured around amateur metal detecting as an entry point, attracting individuals who are not necessarily primarily interested in archaeology to begin with but drawn by community, outdoor activity, the modality of detecting and the opportunity to contribute meaningfully to shared histories through detector surveys. The programme operates through an intervention track connecting veterans with a nationwide network of experienced volunteer mentors, and a research track using qualitative ethnographic methods to investigate participants' lived experiences. By opening access to archaeological practice and research in participatory and equitable ways, the project addresses questions of who archaeology serves and who benefits from publicly funded knowledge production. We argue that archaeology can play a constructive role in supporting mental health, offering relief, purpose, and connectedness beyond formal support systems. In doing so, it proposes an expanded understanding of archaeological impact—one that bridges communication, care, and knowledge, and situates archaeology as a meaningful contributor to societal wellbeing.

1642. Communicating Archaeology in Greek Vocational Education: Challenges and Futures

Authors: Styliani Kaltsogianni (Aristotle University of Thessaloniki - Independent Researcher)
Format: Poster

The concept of "The Futures of Communicating Archaeology" addresses the need for adaptive and innovative approaches to the transmission of archaeological knowledge in response to contemporary educational and institutional changes. In Greek Higher

Vocational Training Schools (SAEK), the teaching of art history and cultural heritage is primarily connected to vocational programs such as "Museum and Archaeological Site Guards" and "Conservators of Works of Art", where archaeology constitutes essential professional knowledge rather than a purely academic discipline. Recent reforms of the SAEK study guides have reshaped the way art history and cultural content are delivered. In the program for museum and archaeological site guards, teaching hours dedicated to art history and cultural heritage have been significantly reduced, while within conservation programs, art history and archaeology have been fragmented into smaller, specialized modules. While this modular structure enhances the connection between theory and practice, it also risks weakening a holistic understanding of cultural and historical contexts. These changes highlight the growing importance of future-oriented strategies for communicating archaeology. With fewer teaching hours and fragmented curricula, emphasis must shift toward interpretive skills, critical engagement and effective communication of cultural significance. For museum guards, this involves developing the ability to mediate between archaeological sites and diverse audiences. For conservators, it requires the capacity to contextualize material culture within broader historical, artistic and ethical frameworks. Digital technologies, experiential learning and collaborations with museums and archaeological institutions offer valuable tools to maximize educational impact under these constraints. Ultimately, the future of communicating archaeology in SAEK education depends on flexible, practice-based and digitally enhanced pedagogical models that safeguard the quality and relevance of cultural heritage education.

75 REVIVING THE PRESENT PAST: CURRENT PERSPECTIVES ON ETHNOARCHAEOLOGY

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Alexander Gramsch (Römisch-Germanische Kommission) – Esmeralda Agolli (Department of Archaeology and Culture Heritage, University of Tirana)
Keywords: Analogy, Postcolonialism, Community, (Ritual) Practice, Bioarchaeology, Heritage
Format: Regular session

SESSION ABSTRACT

There is broad consensus in archaeology that understanding finds and findings requires reference to external sources. But which sources, which types of knowledge help us out of the box of our culturally shaped experiences, queries and expectations? One of these sources is the empirical observation and recording of behaviour, practices, attitudes etc. in current contexts – ethnoarchaeology in a very wide sense. Ethnological or anthropological research conducted by archaeologists is able to integrate archaeological questions and theoretical principles with contextual evidence that is less about filling the gaps, but is of a different quality and allows us to 'read' the incomplete archaeological evidence differently. The aim of this session is threefold: (1) We invite case studies, e.g. on ritual practices, beliefs, thanatology, technological choices, or social dynamics. We especially encourage approaches based on postcolonial discourses that include indigenous perspectives and deconstruct the exoticizing of the 'other'. (2) Building on this, we propose to explore the relationship with community archaeology, asking how members of the communities can be involved, not only to provide data, but to develop questions and discuss results and how they can contribute to explore venues for effective documentation, protection, and promotion of the living heritage, both tangible and intangible. To what extend does globalisation impact the integrity of the living heritage that could perish in no time? (3) We also want to discuss premises, possibilities, and limitations of a postcolonial, multi-perspective ethnoarchaeology in the context of an increasingly scientific archaeology. Against the backdrop of the so-called 'third science revolution', the question arises as to how ethnoarchaeology can contribute to broadening the scope of our research questions, our interpretations, and the safeguarding of indigenous knowledge and heritage and to making archaeology a politically engaged, ethically aware discipline.

CONTRIBUTION ABSTRACTS

1824. Setting the scene: The present past reconsidered

Authors: Alexander Gramsch (Independent) – Esmeralda Agolli (Tirana University)
Format: Oral

In this keynote-style introduction we want to set the scene for the stories and accounts that are about to unfold in this session. Following a very brief overview over history and development of ethnoarchaeology as a field – or rather sub-field? – we will highlight some of the possibilities, pitfalls and powers ethnoarchaeology has. We will briefly look at how ethnoarchaeology was involved in practices of 'othering,' in constructing 'the other' and at how earlier approaches perceived these other societies as "lands of the living past". We will consider possible relation between ethnoarchaeology and community archaeology, asking how members of the communities can be involved to develop research questions and discuss results and how they can contribute to explore venues for effective documentation, protection, and promotion of the living heritage. We also want to discuss premises, possibilities, and limitations of a postcolonial, multi-perspective ethnoarchaeology, one that goes beyond the study of the exotic merely to fill the gaps of prehistory. We will address the question, how ethnoarchaeology can contribute to broadening the scope of our research questions, our interpretations, and the safeguarding of indigenous knowledge and heritage and to making archaeology a politically engaged, ethically aware discipline.

2663. Ethnoarchaeology as modern archaeology of living systems: the ethno- prefix moving aside, and unavoidable reflections

Authors: Alessandro Vanzetti (University of Rome "La Sapienza") – Makarius Itambu (University of Dar-es-Salaam) – Marina Gallinaro (University of Rome "la Sapienza")
Format: Oral

Ethnoarchaeology has been one of the most relevant fields in which archaeologists have redefined their tools, procedures, goals, and place in cultural anthropology, since the New Archaeology and through Post-processualism. It has often been widely discussed that "traditional societies" are disappearing, and we do know that in modernity there does not exist almost any place on Earth that is remote enough from connectivity and capitalist impact. The allure of ethnoarchaeology as observing another structural dimension of societies, whose inner systemic organization would represent some analogue for archaeological contexts, is fading away, more seriously than in the past. In fact, archaeology of "processes under high-level control" (including in this dimension both experimental archaeology, ethnoarchaeology, modern archaeology and some historical archaeology) has been de facto emerging, particularly under the impact of the Schiffer perspective. In our view, this is a partially alternative view to long established ethnoarchaeology, because the behavioral characteristics are more appreciated than the similarity of the living contexts with possible archaeological contexts: in a certain sense, this was a move away from "analogy" toward "behavioral cross-cultural regularities", and is certainly important in modern research. Building upon the traditional concept of ethnoarchaeology and these behavioral views, we can propose to highlight community and individual knowledge as relevant awareness also in a reflexive sense: it would mirror the involvement of the observed actors in a world impacted by modernity, as well as their self-perception of these transformations, facing the reducing strength of traditional practices. This evaluation and self-evaluation of changing cultural systems is one of the impacts of ethnoarchaeology as a proper discipline, aside its archaeological significance. We will discuss these theoretical (and practical) issues, by referring to real situations encountered in our current ethnoarchaeological project on the pottery traditions in Central Tanzania (Singida region).

1762. The Value and Legitimacy of Ethnographic Analogy: Evolutionary-Cognitive Perspectives in Palaeolithic Archaeology

Authors: Rimtautas Dapschauskas (University of Heidelberg)
Format: Oral

The use of ethnographic analogy has a long and productive history in Palaeolithic archaeology, yet it remains one of the discipline's most contested methods. Since the 1970s, under the influence of postmodern relativism, the interpretive turn, and post-processual archaeology, deep scepticism towards cross-cultural generalizations and evolved human universals has gained prominence. This shift increasingly framed culture as a "superorganic" domain decoupled from biology, thereby marginalizing empirical-quantitative approaches and confining inquiry to hermeneutics and semiotics. Against this background, analogies between Palaeolithic and contemporary hunter-gatherer societies—particularly when extending beyond technology to social institutions, cognition, and emotion—were frequently dismissed as epistemically flawed and implicitly derogatory to the latter. This presentation argues for the value and legitimacy of ethnographic analogy from an evolutionary-cognitive perspective. Unlike the normative and teleological evolutionism of the nineteenth century, contemporary evolutionary approaches explicitly reject value judgements concerning cultural superiority or inferiority. Instead, they are grounded in the assumption that all humans share an evolved cognitive architecture shaped by millions of years of natural and sexual selection. Ethnographic analogy is not employed to identify one-to-one correspondences with the past, nor does it treat recent hunter-gatherers as "frozen time capsules" of the Stone Age. Rather, ethnographic data serve to delineate the constrained possibility space of human behaviour in non-state societies, to identify patterns plausibly rooted in evolved psychological mechanisms, and to highlight divergences between past and present that themselves require evolutionary explanation. Without such reference points, archaeological interpretation risks being anchored primarily in the narrow experiential horizon of WEIRD academic observers. Methodologically, ethnographic analogy today constitutes one among many elements in complex nomological networks of cumulative evidence. These networks integrate findings from a wide range of disciplines and methodologies, enabling robust triangulation of long-term behavioural trajectories across deep time, as illustrated in this talk by research on the evolution of ritual.

108. Braiding Knowledge Systems: Ethnoarchaeology as Indigenous Food Sovereignty Praxis

Authors: Anna Antoniou (University of Massachusetts, Amherst | US NSF Center for Braiding Indigenous Knowledges and Science)
Format: Oral

Ethnoarchaeology has traditionally focused on empirical observations of living peoples as data to interpret the archaeological record. But how can ethnoarchaeological approaches move beyond data extraction to become a tool for Indigenous self-determination? Drawing on a North American case study, this presentation explores how community-led ethnoarchaeology can serve Indigenous food sovereignty while simultaneously deepening our understanding of past foodways. I present research conducted with, for, and by the Shoalwater Bay Indian Tribe and Chinook Indian Nation in Willapa Bay, Washington and demonstrate how ethnoarchaeological research can be retooled to meet contemporary community priorities. Our project utilizes a braided methodology, the

process of bringing western science and Indigenous knowledge into right relationship, to document and map ancestral fish and shellfish procurement practices and sites. This evidence then informs the reconstruction and use of fish weirs and smokehouses. These structures advance insights into past foodways while address contemporary community needs through economic resources, cultural revitalization, and climate adaptation strategies. Our approach creates a dynamic loop where archaeological findings inform present-day food sovereignty efforts while contemporary revitalization practices provide new interpretive frameworks for understanding the material record. This case study responds to calls for postcolonial, multi-perspective ethnoarchaeology in three ways: First, it centers Indigenous epistemologies and research questions rather than treating communities as data sources. Second, it demonstrates how community members drive question development, methodology, and knowledge production. Third, it illustrates ethnoarchaeology's potential to safeguard living heritage while contributing to archaeology as a politically engaged, ethically aware discipline. Ultimately, this braided approach shows how ethnoarchaeological research can support Indigenous resistance to colonial erasure while expanding interpretive possibilities beyond culturally-bounded Western frameworks.

527. Heritage and archaeology: a new view from South East Australia

Authors: Kevan Edinborough (Bournemouth University)
Format: Oral

This talk presents a cautionary case study from Melbourne, Victoria, Australia, which is undergoing a very rapid transformation due to an unprecedented program of urban and regional development. Following on from the author's work in the Pacific Northwest, a novel multiperiod case-study combines ethnograhic, historical, archaeological and radiometric evidence. On one hand these results shed new light on mid to late Holocene settlement in South East Australia. On the other hand, they suggest an alarming bias exists in the archaeological record that directly relates to European colonization. Recent ethnographic and oral history research suggests that the effect of massacres and disease on indigenous populations during colonisation by Europeans are underestimated in Australia. As part of a British Academy funded Visiting Fellowship, ethnography, archaeology and radiocarbon dates have been statistically analysed to reexamine the tempo and likely underestimated fatal outcomes of colonisation in Southeast Australia. It is anticipated that new and ongoing collaborations between archaeologists and communities will empower First Nations effectively silenced by colonisation and who still suffer the consequences.

1300. Living heritage? Ethnoarchaeology of Swahili limestone architecture on the East African Coast

Authors: Monika Baumanova (University of West Bohemia in Pilsen)
Format: Oral

The architectural heritage of the East African coast is defined by a tradition of coral limestone and lime mortar construction. Historically, the temporal coincidence of the rise of this tradition with the spread of Islam (8th–10th centuries) led 20th-century scholars to highlight potential links with the Islamic world beyond Africa and even attribute these techniques to Middle Eastern origins, effectively sidelining the indigenous Swahili agency. This paper presents ongoing ethnoarchaeological research that aims to identify continuity and local development in limestone construction practices by bridging the gap between research on the standing ruins of medieval deserted towns and the living urban fabric of coastal Swahili towns like Lamu, Kenya. By engaging with contemporary Swahili masons and families who have inhabited and maintained these structures for centuries, this study documents the evolution of construction techniques and material choices. The research utilises living heritage to understand how technological choices were adapted or maintained from the medieval period to the present. In doing so, it centres on local expertise. Furthermore, the paper discusses how documenting these living technologies serves as a vital tool for heritage protection. It demonstrates that ethnoarchaeology may help us to move beyond the two pervasive views of Swahili building traditions known from archaeological sites that present it as either irrecoverably lost, having disappeared with the colonial era, or, at the other extreme, as a static millennium-old toolkit that is going to be lost with modern technologies and materials. The paper shows how, in this case, ethnoarchaeological research helps in recognising the evolving character of the practice and the logic behind choices made over generations, and may lead us to explain the form and character of building remains on archaeological sites.

1062. Ethnoarchaeological research in a rapidly changing society: Methodological and interpretive considerations

Authors: Esmeralda Agolli (Tirana University)
Format: Oral

Over the past four decades, Albanian society has undergone an exceptionally rapid and profound process of transformation. The collapse of the communist regime in the early 1990s and the subsequent dissolution of nearly half a century of political and cultural isolation initiated a dynamic period of socio-cultural reconfiguration. These changes have been manifested in shifting perceptions, evolving modes of everyday life, and redefined social expectations. Within this context, particularly from an ethnoarchaeological perspective, such circumstances generate a compelling framework for investigating cultural traits that are currently subject to transformation or are at risk of disappearance. Based on a long-term research project carried out in rural Albania, this paper discusses the potential of ethnoarchaeological research on mortuary rites and practices. In particular, it focuses on the research methodology involved in the process of data collection, including the formulation of interviews, the selection of interviewees, and the systematic documentation of cemeteries. It examines how actions embodied in materiality may inform archaeological interpretation. The

study further addresses regional variability in rites and practices and explores how such variability contributes to a more nuanced understanding of social dynamics related to age, gender, social status, and religion. Furthermore, it seeks to investigate how an ethnoarchaeological research perspective oriented toward a society in transition contributes to the interpretation of cultural change and continuity, and to what extent comprehensive documentation and analysis of mortuary rites and practices enhance the understanding of a living social context characterized by constant change and transformation.

1497. Past in the Present- Preserving the sacred and ritual landscape of Saptasthanams, Tiruvaiyaru, India through the interaction of contemporary People

Authors: S Darsana (Holy Cross College AutonomousTiruchirappalli)
Format: Oral

The present paper intends to study the seven temples in the central part of Tamil Nadu built in the Chola period (around thousand years back) popularized in late medieval period and preserved in the modern times that throw some interesting light on the nature of visitors' behaviour during the temple festival times. The research documents the architectural features of all the seven temples with information gathered from the inscriptional and literary sources. It discusses the ritual of Nandi's (the Bull God, the Vehicle of Lord Shiva) birth, Nandi's marriage and ezhur pallakku (Seven Palanquin festival where the gods of seven temples are taken in procession around the seven temple towns). It has been noticed that tradition never dies in India. Even in the modern day, many young people who work outside their hometown, come for the festival and act as palanquin bearers. They do not do this for monetary gains as the money they get is very meagre. Out of passion and devotion to their gods and villages, they participate in the temple festivities. An interaction with the local population and the observation of various rituals associated with these festivals revealed the preservation of continuity of thousand-year traditions and legacy. The sacred landscape created by the location of temples on either side of the rivers still plays a crucial role in the modern period. This paper would act as an apt example for the reviving the past in the present context with inputs from contemporary population.

1077. Chullpas, Churches and Calvaries in Tarapacá: Rituals, Cosmopolítics and Andean Itinerancies

Authors: Francisca Urrutia-Lorenzini (Universidad de Tarapacá)
Format: Oral

Through archaeological and ethnographic research in the Tarapacá region for more than fifteen years, several exchanges and collaborative experiences have been conducted with the Aymara Community of Nama. There is a shared commitment to foster dialogues and joint initiatives between academic scientific knowledge and ancestral wisdom. Interactions between these different ways of thinking and living must be carried out through symmetrical and reciprocal relationships. But, it is important to keep in mind that the approaches of each are not equivalent and that both have their own particular practices, narratives, methodologies and conceptualizations. These experiences situate us within the contemporaneity of Andean worlds, where we are keen to nurture diversity and diplomacy at its edges. The Andean people of Nama define their territory through a set of relationships and itineraries linked by different footpaths that have the village as their radial centre. They are marked by calvaries associated to two churches and their respective dedications. In the past, during the patronal festivities, these footpaths became pilgrimages that ritually performed and actualised the relations established with other territories and communities. The calvaries were arranged around chullpas or ancestral towers, erected in pre-Hispanic times and remaining in use until colonial times. Today, chullpas and gentiles draw on stories of a humanity that predates the arrival of the sun, but which still maintains its influence in this world and displays its own forms of connection. Borders of any kind are fluid, emphasise interaction and require constant articulation through cyclical renewals of the ritual calendar. Ancestry does not refer to closed traditions, but rather as a vital and transformative force. The Nameños offer their own cultural and historical interpretations, they enact multiple ways of being with the environment that challenge dominant ways of living and thinking.

2486. Water!

Authors: Cornelia Kleinitz (Humboldt-Universität zu Berlin) – Alfatih Mohamed Ali Saeed (University of Khartoum) – Hassan Ebeid-Allah (Musawwarat Community Council)
Format: Oral

Collaborative research on materialities of pastoralist lifeways at Musawwarat es-Sufra, Sudan, left decisions on the topics of research and research priorities in the hands of partners from local pastoralist communities. This meant that a significant part of our work was dedicated to the most fundamental problem that pastoralist communities in drylands face: The provision and storage of water. The initial focus on 'Water!' became key to our learning about present pastoralist 'logic' as well as our reflections on past mobile lifeways and their (few) material traces. Our joint studies have shown, for example, how durable water infrastructures – in the recent past mechanical wells constructed and used during the past two centuries – can be understood as 'lasting markers of communal practice' that not only served as economic hubs in the landscape but also acted as mnemonic devices due to their centrality to pastoralist lifeways. In the deeper past, monumental artificial water reservoirs were collectively dug to harvest and store water from temporary river beds for several months. This formed the basis of sustained use of the land by mobile, pastoralist populations long after the end of the rainy season. Our collaborative study explored how their functioning relied on precise knowledge of seasonal weather phenomena and drainage patterns in the landscape, and a set of engineering skills that ensured the accurate excavation of

the reservoir and placement of its walls. Our joint research endeavour proved to be enriching not only for the archaeologists but also for the local pastoralist communities as it valued, centred and affirmed their specialist knowledge.

1193. The Man Who Spun: Cultural Constraint or Economic Pragmatism? Ethnoarchaeology and Interpretive Archaeology

Authors: Patrycja Godlewska (Nicolaus Copernicus University in Toruń)
Format: Oral

In the archaeological record of the Oder and Vistula river basins, spindle whorls and needles constitute a relatively common component of female grave assemblages, particularly in prehistoric contexts. This pattern changes during the Early Middle Ages, when textile tools become less frequent in funerary contexts. These transformations coincide with profound socio-cultural shifts, linked both to processes of early industrialisation and to the symbolic reconfiguration introduced by Christian doctrine. The symbolism of spinning and weaving extends well beyond utilitarian practice, encompassing cosmological, ritual, and social meanings. Notably, men were also implicated in this symbolic sphere. Although rare, spindle whorls occasionally appear in male burials, sometimes as the sole grave good. Within gendered interpretative frameworks, the figure of the man who spun has traditionally been perceived as feminised, with his martial competence and social status implicitly questioned. This perception reflects the ambiguous symbolic role of spinning itself—an ambiguity still traceable in ethnographic sources rooted in traditional belief systems. In Slavic folklore, the spinner is contrasted with the weaver, who is associated with Demiurge-like creator figures and whose masculinity is never challenged. Nevertheless, in traditional culture, both weavers and shepherds—linked to the ambivalent archetype of the Golden Fleece—occupied liminal and non-normative social positions. They were simultaneously feared and admired, often living at the margins of their communities. Drawing on Slavic folkloric sources, cognitive archaeology, and symbolic readings of grave assemblages, this paper explores male burials containing spindle whorls as a lens through which to reconsider gendered labour, identity, and social ambiguity in past societies. By integrating interpretive archaeology with ethnoarchaeological perspectives, the contribution highlights alternative frameworks for understanding these atypical funerary contexts and argues for a more nuanced approach to gender representations in archaeological interpretation.

2517. On the interpretation of objects with unclear practical functions: modern and ancient anthropomorphic representations

Authors: Liudmyla Shatilo (Institute of Archaeology of the National Academy of Science of Ukraine) – Robert Hofmann (Kiel University)
Format: Oral

Our case study examines the possible significance and functions of anthropomorphic figurines in prehistory, in particular of the Chalcolithic Trypillian complex (4700 - 3000 BCE). In order to find alternative explanations for the use of such objects and to test archaeological theories, modern wooden anthropomorphic sculptures, so-called 'angels' from the Ore Mountains, Saxony (1820/30-today), were considered alongside the Trypillian representations in a structural comparison. The selected material categories, despite the great differences between them (visual, material, production process, historical context, etc.) and the insurmountable time barrier of six thousand years, have certain structural similarities in a number of characteristics. However modern realities were in no way directly transferred to the archaeological context; we believe that the work conducted only provided ideas and new perspectives for the interpretation of prehistoric art objects. In order to study the use and meaning of the figurines, we turned to the topics of the content (what is depicted) and style (how it is depicted) of these objects and considered the following topics: typological variability of representations, gender differentiation, size classes, styles of figurines and their stylistic development/evolution, production and distribution. From the methodological point of view the study of modern figurines from the Ore Mountains included on the one hand long-term observations and a series of interviews with producers, users and specialists and on the other on documenting the sculptures using archaeological methods. The observations on the Trypillian material are based on the revision and supplementation of previous typological approaches using statistical methods and quantification approach.

107. Reconstructing Roman ointments and incense production practices: An ethnoarchaeological perspective

Authors: Alice Capobianco (Università di Genova | Universität zu Köln)
Format: Oral

The production of scented ointments and incense in the Roman world was a complex and highly specialised craft, documented by literary sources, archaeological contexts, and material culture. Nevertheless, many technical and practical aspects of this production remain poorly understood, particularly those related to raw material processing, artisanal gestures, and small-scale manufacturing practices. This paper adopts an ethnoarchaeological approach to address these gaps, using contemporary traditional practices as a heuristic tool to interpret archaeological evidence. The study is based on comparative fieldwork carried out in several regions where artisanal production of oils, perfumes, resins, and incense-related substances is still practiced today, including Morocco (Essaouira), Turkey, Tunisia, Saudi Arabia, and Iraq. These observations are complemented by comparative case studies from areas such as India (Kannauj), Oman, and the Horn of Africa, which are discussed through published ethnographic and archaeological literature. Although not all of these regions have been directly investigated through fieldwork, they provide valuable comparative

frameworks due to their long-standing association with perfume and incense production. By integrating these ethnoarchaeological data with Roman literary sources (e.g. Pliny the Elder) and archaeological evidence from sites such as Pompeii, Paestum, and En Boqeq, this contribution aims to reconstruct key phases of the production cycle, from raw material acquisition to processing and aromatisation. The paper highlights both continuities and transformations in artisanal knowledge, emphasising the role of embodied practices and technical choices that leave only subtle traces in the archaeological record. This approach demonstrates the potential of ethnoarchaeology to refine the interpretation of ancient production processes and to bridge the gap between textual sources and material evidence.

348. An Ethnoarchaeological Approach to Rock Art Studies

Authors: Roxanne Tsang (School of Archaeology, University of Oxford)
Format: Oral

Many archaeological sites across the globe do not come with ethnography. However, in Papua New Guinea (PNG), we can inform the archaeology through ethnography thereby bringing multiple perspectives on the interpretation of any objects under examination. In particular, rock art which refers to any man-made markings on rock shelters' and caves' walls or ceilings, require multiple perspectives. This paper draws on ethnoarchaeology to further understand the nature of rock art production near Auwim village in East Sepik Province of PNG. Here, the ethnoarchaeological approach relates to the integration of local or community knowledge with the archaeology of artwork itself. The paper demonstrates how rock art can utilise ethnoarchaeology to build a model about the nature of rock art production. This nature of mark-making themes include; ritual, menarche, enemy raids, seasonal hunting and gathering, and communal history and memory which are in fact functional elements of the rock shelters. It concludes with a framework and implications for rock art analysis through ethnoarchaeology.

2524. Traces of the Katyn Massacre: An Ethnoarchaeological Perspective

Authors: Olgierd Lawrynowicz – Magdalena Majorek-Lipowicz (Institute of Archaeology, University of Lodz) – Aleksandra Krupa-Lawrynowicz – Sebastian Latocha (Institute of Ethnology and Cultural Anthropology, University of Lodz)
Format: Oral

This paper addresses the use of ethnoarchaeological methods, techniques, and tools in the study of the archaeology of crime, with particular reference to the Katyn Massacre. The Katyn Massacre occurred in 1940, when NKVD officers, acting on orders from Joseph Stalin, executed Polish prisoners of war in Russia, Ukraine and Belarus. Research on mass violence and political crimes confronts archaeology with material evidence whose meanings are shaped by practices of memory, experiences of trauma, and contemporary social and political conditions. Such contexts challenge the sufficiency of exclusively monodisciplinary scientific approaches and call for reflexive and interdisciplinary methodologies. Within the project Lexicon of Katyn Archaeology (1990–2015), ethnographic research was conducted with archaeologists and participants of fieldwork in Katyn, Mednoye, Kharkiv, and Bykivnia, as well as with individuals whose biographies, experiences, and memories are connected to the Katyn Massacre – members of Katyn Families. Adopting a broad understanding of ethnoarchaeology as the empirical study of contemporary practices, narratives, and attitudes toward material remains, the paper demonstrates how ethnographic observation, narrative interviews, and documentation of commemorative practices can enrich the interpretation of archaeological data. In the case of the Katyn massacre, such approaches allow material traces of violence to be situated within the contexts of family memory, local knowledge, institutional frameworks, and grassroots forms of commemoration, offering alternative ways of "reading" incomplete and fragmentary evidence. Multi-perspective and reflexive ethnoarchaeology expands the scope of archaeological research beyond reconstruction and identification, supports more responsible and transparent interpretations, and contributes to the safeguarding of intangible heritage related to experiences of violence, loss, and memory. The application of ethnoarchaeology not only allows for a better understanding of the material evidence of the Katyn crime but also enables research to be conducted in a socially responsible and ethically informed manner, as illustrated through selected case studies.

76 ARTISTS AND CRAFTSMEN IN ANCIENT GREECE: TECHNOLOGY, STATUS, AND PRODUCTION DYNAMICS

Theme: 1. Widening perspectives in material culture studies
Organisers: Eléonore Favier (École française d'Athènes) – Laureline Pop (Université de Genève | Fond national suisse)
Keywords: artists, craftsmen, Ancient Greece, Technology, Status, Production
Format: Discussion session

SESSION ABSTRACT

Through a multidisciplinary approach combining archaeological, epigraphic, and literary evidence, this session aims to explore the complex place and identities of artists and craftsmen in Archaic, Classical, Hellenistic, and Roman Greece. By focusing on production processes, the organisation of labour, and the social dimension of technology, the session seeks to offer a nuanced professional and social characterisation of ancient craftsmen. The traditional opposition between "artist" and "artisan", although rooted in both ancient and modern discourse, fails to reflect the complexity and diversity of specialisation, skill transmission, and perceptions of manual work in antiquity. To move beyond this opposition, particular attention will be given to techniques and contexts of production — notably sanctuaries, but also urban workshops, domestic spaces, and settings linked to public or private commissions. This broader perspective will allow participants to examine how artistic and craft practices were embedded within social, economic, and religious frameworks throughout Greek history. Through case studies and comparative approaches, the session invites discussion on how the material and social conditions of craftsmanship shaped creation and professional identity from the Archaic to the Imperial period. Contributions addressing theoretical, methodological, or contextual aspects of ancient craft production are welcome, especially those that cross disciplinary boundaries or integrate textual, material, and technological data. Papers adopting comparative or regional perspectives (including from the wider Mediterranean) and studies using technical or archaeometric analyses are particularly encouraged.

CONTRIBUTION ABSTRACTS

588. Making Kouroi in Boeotia: Artists, Technology, and Patronage at the Sanctuary of the Ptoion.

Authors: Lucrezia Mastropietro (Scuola Superiore Meridionale)
Format: Oral

Boeotia has yielded the largest number of kouroi in the Greek world, almost all from the Sanctuary of Apollo Ptoios. There is no evidence that the region was artistically isolated during the VII and VI centuries BCE; rather, the corpus demonstrates a strong capacity to rapidly assimilate technical and stylistic innovations in quarrying, carving, proportions, and surface treatment. This paper examines the kouroi from the Sanctuary of the Ptoion as a case study of the relationship between technique, production, and patronage: the concentration of kouroi in this single ritual and archaeological context provides a coherent framework for analysing local sculptural practices. The analysis focuses on the most representative and best-preserved examples from the corpus. Close examination of material selection, tool marks, proportional systems, and stylistic evolution reveals both workshop continuity and controlled experimentation. Features such as the rendering of musculature and hair, together with the gradual shift from schematic to more volumetric modelling, indicate selective engagement with broader Greek sculptural developments rather than passive imitation. The kouroi thus function as material expressions of civic and personal identity. This study challenges the traditional distinction between "artist" and "artisan", proposing instead that the technical sophistication of the Ptoion sculptures indicates makers who operated as skilled technicians and creative agents simultaneously. Sculptors at the Ptoion mediated between material constraints, workshop traditions, and patronal expectations, contributing to the construction of Boeotian identity within a shared sacred landscape shaped by both sculptural production and patronage.

903. New Perspectives on the Workshop Problem of Lycian Classical Period Sculpture

Authors: Hava Keskin (Akdeniz University) – Tijen Yücel Bahçetepe (Independent Researcher)
Format: Oral

Since their discovery in the eighteenth century, the Classical-period sculptural monuments of Lycia have attracted sustained scholarly attention. Research has focused predominantly on material from Xanthos, with particular emphasis on iconography, typology, and stylistic dating. While a degree of consensus has emerged in these areas, the organization of production—specifically the identification of sculptors and workshops—has remained comparatively underexplored, despite being equally central to the interpretation of these works. This study revisits the question of workshop organization in Classical Lycia and adopts a critical stance toward established historiographical categories. It asks whether monuments that display strong endogenous features were produced by Lycian sculptors themselves or commissioned from Greek craftsmen. The prevailing view attributes much of this production to "Ionian masters," understood as Greek sculptors combining Persian, Greek, and Lycian iconographic elements. However, the term "master" itself requires critical scrutiny rather than being taken as a self-evident analytical category, as it often carries anachronistic and hierarchical assumptions. Moreover, the approximately two centuries of sustained sculptural production in the region, largely in local stone, suggests that this dominant interpretation should be treated with caution. The paper focuses in particular on the sculptural corpora from Xanthos and the more recently studied material from Tlos. Within this framework, the study evaluates the criteria commonly employed to identify workshops in antiquity and examines the extent to which they can be meaningfully applied in the Lycian context. Through close analysis of a defined corpus characterized by distinctive local iconography and locally sourced materials, the paper aims to contribute to moving beyond the artist/artisan dichotomy and to foreground the likely role of local workshops and practitioners in the production of Lycian sculpture.

359. Family Trajectories and Professional Identities of Sculptors in Rhodes: Transmission, Mobility and Integration in the Hellenistic World

Authors: Melanie Joffrain (University of Lyon/University of Athens)
Format: Oral

This paper investigates the professional dynamics of sculptors in Hellenistic Rhodes through a multidisciplinary approach combining epigraphic and archaeological evidence. With nearly 270 sculptors' signatures preserved from the Hellenistic to the Imperial period, Rhodes offers an exceptional corpus for examining how artistic production was shaped by mobility, family transmission

and processes of civic integration. The paper focuses on two families of foreign sculptors active on the island in the late Hellenistic period. The first case study examines Artemidoros of Tyre and his sons Charmolas and Menodotos (2nd-1st c. BCE). Their signatures reveal a workshop structured around family collaboration and intergenerational transmission : the father signed works with each son separately, while the two brothers later signed together. Yet these shared practices conceal divergent strategies of integration. While Menodotos appears to have retained his Tyrian citizenship, Charmolas obtained Rhodian citizenship – later transmitted to his own son – and is attested collaborating with other sculptors, suggesting broader professional networks. A comparative perspective is offered through the contemporary family of Epicharmos of Soloi and his homonymous son. Their inscriptions document a gradual process of integration, while also revealing technical collaboration with bronze workers (ἐποίησε/ ἐχαλκούργησε), shedding light on the specialization and division of labor. By examining these two families, the paper argues that sculptural production in Rhodes was structured by flexible professional networks shaped by mobility, civic status and technical collaboration. More broadly, this evidence challenges the traditional opposition between "artist" and "craftsman", highlighting instead the complex and evolving professional identities of sculptors in the Hellenistic Greek world.

578. Organization and specifications of a Neo-Attic workshop under the Empire: the example of the Piraeus workshop.

Authors: Méganne Moulon (Université Bordeaux Montaigne, Ausonius)
Format: Oral

Neo-Attic art appears among Greek sculptors at the end of the Hellenistic period and immediately becomes very popular with the Romans. It is likely that Attic workshops of Greek sculptors specialized in the production of Neo-Attic reliefs to meet the demand of a Roman clientele. Although evidence of sculpture workshops is very scarce, due to the minimal infrastructure required for this craft and the mobility of artisans, it is through their surviving sculptural production that we attempt to understand their know-how and techniques. An archaeological testimony that allows us to better understand the organization of this type of workshop is the corpus of Neo-Attic reliefs from the Piraeus, which includes more than a hundred fragments recovered from a shipwreck that ran aground in the port of Athens. While the Neo-Attic character of these reliefs is confirmed by their iconography, which is inspired by Greek sculpture of the Classical period, their style varies from panel to panel. By studying tool marks and the style of the reliefs, an initial observation shows that although the technique is homogeneous, the style varies according to the sculptor. Having a large number of blocks that were certainly produced by the same workshop would make it possible to better understand the distribution of roles among artisans within the workshop. Moreover, another characteristic of this corpus is the notion of serial production: the reliefs are all of the same dimensions, in the same marble, and some present identical iconographic subjects executed multiple times. This serial production, applied to Neo-Attic workshops, also raises questions about the organization and functioning of this type of workshop and about how they adapt to the demands of their clientele.

287. Crafting Iron in Eretria: From Technical Insights to a Social Approach

Authors: Julien Gravier (Ausonius Institute UMR 5607, UBM | Malcolm H. Wiener Laboratory, ASCSA)
Format: Oral

Although ironworking rarely fits within traditional categories of artistic creation, it operated at the interface of multiple domains and under strong constraints. As such, it provides a fruitful perspective for exploring the relationship between technology, labor organization, and the social position of craftsmen. This paper draws on research on iron metallurgy in Eretria, where secondary smithing activities are attested within the urban area over a long chronological span. The evidence sheds new light on craft organization and local technical know-how. Combining archaeological, archaeometric, and historical data within the framework of the iron chaîne opératoire, this paper moves beyond purely technical analysis to characterize the local technical culture and its impact on production and status. Rather than assuming a strictly segregated organization of craft production, the Eretrian evidence indicates that ironworking activities were not spatially isolated from civic and religious contexts. On the contrary, the presence of smithing wastes within structured urban areas at different periods, combined with archaeometric indicators of on-site activity, points to a craft practice both displaying recurring technical patterns and well embedded in everyday urban life. This spatial and technical configuration provides a concrete basis for discussing the social positioning and professional identity of the Eretrian ironworkers. Focusing on well-contextualized Eretrian remains, this paper argues that technical practices provide a pathway to reassessing ironworking in its social and cultural environment. Rather than treating technology as a purely material domain, it demonstrates how production processes themselves shaped the visibility, integration, and status of ironworkers within the civic and religious fabric of the city. This case study therefore invites a broader reconsideration of how material practices can refine our understanding of artisan identities beyond the traditional opposition between "artist" and "artisan."

1298. Beyond Careless Workmanship: Craftsmanship and Technique in Greek Commercial Weights

Authors: Thomas Leblanc (UCLouvain)
Format: Oral

Greek commercial weights are everyday objects used in marketplaces for weighing goods. While some examples were made of stone, the majority were produced in copper alloy and, above all, in lead, which was by far the most common material. A significant proportion of these weights is decorated with iconographic symbols, sometimes described as having been executed « in a schematic way

[because of the] rather careless workmanship of the lead weights ». Such assessments highlight two recurring assumptions in the study of this material. The first assumes that, because these are small utilitarian objects, they did not require a high degree of aesthetic refinement. This perspective, however, overlooks the role of the craftsman, who « had the love of his craft and the desire to create something beautiful ». The second assumption is based on the idea that, since most weights were made of lead, they were produced using simple and largely undifferentiated manufacturing techniques. A detailed analysis of the chaînes opératoires, however, reveals a wide range of technical processes involved in the manufacture of weights, including casting in disposable moulds, the striking of small weights, and lost-wax casting. Furthermore, these weights had to be calibrated to a specific standard, requiring deliberate post-production adjustment of their mass. This paper focuses primarily on the weights from Cyzicus (Asia Minor) to demonstrate that this seemingly modest category of material culture embodies a genuine artistic intention on the part of the craftsmen, while also highlighting the diversity of techniques employed in their manufacture.

1155. Organisation of Bone and Antler Working in Olbia Pontica: Archaeological Evidence and Interpretative Issues

Authors: Alisa Semenova (The Institute of Archaeology of the National Academy of Science of Ukraine)
Format: Oral

Bone and antler working was an important yet archaeologically less visible sector of craft production in Olbia Pontica. Unlike pottery production or metallurgy, this activity did not require fixed infrastructure, which complicates the identification of workshops and the reconstruction of production organisation. So far, no production area in Olbia can be securely identified as a bone- or antler-working workshop. However, bone-working waste has been recorded in both urban and cult contexts. The cultic contexts are particularly informative: in a bothros (a pit with so-called "sacred refuse") a series of worked deer antlers representing successive stages of processing was discovered. The assemblage includes remains of primary antler segmentation, production waste, blanks, and semi-finished pieces, reflecting manufacture from raw material to nearly finished decorative plates. These finds provide indirect evidence for antler working within the temenos, probably connected with the production of fittings for wooden boxes or furniture. Finished plates are attested both inside the temenos and in urban contexts, while remains representing successive stages of antler working — from primary waste to semi-finished elements — are recorded across the settlement. Although these finds do not form large concentrations, taken together they point to antler working involving successive stages of processing despite the absence of identifiable workshops. In archaeology, craft specialisation is often linked to fixed workshops and large-scale production. The situation in Olbia suggests a different model. This paper discusses the possibility of small-scale, mobile or multifunctional production units connected with the manufacture of composite objects, where organic materials formed only one part of the technological process. Comparative evidence from Greek and non-Greek sites of the same chronological horizon provides a broader framework for reassessing craft organisation and archaeological criteria for identifying production.

861. Material Properties of Mudbricks from the Late Archaic Wall of Eleusis and Investigation of Their Production Procedure

Authors: Eleni-Eva Toumbakari (Hellenic Ministry of Culture) – Michail Bardanis – Georgios Dounias (Edafos Engineering Consultants SA)
Format: Oral

The Archaic fortification wall of Eleusis, commonly known as the Peisistratean Wall, is one of the few surviving examples of mudbrick fortification architecture in Greece. Excavated by Dimitrios Philios in the 1880s, part of its superstructure was exceptionally preserved due to deliberate backfilling undertaken during the expansion of the Sacred Court around the Telesterion. Between 2018 and 2023, a comprehensive conservation program created the framework for the first systematic investigation of its mudbrick superstructure. The project integrates archaeological context, epigraphic testimony from Eleusis, material and geotechnical characterization, and experimental replication to reconstruct the production sequence and assess its implications for Archaic construction practices. The analytical program comprised soil classification tests, mineralogical analyses of the fine fraction, unconfined compression tests, and suction measurements. Results indicate that the bricks were produced from silty sand to sandy silt with low clay content and marginally plastic to non-plastic fines, suggesting deliberate raw material selection. Mechanical characterization was combined with experimental replication: new mudbricks were manufactured from comparable raw earth with varying straw contents, and compaction energy was calibrated to achieve densities equivalent to the ancient specimens. The drying process was monitored through embedded sensors to evaluate performance parameters under controlled conditions. This integrated methodology enables a systematic reconstruction of the production sequence. Experimental results also allow estimation of production rates for small, organized work teams. When correlated with the total number of bricks required and the logistical demands of supply, preparation space, drying, and transport—assuming a construction span of 10–15 years—the findings indicate sustained, coordinated labor and structured construction management. The study therefore concludes by offering a preliminary reconstruction of the workforce organization And management requirements.

738. Dyeing and dyeing workshops: the study of craftsmanship and production through the Hellenistic workshop of Helike

Authors: Marie Frey (University of Rouen Normandy)
Format: Poster

Color was a central element in ancient Greece; wearing it could be seen as a sign of social distinction. Purple was associated with royalty before becoming an indicator of wealth. Dye works were therefore essential craft spaces in cities. The preparation of dyes and their application were long and meticulous processes, requiring a lot of space and, above all, special expertise. It was necessary to have scientific skills and knowledge in order to prepare dyes correctly, for example. This study forms part of recent studies on the archaeology of techniques. However, the historiography on this subject remains limited. There are a few scattered studies that address this topic, but few explore the theme of dyeing in detail. The case of Helike, dating from the Hellenistic period, allows us to imagine and visualize what a dyeing workshop might have looked like at that time and what the profession of dyer (bapheus) entailed. This artisanal space is well preserved and documented (recent studies), shedding light on la chaîne opératoire of this potential Hellenistic dyeing workshop. The different sizes and shapes of the eight vats that comprise it (rectangular, apsidal, wide, shallow, etc.) allow us to hypothesize about their specific uses (wool preparation, mordanting, dyeing, etc.). Traces of dyes reveal the organisms used for dyeing and the colors produced. Finally, the artifacts found provide us with information on dyeing methods and show us how techniques have evolved (tiles for recovering excess dyes, etc.). We can highlight developments and innovations thanks to archaeology, ancient texts and recent studies on dyeing and dyeing workshops.

1882. From workshop to consumer: Greek vase painters and the social and cultural dynamics of demand in the western mediterranean

Authors: Daniela Ferreira (CITCEM; Faculty of Arts and Humanities, University of Porto)
Format: Poster

This paper examines a specific and well-documented corpus of red-figure bell-kraters attributed to workshops associated with the Telos Group and recovered in archaeological contexts within present-day Portugal. Moving beyond approaches centred on trade routes and redistribution systems, the study foregrounds the relationship between producers and consumers, analysing how production strategies responded to demand in the western Mediterranean during the 4th century BCE. In this region, red-figure bell-kraters are documented in settlement contexts as well as in funerary assemblages. In the latter, they were used as cinerary urns, a purpose distinct from the function for which they were originally conceived. As already documented in the south of the Iberian Peninsula, their dimensions and morphological proportions diverge from those of comparable vessels produced for other markets, indicating deliberate adaptation in size and format to meet local requirements. Such formal adjustments suggest that these workshops were not merely exporting surplus goods, but calibrating production to peripheral consumer expectations. Iconographic evidence reinforces this interpretation. The imported vessels exhibit marked uniformity in their decorative programmes, with a clear predominance of Dionysiac and symposium imagery. Scenes repeatedly depict music, food, and drink, alongside male and female figures engaged in convivial interaction, the latter often occupying visually prominent positions. This selective and standardised repertoire reflects both workshop organisation and a stable horizon of demand among western consumers. Frequently characterised in scholarship as stylistically "mediocre", these painters are here reconsidered as pragmatic and highly adaptive craftsmen operating under specific economic constraints during a period of contraction in the figured pottery market. By integrating formal analysis, iconography, and archaeological context, this case study demonstrates how technical standardisation, adapted vessel morphology, and thematic choices articulate a dynamic interplay between workshop organisation and consumer agency, thereby nuancing the professional and social identities of Classical Greek vase painters.

77 ENGAGEMENTS WITH STONE WORLDS IN THE AMERICAS

Theme: 1. Widening perspectives in material culture studies
Organisers: Marie Kolbenstetter (Leiden University | Université Paris Nanterre) – Kim Ruf (University of Oxford) – Alejandra Roche Recinos (Leiden University)
Keywords: Ontologies, Lithics, Materiality, Stone monuments, Sacred landscapes, Americas
Format: Regular session

SESSION ABSTRACT

Worked stone is ubiquitous across the diverse landscapes of the American continent. From monumental architecture and rock art to groundstone tools and sculpted effigies, stone has long been a medium through which human and non-human relations are articulated, maintained, and transformed. Scholarship has long recognised the central role of lithic materials in Indigenous ontologies, cosmologies, and territorial practices across the Americas, a perspective that has gained renewed attention in recent years. Echoing broader archaeological debates on lithic animacy and mineral ontologies, this session seeks to foreground the diverse ways in which stones participate in social, ritual, and ecological worlds. We invite contributions that explore the multiple agencies of stone – its affordances, transformations, and relational capacities – through material, visual, and ethnographic evidence. How have different communities perceived, engaged with, and cared for stony substances? What can the study of material engagements—through archaeological, ethnohistorical, and Indigenous perspectives—reveal about the intertwined lives of people and stones in shaping places, identities, and cosmologies? By bringing together case studies from across the Americas, this session aims to foster a comparative and cross-temporal dialogue on "stone worlds." In doing so, it seeks to widen current perspectives in material culture studies by integrating Indigenous epistemologies, ontological approaches, and material sensibilities into archaeological inquiry.

We welcome papers addressing lithic technologies, sculptural traditions, rock art, ritual landscapes, and theoretical reflections on material animacy and relationality.

CONTRIBUTION ABSTRACTS

1669. The ontology of architectural stone at two ancient Oaxacan cities

Authors: Arthur Joyce (University of Colorado Boulder)
Format: Oral

This paper explores the ontology of architectural stone in ancient Oaxaca, Mexico, by reading Indigenous Mesoamerican perspectives through new materialism. I focus on two ancient cities: Monte Albán in the Oaxaca Valley, and Río Viejo in the lower Río Verde Valley. I consider the physical and semiotic properties of stone to examine the ways in which stone afforded and constrained human projects in both regions. The monumental center of Monte Albán was its Main Plaza complex, which was built on a mountaintop in the center of the valley. From its founding, if not before, evidence indicates that the Main Plaza was a powerful Mountain of Creation connected in Mesoamerican cosmology to rain, agricultural fertility, sacrifice, creation, and the divine. The monumental center was largely built from stone quarried from the mountain itself, thereby merging sacred mountain and monument, while the undulations of the mountaintop afforded the architectural verticality that dominates the plaza. In addition, the sedimentary bedrock from which building materials were quarried afforded the manufacture of stone masonry. In contrast, the monumental center at Río Viejo was located on its massive acropolis built in the floodplain of the Río Verde. Although two hills on the eastern end of the site provided stone, the hardness and density of the granitic rock made the quarrying, transportation, and working of stone more challenging than at Monte Albán. Instead, the people of Río Viejo relied primarily on earth from the floodplain to construct their ceremonial center. Rather than a sacred mountain, the acropolis was closely connected to the river and its fertile floodplain through its construction materials and because it was largely surrounded by the floodwaters of the Verde during the rainy season. The materiality of both monumental centers therefore converged in different ways on fundamental aspects of Mesoamerican cosmology.

1702. Growing Stone: Learning and Caring for Stone in Contemporary Maya Artisanal Practices

Authors: Celine Gillot (University of Montreal) – Guadalupe Tamay Camal (Independent artisan-researcher)
Format: Oral

Archaeological and ethnographic scholarship has long approached materials as entities whose properties can be identified, measured, and used for classification. While such analytical approaches remain central to the study of crafted objects and technical traditions, they offer limited insight into how materials are learned, perceived, and engaged. This contribution examines how stone, in certain contexts, can be understood not as a material defined by fixed properties, but as one that undergoes transformation through processes, temporalities, and forms of attention often associated with living entities. Informed by the perspective of a Yucatec Maya stone artisan, the paper focuses on ways of knowing stone shaped through experiential and analogical learning rather than formal apprenticeship. It shows how sustained experimentation with stone, coupled with analogies drawn from agricultural practices and close observation of the surrounding environment, produces a regime of knowledge in which stone properties become perceptible, workable, and transformable. Within this regime, stone is not merely extracted or worked; it is also cared for and placed within conditions that allow it to change over time and, in some cases, to grow. Foregrounding the situated and relational nature of stone knowledge, this paper illustrates how what might be described as a lithic ontology emerges through practice rather than through an explicitly articulated belief system. Without projecting this case onto the past, it invites reflection on how some stone-related practices may have involved forms of attention and care prior to extraction, shaping, or use. More broadly, it asks how taking such modes of engagement seriously might expand archaeological ways of thinking about the relational processes through which lithic materials became known.

750. Stone Producers and Stone Ontologies in the Maya World: Investigating the Role of Animacy on Flaked Stone Tool Production

Authors: Rachel Horowitz (Washington State University) – M. Kathryn Brown – Jason Yaeger (University of Texas at San Antonio) – Bernadette Cap (San Antonio Colleges)
Format: Oral

Among the Classic period Maya stone was considered animate and to have personhood. While the personhood of stone is widely understood by scholars, the impact that this personhood and animacy had on flaked stone tool producers is less well understood and less studied. Here we draw on data from excavation at multiple lithic production workshops in the Mopan Valley, Belize, to investigate the role of animacy in how lithic producers made and lived with this material. In the case studies discussed here, lithic producers lived literally on top of the production spaces, meaning that they had a unique interaction with the toolstone. We draw on evidence of ritual practice in household workshops, including caches and burials, as well as ethnographic and ethnohistoric documentation of stone tool producers relationship with stone, to discuss the impact that the animate nature of lithic toolstone had on flaked stone tool producers. We focus particularly on the relational aspect of animacy and how flaked stone tool producers may have had unique relationships with toolstone.

251. Mineral life: reconsidering the boundaries of the lithic in ancestral Honduras

Authors: Rosemary Joyce (University of California, Berkeley)
Format: Oral

In recent work grounded in new materialist ontological thinking and engagement with indigenous Lenca perspectives, I moved to reconsider the inanimacy that modern archaeology attributes to stony materials, specifically obsidian and marble. This exploration was intended to question arbitrary boundaries imposed between the inanimate and the animate, showing that mineral matter engages in activity often at a pace that may seem imperceptible to the fleeting human observer. At the same time, the more I delved into the long-term and slow temporalities of geological emergence, alteration, and weathering that affected these entities, the more boundaries blurred, with mineral matter showing its capacity to act abruptly, in highly visible ways, in intra-action with assemblages of other entities that often resulted in mixtures of what today would be considered inorganic and organic matter. This paper returns to two of the more evocative and somewhat unexpected examples of this kind of inorganic activity, copper and lime, to again try to follow a truly monist ontology of becoming in ancient Lenca thought and action.

117. When sculptures are absent. Notes on substitution and process ecology in the context of central Nicaragua

Authors: Alexander Geurds (Leiden University | University of Oxford)
Format: Oral

This paper analyzes 'worlds of stone', specifically in the Chontales region of central Nicaragua, through the theoretical lens of P-Arch, which explores how stones can function as active participants within ritual landscapes as opposed to being passive substrates for representation. Connecting with the key concepts of ontology, materiality, stone monuments, and ritual landscapes, I propose to see "sculpture" and "rock art" as similar processual stabilizations within an ecology of marked and worked stone. Empirically this argument is supported through contexts around the city of Juigalpa, and the Aguas Buenas site, where extensive mound building and petroglyph production occurred on exposed bedrock, also including examples of carved stone incorporated into mound construction materials. As opposed to viewing variability in media (e.g., free standing sculpture, carved outcrops, petroglyph bearing construction stones) as a typological problem, I view it as a relational distribution of lithic agency: stones, through their affordances, visibilities, portabilities, and placements, enable diverse forms of care, encounters, and territorial practices, possibly consistent with Indigenous ontological emphases discussed in this symposium. Instead of considering "absence of sculpture" as an absence, I am viewing this as a positive process indicator; where the bedrock is rich in marks and near the surface, lithic affordances can possibly shift the place of figuration from portable/erected monolithic objects to in situ surfaces and thereby reconfigure how stones are involved in identity, memory and ritual landscape formations.

170. Working Stone, Shaping Place: Petroglyphs and Other Lithic Engagements in Southern Costa Rica

Authors: Kim Ruf (University of Oxford)
Format: Oral

Southern Costa Rica is home to several hundred petroglyphs carved into a diverse range of stone forms, including shaped barrels or seats, spheres, pillars, and minimally modified boulders. These stones bear anthropomorphic, zoomorphic, and geometric motifs that have traditionally been approached through stylistic classification and iconographic interpretation. While such studies have generated important insights, they often treat stone primarily as a passive surface for imagery rather than as an active participant in social and ritual life. This paper presents an ongoing, multi-year research project that approaches petroglyphs as engagements with stone worlds, focusing on the selection, working, and emplacement of lithic materials within pre-Columbian archaeological landscapes of Costa Rica's southern zone. Drawing on initial fieldwork, the study examines how particular stones were chosen for carving, how degrees of modification varied, and how petroglyph-bearing stones relate to topography, movement, visibility, and other material features. Rather than privileging motif meaning alone, the project considers stoneworking as a situated practice through which human-stone relations were enacted and sustained. This contribution outlines the project's conceptual framework and methodological approach. It frames petroglyphs not simply as carved images but as outcomes of sustained engagements with stones and places. Focusing on locally situated stoneworking practices, the paper offers a material-centred perspective on lithic engagements. It examines how carved rocks contributed to the creation of places and the relationships between human and other-than-human agents in southern Costa Rica.

253. Life history of jade lapidaries: involvement in society, rituals, and ecological worlds in pre-Columbian Costa Rica

Authors: Waka Kuboyama-Haraikawa (Tohoku University)
Format: Oral

Pre-Columbian Costa Rica developed a jade lapidary tradition between 500 BCE and 900 CE, which is considered evidence for the rise of social inequality and specialization in the region. Celtiform pendants are among the most recurrent motifs in Costa Rican jade lapidary production and are characterized by skillfully decorated human or animal figures carved on the poll of a celt. This presentation focuses on the human–object–human communication that developed between the craftspeople and the owners of celtiform pendants and highlights the social significance of acquiring jade lapidary objects. The material evidence suggests that these pendants played important roles in ancient society as symbols of status and as objects involved in ritual activities. The life history of celtiform pendants reflects distinctive human behaviors such as intentional fragmentation, imitation, reuse, and reworking, through which knowledge, skills, and materials were applied to meet social demands and shape the object. Furthermore, raw material procurement and pendant production processes were strongly influenced by the ecological environment. The quality of the finished product, the techniques required, and the quantity of objects that could be produced depended on the availability of raw materials. Celtiform pendants have often been interpreted as prestige objects; however, this paper argues that not all celtiform pendants should be classified within a single category. Rather, each pendant embodied different social values and roles. It can be proposed that the widely shared material culture represented by celtiform pendants contributed to maintaining social cohesion among different cultural groups in pre-Columbian Costa Rica.

78 DECORATIVE PRACTICES IN THE ROMAN WORLD: NEW PERSPECTIVES ON MATERIALITY, FUNCTION, AND MEANING

Theme: 1. Widening perspectives in material culture studies
Organisers: Daniela Martins (University of Algarve | University of Murcia) – Gonzalo Castillo Alcántara (University of Valencia) – Gil Vilarinho (University of Évora) – Alberto Villarejo De Torres (University of Sevilla)
Keywords: Architecture, Roman Period, Archaeometry, Decorative Techniques, Aesthetics, Virtual archaeology
Format: Regular session

SESSION ABSTRACT

Decoration comprised a key aspect of how the Romans shaped, perceived, and inhabited their environments. From the painted walls to the patterned floors of domestic and public buildings, decorative systems structured visual experience, mediated social interactions, and materialised cultural values. Yet despite its ubiquity, Roman decoration has often been treated as an aesthetic backdrop rather than as an active participant in the making of meaning. Bringing together archaeology, art history and particularly an interdisciplinary approach to material culture, and by foregrounding the active role of materials – plaster, pigment, marble, glass, and metal – in the creation and transformation of decorated surfaces, this session aims to address how decorative practices articulated relationships between form and function, surface and structure, and ornament and object. We are particularly interested in research that explores diverse contexts – from domestic interiors and urban façades to ritual settings and reused architectural fragments – to examine how decoration mediated relationships between people, things, and spaces. This session thus reexamines decoration as a complex field of practice in which materials, techniques, and contexts intersect to produce social and aesthetic effects, aiming to address topics such as the sensory perception of decorated spaces, the material and technical choices of artisans, and the shifting roles of decoration in processes of reuse and recontextualization. Collectively, these studies highlight decoration as a dynamic medium through which Romans negotiated identity, value, and experience across different regions, inviting new theoretical and methodological approaches to one of the most pervasive yet understudied aspects of the Roman world.

CONTRIBUTION ABSTRACTS

749. The use of preparatory traces in Roman wall painting: Examples from Lusitania

Authors: Daniela Martins (University of Algarve | University of Murcia) – Gonzalo Alcántara (University of Valencia) – Débora Rodríguez (University of Coimbra)
Format: Oral

Roman wall paintings, like architecture and other artistic expressions of the same period, were executed according to well-defined rules and aesthetic canons. The techniques behind the production of such works are extensively described by classical authors, and their material expressions can still be recognized today through macroscopic and microscopic analysis of the archaeological evidence. These investigations continue to reveal both the precision and the variability inherent in the application of ancient decorative practices. The use of preparatory traces, whether incised, painted, or scratched, represents a fundamental step in the planning and execution of roman wall decoration. While this aspect has been increasingly documented in various contexts of the Roman world, its study within Lusitania remains comparatively limited. This paper aims to present a synthesis of the known evidence for preparatory traces in Lusitanian wall paintings, focusing on various examples from Mérida, Évora, Faro, and Conimbriga. By examining the nature, frequency, and distribution of these traces, the study seeks to identify possible technical patterns, regional divergences, and shared practices that may reflect the circulation of workshop traditions and/or the influence of regionalist models. Ultimately, this analysis contributes to a broader understanding of the organization of painting workshops in the western provinces and their relationship to the artistic and cultural networks of the Roman Empire.

285. Textiles and furs in Roman wall painting: evolution and transmission of a decorative fashion

Authors: Gonzalo Castillo Alcántara (University of Valencia) – Daniela Santos Martins (University of Algarve | University of Murcia)
Format: Oral

The representation of elements of luxury and prestige in Roman pictorial ornamentation remained a constant feature from the emergence of decorative styles and, in many cases, continued in use until the end of the Empire. However, certain motifs and decorative elements that we can include in this group, such as marble imitation or metallic objects, have attracted more attention from researchers than other ornamental resources. This proposal aims to analyze a specific type of representation, as textile and stretched fur motifs, to delve into the appearance and evolution of these elements in Roman painting. The objective is to assess how they adapted and transformed over time and whether these models are influenced by the decorative fashions of their period. Although their use is attested in classical sources, such motifs are not equally represented in the archaeological record, making this a topic that still lacks a coherent synthetic study. This search therefore seeks to compile the extant evidence in order to analyze its technical, archaeo-architectural, and chronological implications.

741. Wall painting in the roman houses of Italica

Authors: Maria Teresa Velazquez Guerrero (Universidad Pablo de Olavide de Sevilla) – Gonzalo Castillo Alcántara (Universidad de Valencia) – Pedro López Vázquez (Universidad Pablo de Olavide de Sevilla)
Format: Oral

Recent advances in the study of domestic architecture in Italica have provided numerous new insights into the understanding of these buildings. Among them is the documentation of previously unpublished examples of wall painting associated with private houses. Some of these derive from recent fieldwork, as in the case of the Casa de la Cañada Honda and the Casa de la Exedra. Others come from the archival holdings of the Archaeological Ensemble of Italica and from private collections, including wall painting fragments from the Casa de los Pájaros, the Casa de las Tabernas, and other domestic buildings. The analysis of the available evidence allows for a reassessment of what was previously known about Roman wall painting in Italica, expanding the number of documented examples and enriching the study of domus decoration. Consequently, based on the results obtained, this paper offers an evaluation of the pictorial decoration of the houses of Italica within the broader context of residential architecture in the Roman Empire during the second century AD.

23. On clipei and caryatids in Colonia Patricia (Córdoba). Evidence from the collections of the Archaeological Museum of Córdoba

Authors: Álvaro Castillo Arteche (Universidad de Córdoba)
Format: Oral

The attic story, generally composed of a series of clipei and caryatids, is a decorative element that gained great popularity from the Augustan period onwards, particularly as decoration for porticoes in public plazas or precincts linked to imperial power. In the capital, Rome, there are two paradigmatic examples of this decoration: the Forum Augustum and, according to recent studies, the Templum Pacis. This model was exported to the provinces, undergoing significant development in the provincial capitals of Lusitania and Tarraconensis, Augusta Emerita (Mérida) and Tarraco (Tarragona), where some of the best-preserved examples of this architectural typology can be found. To date, the only evidence of clipei in the city of Colonia Patricia (Córdoba) was a small, little-studied marble fragment of unknown provenance and location. Thanks to an exhaustive search in the storerooms of the Archaeological Museum of Córdoba, we present three marble fragments, one of them unpublished, that attest to the existence of at least two different Flavian-era attics decorated with clipei and caryatids. In essence, the study presented here has allowed us to reassess and redefine the architectural decoration of two different settings in the city of Colonia Patricia based on the analysis of fragmentary materials, which are frequently overlooked by traditional scholarship.

164. Mosaic decoration in Colonia Patricia Corduba. A descriptive analysis, parallels and functionality

Authors: Alberto De Torres (Universidad de Sevilla)
Format: Oral

The mosaic wealth of the capital of the Roman province of Baetica, Colonia Patricia Corduba, is evident in the abundant number of mosaics recovered in archaeological excavations, which, over the last sixty years, have contributed decisively to the knowledge and development of Cordoba's archaeology. These floors, documented mainly in domestic contexts, are an essential source for the study of the architecture, decoration and spatial organisation of Roman Cordoba. This work, which forms part of our doctoral thesis, aims to present some of the results of the most recent studies on Roman mosaics in Colonia Patricia Corduba, integrating new archaeological interpretations and methodological revisions. To this end, it addresses the formal reconstruction of the preserved pavements, as well as the hypothetical restoration of the lost areas, based on the analysis of parallels and compositional schemes. Likewise, a detailed study of the geometric and iconographic composition of the mosaics is carried out, taking into account their

spatial arrangement and their relationship with the architectural areas to which they belong. All of this allows us to advance in the functional interpretation of these pavements and in the identification of decorative influences from other territories of the Roman Empire, thus contributing to a better understanding of the mosaic phenomenon in southern Hispania.

2154. The Hypogeum of San Salvatore, Cabras (OR), Sardinia, Italy

Authors: Nicoletta Camedda – Ilaria Orri (Fondazione Mont'e Prama) – Paola Derudas – Nicolò Dell'Unto – Danilo Campanaro (Lund University) – Anna Galli (Università degli studi di Milano-Bicocca) – Michele Caccia (Institute of Bioimaging and Complex Biological Systems, IBSBC-CNR) – Luca Cheri – Anthony Muroni (Fondazione Mont'e Prama)
Format: Oral

The mission of the Mont'e Prama Foundation is to preserve and foster the archaeological sites in the Archaeological Nature Park of the Sinis Peninsula, on the central-western coast of Sardinia. One of the archaeological sites managed by the Foundation in this area is the Hypogeum of San Salvatore, which is the subject of the present discussion. The Hypogeum is a subterranean structure built in the 4th century CE, consisting of five rooms: two overlook an entrance corridor, while the other three are arranged around a circular space, at the center of which is a well. The centrality of water, which has always been seen as an element of worship, invites to reflect on its importance. The importance and originality of the structure are closely linked to the presence of charcoal drawings on the walls, dating from the 4th century AD onwards. The depictions, executed with varying characteristics and levels of quality, sometimes display a remarkable refinement, suggesting that they may have formed part of a deliberately planned decorative scheme; in other cases, they appear cruder and represent a wider range of subjects. Among the highest-quality images, two scenes stand out: the marriage of Mars and Venus, and the struggle between Hercules and the Nemean Lion. The simpler representations, arranged in a disorderly manner and often overlapping, are instead interpreted as ex-votos left by visitors to these spaces. The aim of this discussion is to gather attention on the iconographic elements of the Hypogeum, namely on the connection between water and the characters depicted on the walls. Although this topic has been addressed occasionally and discontinuously in recent years, current research now benefits from advanced technologies that have enabled detailed photographic mapping of the walls, thus providing new interpretations and stimulating further reflections on the figurative apparatus and its meaning.

1447. Tabula Picta and Roman Decoration: From Painted Panels to Decorated Architecture and Writing Surfaces

Authors: Fangfang Tian (Sapienza Università di Roma)
Format: Oral

From writing to painted panels and architectural decoration, Romans treated materials and surfaces in very different ways: some marks could simply be erased, while other images and decorative work were treated as part of the building. Choices of material and technique were not only matters for craftsmen, they also shaped how the law decided which part would be regarded as the principal. The painted panel (tabula picta) reflects central Roman ideas about decoration and value. Some jurists, like Paul, said that the wooden board was the main thing. Others said that if the painting was a real masterpiece, then the painting should be the main thing and the board only secondary. Justinian finally took the side of the image, saying it was absurd to treat a painting by Apelles or Parrhasius as a mere accessory to a cheap wooden board. This marked a clear shift: a decorative image could override its support and become the object itself. For the situation of buildings, jurists discussed fixed decoration such as wall-paintings, marble facings and house statues. Pomponius and Labeo treated these as accessories, but Papinian argued that once art is fixed to the wall it is part of the house itself, not an accessory. The garden frescoes from the Villa of Livia at Prima Porta, show this clearly: they were inseparable from the room and seen as part of the architecture. On writing, Gaius sums up the view: letters, even if written in gold, were thought to follow the papyrus or parchment. The reason might be considered cost and value - writing itself was relatively cheap, while the material support was more expensive. Taken together, writing, painting and architectural decoration show that Roman decoration could be absorbed into buildings, become the main object, or remain a functional surface.

2694. Advertising In Ancient Pompeii: Visual Marketing in Food and Drink Outlets

Authors: Massimo Betello – Mencia Casas Neo – Sebastian Terrazas – Emma So (John Cabot University)
Format: Oral

The visual presentation of food outlets in the Roman world has been subject to limited research, with publications mostly providing general descriptions of their shop signs and decorations. This evidence is often presented in simplistic ways, assuming that marketing strategies and visual messages functioned in antiquity as they do today. This paper focuses on shops selling ready-to-eat food in Pompeii. These businesses targeted customers from the streets, placing their service counters by their entrance(s) to allow for easier access and better visibility. The high volume and density of these establishments suggest an elevated degree of competition among them. Through the study of the decorations and images placed on these businesses' frontages, it is possible to inquire whether visual methods were used to attract customers, functioning as early forms of advertisement. Semiotic analysis helps understand the signs and symbols activated by the viewers, while a spatial evaluation of the display allows to identify how they functioned to attract prospective customers. External factors such as street infrastructure and pedestrian traffic flows are also considered. Furthermore, this study applies modern marketing theory and psychology to classify these displays as advertisements. This variety of methods

enables a nuanced analysis of several popinae. The results reveal instances of deliberate use of visual devices to maximize profit by attracting pedestrians, but also a lack of decoration in streets with higher density of foot-traffic - that is, potential customers. These conclusions align with modernizing approaches to Pompeiian economy, suggesting that bars did not operate on a simple subsistence level. Furthermore, it seems that these practices were heuristic, created and reproposed through trial and error, without formal study of the best advertising methods. Finally, this study shows how interdisciplinary approaches to decorative practices help understand ancient systems such as the Pompeian economy, society, and behavioral codes.

583. Gold on silver. Decoration in Roman mail and scale armour

Authors: Martijn Wijnhoven (Institute of Archaeology of the Czech Academy of Sciences, Brno)
Format: Oral

This contribution provides an overview of the decorative techniques used in Roman body armour, with a focus on mail and scale armour, which often exhibits structural similarities to contemporary clothing. Although functionality was paramount in Roman military equipment, decoration also played a significant, yet frequently overlooked, role, even in armour designed for combat. Mail armour, composed of interlinked iron rings, often incorporated copper alloy rings to create patterned effects ranging from simple borders to complex geometric designs. Likewise, scale armour, consisting of metal or bone scales attached to a textile backing, exploited material contrast. While mixtures of iron and copper alloy scales are attested, a more common technique was the selective tinning of copper alloy elements to produce striking contrasts between silvery and golden hues. Decoration reached its zenith in the 2nd and 3rd century AD with the integration of front-opening chest plates into mail and scale shirts. These plates were often embossed, engraved and selectively tinned to concentrate visual impact at focal points on the body. By focussing on materials, techniques and surface treatments, this paper argues that Roman mail and scale armour were part of broader decorative practices that blurred the distinction between clothing, ornaments and military equipment.

377. Roman Wall Painting in Jordan: Past Research and New Directions for a Unique Case in the Mediterranean Oikoumene

Authors: Elena Cantero Ros (University of Groningen)
Format: Oral

In recent decades, the corpus of painted plaster evidence coming from the Hashemite Kingdom of Jordan has significantly increased. Located at the edge of the Limes Arabicus, wall paintings from the Roman period have appeared in contexts ranging from the funerary to the domestic sphere, and from the Nabatean South to the profoundly Hellenised North. Despite the unique cultural interplay and its importance for the understanding of visual culture in antiquity, a consistent overview of the toichographological research to date is still missing. Moreover, the emergence of novel analytical approaches in archaeological science is being slowly implemented, decentering images and allowing for new research into craft organisation, trade and resource management. Therefore, this work aims to provide an overview of the current state of the art on painted plaster in the Jordanian territory. The iconographical evolution of the craft will be evaluated, highlighting the diversity of archaeological contexts as well as the impact of cultural influences native to the Transjordan. Finally, this work will introduce new archaeometrical research pioneered by the University of Groningen in collaboration with the German Protestant Institute of Archaeology in Amman and the Cultural Heritage Agency of the Netherlands.

1434. Adornment and Elite Display in Late Antique Sagalassos: Glass Beads in Urban Mansion

Authors: Eylül Oral (İhsan Doğramacı Bilkent University | Sagalassos Archaeological Research Project)
Format: Poster

Located in the Taurus Mountains of Western Anatolia, the ancient city of Sagalassos, was an important urban centre of the ancient Pisidia region from the Hellenistic period to the Late Antique period. The assemblage of glass beads from the Urban Mansion, elite residential building, of the city shows new findings for the elite identity display through personal adornment, that challenge the narrative of elite identity display and the use of precious metals, particularly gold. This study, based on the material, typological, and production technique classification of 55 beads found in the domestic area of the ancient city, questions the relationship between the display of elite identity and precious materials in the conventional archaeological literature. Preliminary analysis, considering the display of elite identity in the ancient city of Sagalassos together with the sociological and economic conditions of the Late Antique period, suggest that the elites residing in the Urban Maison may have used glass beads, made using a special technique, as a substitute for precious materials such as gold or pearls.

1644. Marble decorative elements in Aquincum (Budapest): provenance and use/usage

Authors: Anita Polgár-Nyerges (Budapest History Museum) – Judit Zöldföldi (University of Stuttgart | Miss Marble) – Bernadett Bajnóczi (HUN-REN Research Centre for Astronomy and Earth Sciences)
Format: Poster

Aquincum, the provincial capital of Pannonia Inferior (from AD 106), was situated at the most important crossing point of the Pannonian Danube frontier. Aquincum flourished until around the middle of the 3rd century AD; several richly decorated public and private buildings are known from the 2nd and 3rd centuries. In addition to the use of mosaic floors to decorate buildings, expensive marble slabs were also used to enhance the splendour of the interiors. Imitations of this decoration often appear on the plinths of wall paintings. The studied fragments of marble used to decorate buildings can be found in the collection of the Aquincum Museum (Budapest). The finds show a varied picture, with fragments of different shapes and colours. We were able to separate fragments of large slabs, small and coloured framing fragments, and fragments of profiled door and window frames. The aim of the research was to identify the possible provenance of the raw materials and to compare the results with those of previous investigations conducted in Aquincum and Pannonia. The research has been provided valuable data and additional information on the study of Roman marble quarrying, processing and transportation. Some of the white marbles came from the eastern Alps in the direction of Noricum. There is also a large presence of white (e.g. Proconnessos, Thassos) and polychrome marbles (e.g. cipollino verde, verde antico, breccia corallina, pavonazetto, greco scritto) from the Mediterranean region, which clearly shows that Aquincum had access to the main marble trade networks of the 2nd–3rd centuries AD. To determine the exact sources of the raw materials, in addition to non-destructive in situ measurements (MGS /Maximum Grain Size/, Raman spectroscopy, XRF /X-ray fluorescence spectroscopy/), thin section petrographic and stable isotope analyses were carried out.

2729. Decorative stone and architectural display at the Late Roman site of Santa Vitória do Ameixial (Estremoz, Portugal)

Authors: Gil Vilarinho (University of Évora)
Format: Poster

This paper presents a study of decorative stone employed within the architectural programme of the Roman villa of Santa Vitória do Ameixial, examining how ornamental stone materials contributed to visual display and the articulation of domestic space in a high-status rural residence. The villa, which has been the subject of over a century of archaeological excavations and is situated in proximity to one of the most significant marble quarrying areas of the region in antiquity, provides an important case study for understanding the material construction of elite environments in Late Roman provincial contexts. The analysis is based on stone fragments from wall revetment, pavements and architectural detailing recovered from archaeological contexts. These materials are examined to assess their provenance and aesthetic properties—colour, veining and carving—which were fundamental to their decorative function. Although the majority of the assemblage consists of white marble, the notable presence of painted polychrome elements indicates a more complex and visually developed decorative scheme. Contrasting the archaeological contexts and architectural associations of these materials permits an assessment of their spatial distribution and functional deployment within the villa. The evidence demonstrates that decorative stone was not applied uniformly throughout the site but was instead concentrated in architecturally and socially significant areas. Through the deliberate manipulation of material diversity and colour contrasts, stone decoration contributed to the creation of hierarchised and visually differentiated settings, reinforcing distinctions between more private and more public zones within the complex. Ultimately, the use decorative stones at Santa Vitória do Ameixial reflects sustained investment in the aesthetic elaboration of the built environment and illustrates how material resources were mobilised to convey cultural refinement and social standing within the framework of Late Roman rural elite architecture.

79 BURIALS OF PROMINENT WOMEN IN PREHISTORIC SOCIETIES: THE ARCHAEOLOGY OF SOCIAL INEQUALITY AND THE FEMALE WORLD

Theme: 1. Widening perspectives in material culture studies
Organisers: Jan Turek (Center for Theoretical Study, Charles University, Prague) – Agnieszka Przybyl (Institute of Archaeology, University of Wroclaw) – Petr Krištuf (Department of Archaeology, Umiversity of West Bohemia in Pilsen)
Keywords: Elite female burials, Gender archaeology, Mortuary symbolism, Social inequality, Multi-proxy contextual analysis
Format: Regular session
Affiliation: Archaeology and Gender in Europe - AGE

SESSION ABSTRACT

Burials of prominent women occur in many prehistoric cultures worldwide. Over recent decades, the debate about the social significance of this phenomenon has undergone substantial change. Elaborate funerary constructions and monuments, as well as exceptional and richly furnished burial assemblages, are increasingly interpreted as expressions of individual identity rather than merely manifestations of established power structures and social hierarchy. In contemporary gender archaeology, exceptional female burials are no longer viewed solely as appendages or reflections of male power. In some societies, social power associated with notable women was conveyed through traditionally male warfare prestige objects; in others, a woman's social standing in the funerary ritual was signified by specifically feminine artefacts, distinguished by their quantity and high social value. Recent research favours multi-evidence, contextualised and theoretically informed readings that permit a range of roles for elite women as political actors, ritual specialists, lineage agents, or symbols of social reproduction. The mortuary material of many forms can be used in order to approach a more nuanced past, including how gender may have interacted with other social determinants to create identities. Recent feminist and gender theory have shifted interpretations away from binary, essentialist readings towards models that regard gender as relational, performative and entangled with age, kinship, ideology and political economy. This session invites discussion of the variability of funerary symbolism in exceptional female burials across a broad temporal and geographic framework.

542. Burials in Bytes – Exploring Early Neolithic Gender Identities Through Quantitative Methods

Authors: Yanik Hahnekamp (University of Vienna, Department of Prehistoric and Historical Archaeology)
Format: Oral

Recent investigations of Early Neolithic grave fields in Central Europe and beyond reveal dynamic and complex mortuary practices, suggesting non-synchronous social and funerary developments across the Linear Pottery Culture (LPC) distribution area. Gender identities and relations receive particular attention, including questions of female mobility, sexual differentiation, and whether systems disadvantaging women can be identified in burial evidence. This presentation addresses these issues through key results from a doctoral thesis titled "Burials in Bytes: A Quantitative Study of Linear Pottery Culture (LPC) Cemeteries." The study applies a range of theoretical models of social identity and social structure to the quantitative analysis of selected LPC grave fields. The dataset comprises approximately 1,550 archaeological features and their associated contents, systematically categorized according to pit types, anthropological data, body position, grave goods, elements of dress, and other attributes. These data were examined using multiple methods, including correspondence analysis, seriation, and spatial distribution mapping, to identify patterns in the funerary treatment of individuals and relationships between graves. The results support previous interpretations by demonstrating marked differences in funerary practices across and within regions, while also highlighting variation and supraregional trends in the treatment of the sexes. A series of case studies presents exceptional female graves and illustrates how LPC communities across Europe may have enacted diverse versions of lifeways, gender identities, and social organization.

2016. Did Princesses Live in the Copper Age? Rethinking Elite Female Burials from the Present-Day Poland

Authors: Stanislaw Wilk (The Karkonosze Museum in Jelenia Góra) – Marek Nowak (Jagiellonian University in Kraków, Institute of Archaeology)
Format: Oral

The Early Copper Age (Eneolithic) in south-eastern and central Europe is widely associated with accelerating social and ideological transformations, including the emergence of new forms of inequality that are often inferred from mortuary evidence. While discussions of "elite" status have long focused on male graves richly furnished with weapons and metalwork - often treated as straightforward evidence of hierarchy - prominent female burials, marked by abundant ornaments of copper, gold, shell, and stone, invite more nuanced interpretations that foreground identity, gendered symbolism, and the relational construction of status. Building on recent debates in gender archaeology, this presentation offers a contextualised, multi-proxy study of richly equipped female graves from the territories of present-day Poland (notably Lesser Poland, Lower Silesia, and Kuyavia). These territories have often been framed as peripheral to the metallurgical "core" of the Carpathian Basin and the Balkans; however, evidence points to close interactions, i.a. through the circulation of copper objects and other prestige goods. We combine cultural and chronological contextualisation with bioarchaeological observations and a comparative mortuary approach to evaluate how exceptionally rich female graves relate to other burials, including richly equipped male and child graves within the same communities. Particular attention is paid to the typological and chronological placement of copper artefacts, as well as to available provenance data for the metal. Our aim is to test (i) whether female "wealth" reliably indexes elite social rank, or whether some assemblages instead materialise specific roles (e.g., lineage agents, ritual specialists, or symbols of social reproduction), and (ii) whether female prominence was expressed through gendered forms of value rather than merely reflecting male power structures. The study is conducted within the Mysterium Magnum – The Origins of Metallurgy in Central Europe project, funded by the International Visegrad Fund.

2516. A Corded Ware Female Burial with Arrowheads: Gender, Memory and Engagement within a Monumental Landscape

Authors: Agnieszka Przybyl (Institute of Archaeology, University of Wrocław) – Agata Hałuszko (Institute of Archaeology, Maria Curie-Skłodowska University) – Marzena Cendrowska (University of Bergen)
Format: Oral

Archaeological excavation can sometimes lead to surprising results: what appears obvious initially may prove less straightforward upon closer inspection. This presentation describes a case of precisely this kind: a surprising discovery of a female burial of the Corded Ware culture (CWC) inserted into the monumental mound of a Funnel Beaker culture (FBC) long barrow, recorded at site Muszkowice 18 (Lower Silesia, Poland). It illustrates how the earlier long barrow mound functioned as a pre-existing monumental landscape, whose prestige, memory effects, and authority were reactivated by the intrusive CWC burial. Crucial to the presented example is a female individual interred with arrowheads. This is the opposite of the usual male-coded patterns seen in CWC funerary symbolism. This unusual pairing of sex and artefacts may be interpreted as a statement crafted to perform status, affiliation, or role in a highly visible mortuary context. The presentation examines how gendered identities could be assembled in death, and how this assemblage made the woman materially "prominent": clearly recognisable and socially empowered within the ritual landscape. By setting this burial within the context of regional instances of CWC engagements with earlier barrows, the presentation argues that the case illustrates a gendered form of interaction with a monumental topography. In this mode, the visibility and prominence of this woman were negotiated not only through her body and artefacts, but also through her strategic placement in a sacred space. In doing so, it contributes to the debate on prominent women, as well as commemorative practices within a monumental landscape and strategies of social remembrance in the Late Neolithic. This research was supported by the National Science Centre, Poland (NCN), projects No. 2017/25/B/HS3/01442 and 2024/06/Y/HS3/00071.

827. More teeth, more power? Elite burials of Corded Ware women and their social significance

Authors: Petr Kristuf (University of West Bohemia in Pilsen) – Jan Turek (Charles University)
Format: Oral

A highly distinctive marker of high social status in female burials of the Corded Ware period in Bohemia (specifically) is the presence of rich decorative jewellery assemblages. These include necklaces made from perforated shell beads, pectorals, and garment and accessory adornments composed of perforated animal canines. One of the richest female burials of this period in Bohemia is the Prague-Čimice burial. Its wealth derived from a suite of necklaces comprising 1,435 pearl rings. The rings measured approximately 6–13 mm in diameter and were manufactured from freshwater shell. Additional necklaces consisted of 194 perforated animal teeth, principally dog canines, but also from domestic pig and sheep or goat, as well as from small carnivores such as foxes and wild cats. This assemblage was further supplemented by 36 bone imitations of dog canines. Similar finds occur at Sulejovice (258 teeth, Litoměřice District), Prague-Březiněves (595 teeth), and more recently in a ring-ditch grave with a palisade surrounding a barrow at Račiněves (ca. 30 teeth, Litoměřice District). Such graves may also contain rare copper-wire ornaments and shell discs decorated with solar motifs of concentric circles and a cross. These are unequivocally graves of the social elite of the period. The monumental funerary architecture likewise suggest the exceptional status of the deceased woman, since the central positions within circular ditches were predominantly reserved for men assembled with battle-axes. It should be emphasised that elite female Corded Ware burials were typically accompanied by distinctly female funerary assemblages, whereas gendered mixing occurs only after the mid-3rd millennium BC, evident in some Bell Beaker female burials that include elements of archery equipment and copper daggers. Important women of the Corded Ware horizon were thus represented by artefacts with unequivocally feminine gendered connotations, and the opulence of their shell and canine pendants confirmed their high social status.

2025. Beyond brides: women's role in shaping the third millennium BCE

Authors: Louise Olerud (Faculty of Archaeology, Leiden University)
Format: Oral

Current scholarship about Northwestern Europe in the third millennium BCE strongly emphasises male agency. This period is considered a time in which much cultural and social change takes place: ancient DNA studies suggest that male migrants from Eastern Europe brought in Indo-European language and culture, as well as a 'male-dominant', patriarchal society. Even though stable isotope studies show that particularly women were highly mobile in this period, this mobility is typically interpreted as a passive form of female exogamy in which women were imported as brides by men (fathers, husbands) to uphold alliances. The active agency of the women themselves, or even the knowledge that these women would have brought from faraway places, is typically not acknowledged. Through network analysis of female graves and their – sometimes quite rich – assemblages, associated with the Corded Ware and Bell Beaker phenomena throughout Europe, this paper investigates the role of women as active and powerful agents in the cultural changes taking place in this period.

447. Mothers at the Centre: spatial politics of kinship at Early Bronze Age Cemeteries in Lower Austria

Authors: Katharina Rebay-Salisbury (University of Vienna | Austrian Academy of Sciences)
Format: Oral

Early Bronze Age cemeteries in Lower Austria were structured according to kinship and time of death, resulting in clustered burials that correspond closely to multi-generational lineages. Drawing on the findings of an ancient DNA study of 129 individuals from Drasenenhofen, Franzhausen, Pottenbrunn, Ulrichskirchen, Unterhautzenthal and Schleinbach (Furtwängler et al. 2025), this paper examines the spatial positioning of women's graves in relation to social status and family ties. Within kinship clusters, women—especially mothers—occupy central spatial positions and are frequently interred in immediate proximity to their offspring. Notably, several centrally located graves of women contain distinctive dress ornaments and status-linked artefacts, highlighting their roles as facilitators of economic activity, knowledge transmission, and social representation. The mothers of sons appear to be particularly highly valued and central to kinship networks. This highlights the social salience of motherhood within predominantly patrilineal and likely patrilocal frameworks, in which alliances were organized through female lines. The aDNA data reveal high diversity of mitochondrial lineages across family clusters, consistent with exogamous marriage practices that brought nonlocal women into communities. Isotopic evidence from the wider region indicates higher female mobility than male, corroborating the genetic evidence. Our study reinterprets prominent women's burials as nodal points in the organisation of families, alliances and status, shedding light on the gendered dimensions of social inequality in the Bronze Age world.

1378. The Burials of Powerful Women of the Northern Black Sea Steppe in the 4th Millennium BCE

Authors: Sofiia Svyryd – Alexey Nikitin (Grand Valley State University)
Format: Oral

The Northern Black Sea (North Pontic) steppe was a major center of cultural and genetic transformation during the 4th millennium BCE, particularly among Eneolithic populations ancestral to the Yamna culture. These groups constructed kurgans (burial mounds) traditionally interpreted as elite, male-centered monuments. However, recent ancient DNA evidence reveals that of seven Pontic Eneolithic kurgans, five (approximately 70%) belong to women. If Proto-Indo-European ideology emphasized male-centered cosmic and social order, why were foundational kurgan burials so frequently female? This presentation explores primary burials in three Eneolithic kurgans in the Odesa region of Ukraine, Katarzhyno Kurgans 1 and 2, and Mayaky Kurgan 1. The Katarzhyno 1 burial contained an unusually tall woman interred with an askos-type vessel interpreted as a symbol of female divinity. Katarzhyno 2 held an adolescent female, possibly sacrificial, buried with a mortar and pestle, items often associated with sacrifice, eternity, and transformation in Indo-European traditions. The Mayaky 1 burial consisted of disarticulated remains of a middle aged woman with a cranial deformation and perimortem cranial trauma, suggesting ritualized violence and physical liminality. Drawing on mortuary archaeology, aDNA, osteology, and Indo-European mythological parallels from Slavic and Vedic traditions, this study argues that powerful and liminal female figures played a foundational role in the ideology and ritual practice of early Kurgan people in the North Pontic.

504. Mariupol-type burial mounds. Gender paradoxes

Authors: Nataliia Mykhailova (Institute of archaeology of National Academy of Sciences of Ukraine)
Format: Oral

There are more than three dozen known mass graves of the so-called Mariupol type in Ukraine. A smaller part of them dates back to the Mesolithic period, while the majority dates back to the Neolithic period. The earliest burial complexes were located, mainly, on the Dnipro Rapids and Low Dnipro; some later cemeteries were found on the territories to the West and to the East, from Dniester to Don rivers. The Mariupol-type burial inventory differs from other Neolithic burial complexes in Europe due to the quantity and uniqueness of the jewellery, some of which is entirely one-of-a-kind. Graves of the early period were either individual, double or collective. Many of the deceased's had few adornments with them in the grave: decorations made from shells, bone, stone, pearls, carp fish teeth and deer canines. In the early stages, women's jewellery is scarce and inferior in quality compared to men's and children's jewellery. The later phase of the Mariupol type cemeteries, stretching from the Dniester to the Don river, are distinguished by a remarkable assortment and abundance of grave goods. A wide variety of beads and pendants were on display, crafted from a range of materials including shells, bone, marble and jet. The most impressive personal ornaments are the perforated boar tusks and plates, made from tusks, which are a testament to the craftsmanship and artistry of the artisans who crafted them. These ornaments are exclusively abundant at the Mariupol cemetery and are inherent to male, female and children's burials. In the burial grounds of the late period, numerous female burials are as rich as male burials. However, some of them had atypical features, for instance, symbols of power, weapons. These phenomena are probably evidence of either a special social status for the buried persons or a gender transformation.

817. Invisible No More: Women in Yamna Mortuary Practices at the Western End of the Steppe

Authors: Bianca Preda-Balanica (University of Helsinki)
Format: Oral

The prevailing understanding of Yamna groups migrating from the Pontic–Caspian steppe into Southeastern Europe in the 3rd millennium BC remains deeply influenced by stereotypes of violent steppe men wiping out local male populations and abducting or marrying local women. Unsurprisingly, research has overwhelmingly focused on men, examining their graves, bodies, and the successful spread of their genes, often with little or no reference to other social categories such as women and children. Yamna graves span roughly half a millennium at the western end of the Great Steppe, in what are today Romania, Bulgaria, Serbia, and Hungary. Yet women remain largely invisible in the literature addressing both the initial migration process and the enduring Yamna presence in the region. This invisibility does not reflect their absence from the archaeological record but rather stems from long-standing androcentric research biases, gender stereotypes, and double standards in interpretation. Starting from the observation that women received burials comparable to those of men, this presentation advances the hypothesis that they played crucial roles in shaping social complexity within Yamna communities. Focusing on burial practices associated with women – including funerary structures, body treatment and positioning, grave goods – and bioanthropological data on health and activity patterns, this study investigates the multidimensional social identities women held during life and those enacted through mortuary practices.

203. Burials of elite women in Koban culture

Authors: Sergey Makhortykh – Nadja Kotova (Institute of Arcaheology Ukrainian Academy of Sciences)
Format: Oral

Gender studies have become a vital component of contemporary archaeology because they challenge long-standing assumptions about past societies and offer more accurate, inclusive interpretations of human history. Koban culture is recognised as one of the most significant archaeological phenomena of the Early Iron Age in the Caucasus, with absolute dates ranging from 900–400 BCE. The prevailing understanding of Koban society is derived from studies of necropolises, some of which contain hundreds of graves (Tli; Koban, Klin-Yar 3, etc.). The aim of our contribution is to analyze the burials of the high-status women from the Koban culture, focusing on the Northern and Central Caucasus. In the context of funeral rituals, a group of women with sceptres and specifically

feminine artefacts (e.g., various bronze amulets) is distinguished, which allows us to identify them as priestesses. A separate cluster comprises burials of women accompanied by medical instruments, which may be associated with healers. The high social status of women in Koban society is also supported by evidence from the Nart epic, the oldest parts of which date back to the first millennium BCE. Elite female burials were a distinctive feature of the "golden age" of Koban culture (900-650 BCE). The majority of these burials are located in the mountainous Central Caucasus region, which indicates a high level of prosperity in society. This is primarily due to the advanced development of bronze metalworking and close cultural and trade contacts with populations of the South Caucasus and the Near East. The specific characteristics and varying levels of development of various Koban culture communities, as well as the evolving political landscape, were key factors in shaping the past gender systems in this region of the Caucasus.

333. Prominent Women in Andronovo Burial Rites (based on the Lisakovsk complex of the Bronze Age , Kazakhstan)

Authors: Emma Usmanova (Saryarka Archaeological Institute Karaganda Buketov University) – Alicia Ventresca-Miller (Department of Anthropology, University of Michigan)
Format: Oral

The Lisakovsk burial complex dates to the Bronze Age (~ 1950 to 1500 BCE) and is part of the Andronovo cultural horizon. Over 200 burials have been unearthed in over 35 years of excavation, with burials associated with Petrovka, Alakul, Fyodorovo archaeological cultures. Radiocarbon and chronological data suggest that the formation of the barrows in the Lisakovsk burial complex began in the period associated with Petrovka and Alakul cultures (~1950 to 1750 BC). Within the excavated burials, some individuals have been estimated to be female based on anthropological data (for a total of 25 burials). An analysis of grave goods and ritual features of deceased women, indicate evidence for a symbolic pattern of burial rites. Our findings suggest that there were differences based on age, profession, and leadership existed between women in the Lisakovsk society during the Bronze Age. The main element of buried with prominent women was a headdress with a 'nakosnik', a plait decoration or braid ornament. In one burial, there were weaving tools and ritual features that indicate the burial of a professional weaver. The deceased women's leadership was represented by a knife-dagger as well as the placement of her grave in the central barrow, with a surrounding ditch containing children burials. A collective memory contributed to the preservation of behavioral stereotypes and the regulation of social relations. Signs of women prominent status were found in the funeral rite and included in this social phenomena. The Lisakovsk burial complex included a category of female burials which were protected against looting. Perhaps, due to their life status, they ensured and facilitated the dissemination and preservation of a collective memory in this preliterate society. Incursions into these burials would signify a violation of the status quo of a female social group.

2235. Contextual Identity of Individuals in a Matrilineal Society: Chaco Canyon

Authors: Zhuohan Yu (University of Chinese Academy of Social Sciences)
Format: Oral

During the transitional period between small-scale societies and fully developed states, complex societies took a variety of forms. Despite the diversity, individual identity was often shaped through landscape, material culture, and broader contextual frameworks. As a complex, highly organized society, Chaco Canyon is a place where the Puebloan culture flourished with interaction between surrounding areas. While it is considered as a matrilineal society, the buildings, rooms, and burials discovered in various archaeological sites, such as Pueblo Bonito, together formed a new space and context for illustrating the identity of women. Under this circumstance, the identity of women can be embedded in buildings, rooms, and burial practices, which was attached with geneological continuity and spatial permanence. Compared to the patrilineal society, it is clearer to examine how the identity of women herself was shaped, transmitted, and maintained without being mediated by male relatives. This paper explores how the women's identity was shaped, voiced, contextualized, and can be visible under a matrilineal society like Chaco Canyon, and how its interpretation differs from that in the patrilineal societies. Through the multi-dimensional and combined perspective of what had been discovered in Chaco Canyon, this study hopes to offer a new aspect to understanding the identity expression and visibility of prominent women in prehistoric complex societies.

2047. Beyond Kinship: The Prominent Woman of Montanissell Cave and the Symbolic Construction of Female Status in the Bronze Age

Authors: Cristina Santos – Maria Rosa Campoy-Caballero – Daniel R. Cuesta-Aguirre – Xavier Jordana (Universitat Autònoma de Barcelona) – Núria Armentano (Museu d'Arqueologia de Catalunya | Universitat Autònoma de Barcelona) – Assumpció Malgosa (Universitat Autònoma de Barcelona)
Format: Oral

Recent archaeological and anthropological research challenges traditional narratives portraying the Bronze Age as a male-dominated world structured around long-distance male mobility and patrilineal exchange networks. Increasingly, female agency is emerging as a key driver of cultural transmission. The burial from Montanisell Cave (Catalan Pyrenees, Spain) provides an exceptional case study. The cave contained eight individuals dated to the Bronze Age: an adult woman -La Senyora de les Muntanyes- centrally placed and richly adorned with a unique assemblage, unparalleled in northeastern Iberia, one young adult woman, one adult man, one adolescent, and five children under 12. Previous bioanthropological analyses suggested patrilocality and female exogamy based

on high mitochondrial diversity and demographic structure, although genetic resolution had been insufficient to verify biological relatedness. We now present complete paleogenomic data from all individuals, revealing a structured kinship network: two minors (IDs 9 and 11) are full siblings, both related at second degree to infant ID5; infant ID2 and the adult male show first-degree kinship. Crucially, the central woman shows no relatedness up to the second degree with any individual and does not share a mitochondrial haplogroup with them. Her prominent placement and exceptional ornamentation therefore probably reflecting socially constructed status, not kinship. This case invites renewed reflection on gender, prestige, and inequality in prehistoric Europe, positioning the Montanisell woman as one of the most compelling examples of a prominent Bronze Age female whose authority was socially – not biologically – grounded.

1826. Tracing Life, Health and Identity: A Multi-Proxy Study of an Early Bronze Age Woman from the Barrow in Szczepankowice, Poland

Authors: Agata Haluszko (Institute of Archaeology, Maria Curie-Skłodowska University in Lublin | Archeolodzy.org Foundation, Świdnica) – Krystyna Jarysz – Radosław Jarysz (Archaeological Museum in Wroclaw) – Stefan Tangl (Karl Donath Laboratory, Medical University of Vienna | Austrian Cluster for Tissue Regeneration, Vienna)
Format: Poster

Reconstructing individual life histories in prehistory requires understanding how biological processes intersected with social realities. This study investigates a mature woman from a barrow burial at Szczepankowice, southwestern Poland. Her interment, associated with the Únětice culture, forms part of a broader pattern of female graves that challenge established interpretations of gender, status, and community in Early Bronze Age societies. To explore the biological dimensions of this individual's life, both osteological and molecular evidence were considered. Published ancient DNA data confirmed the presence of an extinct Hepatitis B virus (HBV) lineage phylogenetically close to chimpanzee strains. Although the infection was likely chronic, no pathognomonic skeletal lesions attributable to HBV were identified. This finding highlights the value of integrating molecular and histological perspectives to distinguish between systemic disease, ageing, and physiological stress in archaeological remains and to better understand long-term health trajectories in the past. The analysed material comprised compact bone fragments derived from the shafts of two long bones, previously sampled for isotopic analyses. Compact bone microstructure was well preserved, showing minor non-pathognomonic alterations within the tissue but no macroscopic evidence of trauma or diagnostic pathology. Histological observations revealed well-organised secondary osteons and mild remodelling activity, with occasional resorption lacunae and empty osteocyte spaces consistent with low-grade physiological stress typical of later adulthood. These features indicate normal age-related bone turnover and nonspecific metabolic changes, reflecting overall biological stability and resilience throughout life. The study forms part of the MOUND project, funded by the National Science Centre, Poland (grant no. 2023/48/C/HS3/00020). By combining osteological, histological, and molecular evidence, it explores how physiological traces preserved in bone illuminate the lives, health, and social identities of prominent women in the Early Bronze Age, contributing to broader discussions on gendered personhood, health, and inequality in prehistoric Europe.

2236. Searching for Gendered Patterns in the Burial Mounds of the Kalenderberg Culture

Authors: Mária Lepiš Valigová (Institute of Archaeology of the Slovak Academy of Sciences)
Format: Poster

The main aim of this poster is to explore gendered patterns in the burial mounds of the Kalenderberg culture through a comparative analysis of ceramic grave inventories from burial mounds and flat cemeteries in the northeastern Hallstatt cultural area. The study is based on the observation that flat cremation graves occasionally contain artefacts traditionally interpreted as female-associated, such as spindle whorls or iron knives, whereas grave goods in burial mounds are often poor and in many cases limited to ceramic vessels. The research draws on published data and a revision of archaeological material from museum collections. The analysis focuses on the composition, quantity, combinations, and decorations of ceramic vessels in selected burial mounds and compares them with ceramic assemblages from flat graves of the same period and region. Non-ceramic artefacts are primarily considered as contextual indicators for gendered associations observed in flat burial grounds. Rather than assigning biological sex, the poster examines whether ceramic inventories alone may reflect gendered practices, and whether burial mounds differ from flat graves in the ways gender was materially expressed or obscured. The results contribute to discussions on gender visibility, funerary practice, and social differentiation within the Kalenderberg cultural group.

80 BRICK BUILDING IN THE MEDIEVAL NORTH – TECHNIQUES AND TRADITIONS

Theme: 1. Widening perspectives in material culture studies
Organisers: Joakim Kjellberg (The Museum of Medieval Stockholm) – Tanja Ratilainen (Aalto University | University of Turku | Turku City Museum) – Villu Kadakas (Talinn University) – Regin Meyer (NIKU)
Keywords: Medieval, Northern Europe, Brickbuilding, Architecture, Brickproducrion
Format: Regular session
Affiliation: Medieval Europe Research Community - MERC

SESSION ABSTRACT

Answering the call of EAA 2026 theme 1 on style, function and meaning of material culture, this session address questions regarding the introduction and spread of techniques used in early brick buildings and medieval traditions in brick production and architecture in Scandinavia and along the coasts of the Baltic and North seas. Medieval brick architecture has been referred to as emblematic of the Hanseatic period of step-gabled urban houses and gothic churches throughout northern Europe. The technique of brick building and associated styles was first introduced in the area during the Middle Ages. Still the associated producers, consumers and trade networks remain understudied, with arthistorians tending to focus on style. Its wide but seemingly simultaneous appearance in eastern Baltic and in western Scandinavia, in places such as Bergen, Stockholm, Tartu and even in Turku and Novgorod have been associated with Hanseatic merchant activities. When it comes to churches the urban mendicant orders have been traditionally seen as primary drivers of the style and form. Still standing examples in these regions show local adaptions versus imported established solutions and international reference. Recent projects in Sweden, Finland and Norway, utilising modern techniques of dating and trace element analysis, such as XRF and ICP, show that import and export of bricks from far distances were much more common than previously recognised already in the medieval period but also, as in the case of Oslo, that local production could be in place from the earliest introduction stage This field of research is under strong development and a larger comparative body of knowledge needs to be established. We invite contributions exploring and mapping the dating and introduction, techniques of production and use of brick buildings throughout Medieval Europe with the aim of establishing connections and networks between researchers interested in future development of this subject.

CONTRIBUTION ABSTRACTS

180. Brick, Mobility, and Networks: Provenance Studies from Medieval Scandinavia to the Atlantic World

Authors: Torbjörn Brorsson (Ceramic Studies, Sweden)
Format: Oral

Medieval and early modern brick production is often interpreted as a predominantly local phenomenon, closely linked to nearby clay sources and short-distance supply networks. This paper demonstrates how Inductively Coupled Plasma (ICP) analyses fundamentally challenge this assumption by revealing complex patterns of production, circulation, and material mobility. Drawing on case studies from Kökars monastery on Åland, the medieval fortress Kärnan in Helsingborg, and contexts related to transatlantic trade during the eighteenth and nineteenth centuries, the paper highlights the wide geographic reach of brick and ceramic materials. ICP-based geochemical fingerprinting shows that visually similar bricks may originate from multiple production centres, including supra-regional and overseas sources. The results underline brick as an active component in long-distance economic, religious, and political networks rather than a purely local building material. The paper argues that systematic ICP analyses are essential for advancing our understanding of medieval brick production, monastic and urban construction practices, and later global exchange networks.

2158. Akershus castle and palace: OSL- and ICP-analysis

Authors: Lars Jacob Hvinden-Haug – Regin Meyer (Norwegian Institute for Cultural Heritage Research NIKU)
Format: Oral

Akershus – a Medieval castle, a Renaissance palace and an 18th century fortress, situated at a rocky peninsula next to both old and "new" Oslo. Today this majestic complex is regarded as a national monument and a symbol of Norway's capital, going back to 1300. It shows an extensive use of bricks, with changing dimensions, types and course intervals over the centuries. Our knowledge of Akershus' architectural development was mainly established by historians and architects over a century ago. However, new archaeological finds challenge this traditional view about the early origins and later medieval development. With the additional results from OSL- and ICP-analysis, this paper not only raise questions concerning the dating of the castle, but also the role of the Norwegian and the later Union monarchs, and how the production and use of bricks was organized.The paper also emphasizes the importance of interpretation within a building archaeological context and interdisciplinary approach.

206. Brick production and brick building in Lund during the Middle Ages

Authors: Gunilla Gardelin (Kulturen)
Format: Oral

In Denmark, brick construction began in the mid-12th century. Lund, located in eastern Denmark, was an important ecclesiastical town with an archbishopric, monasteries, convents and several parish churches. The first examples of brick construction in the city date from around 1200. This paper examines brick production based on three brick kilns found in Lund, in relation to contemporary brick buildings in the city. A brick kiln was found in 1934 near a Benedictine monastery for nuns. The abbey church was built in the mid-14th century. A thermoluminescence dating of the kiln's last use was estimated to be 1590 +/- 40 years, which suggests a period of use of about 200 years. Another brick kiln was discovered during investigations in 1987 and had been situated next to the Dominican convent in Lund. The kiln construction was dated through finds and thermoluminescence dating to the mid-14th century and could have been in use for 20-100 years. Recently a brick kiln has been discovered at the Benedictine monastery for monks and will be luminescence dated in 2026. The brick kilns were built near two monasteries and a convent, and obviously

produced bricks for these buildings. The brick kilns could have been used for firing bricks for several months a year and for several years, and may have supplied bricks to several buildings in the city. The presentation will address the size of the brick production in the three kilns and how it corresponds to contemporary brick buildings in Lund.

149. Bricks in medieval Stockholm: local products or imported goods?

Authors: Anna Bergman (Museum of Medieval Stockholm)
Format: Oral

Stockholm's earliest known brick building dates from the mid-13th century. Brick architecture in the region was then in its infancy and only a few brick buildings date from this period. Several brickworks were located in the Stockholm area from the late 13th century onwards, and medieval written sources mention only locally made bricks. We know that bricks were imported to Stockholm from areas along the south coast of the Baltic Sea from the late 16th century onwards, but were they imported even earlier? Recent maritime archaeological finds from Sweden have shown that bricks were sometimes a long-distance commodity in the Middle Ages. To ascertain where the bricks for Stockholm's buildings were made, the Museum of Medieval Stockholm commissioned ICP analysis on some sixty brick samples. These derive from religious houses, the Tre Kronor fortress, secular buildings, defensive walls and brickworks. The results were then compared with a clay-composition database that covers much of northern Europe. The study found that the majority of bricks were made locally, although others were imported. These results pose new questions about brick trade networks in northern Europe.

2113. The harbourarea of the Dominican Convent in Turku – the use of bricks from the 2023-24 excavations.

Authors: Kari Uotila (Muuritutkimus | University of Turku)
Format: Oral

The following paper presents the results of new dating techniques which were used to ascertain the period of use of bricks from the 2023-24 excavations at the primitive harbour area of the Dominican Convent in Turku. Archaeological research undertaken in 2023–24 revealed the harbour area and soil layers of the Dominican Convent in Turku, as well as wooden and brick structures dating back to the 14th century. Furthermore, the soil layers contained building materials, most notably bricks in the lowest archaeological layers, which can be dated to the early 14th century based on stratigraphic data, artifact dating, and natural science dating. In addition to the Dominican convent's beach area, the presentation will examine other new dating results for the use of bricks in the Turku area in the 2020s, as well as the lowest soil layers and building sites in archaeological excavations. In the context of excavation sites, the presence of bricks is predominantly in the form of fragments or brick dust. However, these remains serve as indicative evidence of the utilisation of bricks within the designated area. In the case of edifices such as Turku Castle, the bricks are incorporated into brick-mortar masonry structures.

2403. Holy shit! A 15th-century latrine and other brick structures found in the tower of the Cathedral in Turku, Finland

Authors: Tanja Ratilainen (Aalto University | University of Turku | Turku City Museum)
Format: Oral

La cathédrale engloutie project, which is funded by the Academy of Finland and runs from 2024 to 2028, made surprising discoveries in the cathedral tower in autumn 2025. Inside the north wall of the tower, in spaces previously interpreted as loopholes, a latrine room with a waste disposal shoot and an oven with a chimney were found, with a small room between them. The waste shoot was filled with post-medieval building waste, but some dried organic matter, likely human coprolites, was found on the edges of the structure. While osteological, archaeobotanical and ancient DNA analyses are underway, the presence of parts, probably of European lobster (Homarus gammarus), as well as the brick structures, suggests that the first floor of the cathedral tower was not built for defence, but rather for living quarters and perhaps even for hosting banquets for distinguished guests of the church. This paper focuses on the function of the tower and its brick structures.

1970. Beyond Style: Material Knowledge and Brick Production in Medieval Church Architecture of Tartu, Estonia

Authors: Eero Kotli (Freelance)
Format: Oral

Art-historical research on medieval architecture in Estonia has prioritized stylistic analysis and spatial composition, supplemented by historical context and, more recently, cultural landscape studies. Individual masters and architecturally prominent monuments have been central, while building materials and construction processes have received comparatively little attention. This imbalance complicates chronological interpretation, as construction durations and technological constraints remain insufficiently understood, particularly in medieval brick architecture, where stylistic readings may conflict with concealed production realities. A notable exception is Tartu St John's Church, where the study and conservation of terracotta sculptures has included analysis of production.

This paper adopts a material-centered perspective on medieval brick architecture in Estonia, focusing on the surviving churches of Tartu, examining underexplored aspects of brick and terracotta production and construction technology, drawing partly on the author's professional experience as a ceramicist. Topics include regional clay resources, material homogeneity, additives and mixing methods, forming conditions, drying regimes, shrinkage during drying and firing, seasonal constraints, defects, material loss, and risks within firing. From a technical standpoint, freshly quarried sedimentary stone and leather-hard clay exhibit comparable workability, suggesting overlapping skills between stone carvers and terracotta makers. Ceramic production, however, involves extended and risk-intensive drying and firing stages, placing primary responsibility on the brick-master. While master-builders and stonemasons could be recruited from abroad, likely common in 13th-14th century Estonia – brick production depended on detailed knowledge of local clay and technological aspects. Knowledge of medieval brick production in Estonia remains limited. Some written sources survive from Tallinn and several kilns have been excavated in Tartu. Approximate estimates can be made of brick quantities required for Tartu's churches. Archaeomagnetic and optically stimulated luminescence dating may further refine chronologies; preliminary studies have been conducted at Tartu University. Overall, medieval brick architecture relied on specialized local empirical know-how, whose significance warrants reassessment within architectural history.

853. The introduction of brick buildings in the district of Uppland, Sweden

Authors: Joakim Kjellberg (The Museum of Medieval Stockholm)
Format: Poster

This paper presents an ongoing study of the early adoption of brick architecture in eastern Scandinavia and examines how new building technologies were embedded within changing cultural, social, and institutional frameworks during the High Middle Ages. The focus is on renewed data collection in Uppland, Sweden, a region where brick construction emerged in a landscape traditionally dominated by stone and timber architecture. The introduction of brick in the late 13th and early 14th centuries coincides with processes of urbanisation, ecclesiastical expansion, and intensified interaction with continental Europe. In towns, brick manufacture appears closely connected to civic and royal building initiatives, whereas in rural settings brick construction is predominantly associated with monastic foundations and monastic estates. Monastic orders, operating within transregional networks, are traditionally interpreted as key agents in the transmission of technical knowledge, craft practices, and architectural concept, why particular attention is given to differences between urban and rural contexts of brick production and use. The study builds on earlier work at the Museum of Medival Stockholm demonstrating that early brick architecture in Stockholm relied on both locally produced and imported materials. By integrating evidence from standing buildings, archaeological excavations, and known production sites, this project reconstructs patterns of material supply, technological choice, and knowledge transfer. Chemical analyses of brick samples are employed to distinguish local production from imported materials and to explore how brick-building traditions were organised and adapted in different social environments. The paper contributes to broader archaeological discussions on craft mobility, institutional agency, and the role of building materials in shaping medieval urban and rural landscapes in northern Europe.

2683. Bricks in the limestone areas of medieval Estonia

Authors: Villu Kadakas (Tallinn University)
Format: Poster

When one speaks of medieval brick use in buildings, one usually refers to brick buildings. However, areas where natural stone was abundant and dominated as the material, still small quantities of bricks can be found. While in Southern Estonia buildings were normally made of bricks, in the northern and western parts of Estonia mostly various types of limestone were used. However, regular masonry bricks can be found in the hypocaust ovens in the houses of Tallinn, as well as in castles and monasteries, probably because better resistance to heat. The roofs of the stone buildings in Tallinn, castles and monasteries, as well as some rural parish churches, were of various types of ceramic tiles. Sets of glazed ceramic tiles have existed in floors of some churches and rural houses. Some limestone churches had vaults made of bricks. All these are rather easy to explain with special qualities of tile material, which cannot be provided in limestone. However, in some of the rural churches sometimes brick elements can be found, which could have been easily made of limestone, as the rest of the building. A plinth moulding (Karuse), a set of decorative niches on a gable (Valjala), extensive use of brick in various mouldings (Pöide) can be mentioned for example. Existence of mostly specific types of brick material in limestone areas brings forth a question, if it was made locally or imported. Knowledge about medieval brick production is rather limited. According to written sources, from at least the 14th century there was a brick kiln working in the outskirts of Tallinn, but it is difficult to establish, what types of bricks were made there, which part of the material in surviving buildings or excavation finds can be brought to connection with this production centre.

82 BEYOND BOND 4: CLIMATE PULSES AND SOCIETAL DYNAMICS ACROSS THE MEDITERRANEAN AND EURASIA (7000–5200 CAL BP)

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Catalin Alexandru Lazar (ArchaeoSciences Platform, ICUB, University of Bucharest) – Enikő Magyari (Eötvös Loránd University – ELTE, Budapest)
Keywords: Holocene, Bond 4, Mediterranean Basin, Eurasia, Archaeology & ArchaeoSciences, Paleoenvironmental &

Paleoclimatic data

Format: Session with keynote presentation

SESSION ABSTRACT

The Bond 4 event—initiated ~7000 cal BP and peaking ~5300 cal BP—marks the most extensive Holocene surge of drifting sea-ice in the subpolar North Atlantic (Bond et al., 2001), broadly aligning with Neoglacial cooling. Across the Mediterranean Basin and adjacent Eurasian regions, this interval coincides with profound cultural reconfigurations: i) the rise and fragmentation of complex, stratified communities; ii) intensification and rerouting of exchange; iii) innovations in metallurgy and agropastoral practices; iv) and rapid relocations of settlement foci. These are all doubled by several regional climatic pulses (ca. 6200, 5800, and 5200 cal BP), which are associated with shifts in settlement patterns and abrupt cultural downturns. This session rethinks the end of the Neolithic/Chalcolithic by integrating archaeobiological, socioecological and palaeoclimatic evidence to test the mechanisms linking climate variability, ecosystems, and human trajectories. We welcome studies that mobilise multi-proxy datasets—palaeodemography, stable isotope-based diet and mobility, palaeoenvironmental reconstructions, modelling, a/sedaDNA, material culture changes and high-resolution chronologies—to move beyond correlation, quantify uncertainty, and evaluate competing causal pathways of the Bond 4 event.

CONTRIBUTION ABSTRACTS

1012. Neoglacial cooling, Bond Event 4 and societal reorganisation in East-central Europe: possible links

Authors: Eniko Magyari (Eötvös Loránd University, Budapest | HUN-REN-MTM-ELTE Research group for Paleontology) – Aneta Formáčková (Czech Geological Survey) – Ilona Pál (Eötvös Loránd University, Budapest) – Heiki Seppä (University of Helsinki) – Jon Camuera (Andalusian Earth Sciences Institute, Armilla) – Gabriella Darabos (Eötvös Loránd University, Budapest) – Cindy De Jonge (Geological Institute, ETH Zürich, 8092 Zürich, Switzerland) – Pál Raczky (Eötvös Loránd University, Budapest) – Catalin Lazăr (Research Institute of the University of Bucharest)

Format: Oral

The rise of Neolithic and Chalcolithic cultures in the Carpathian Basin and the Lower Danube during the 5th millennium BCE was marked by well-defined settlement structures, labour limited agriculture and broadly egalitarian social systems. The first signs of societal stress appeared between 4200-4000 BCE in this region. Settlements were destroyed, and the populations retreated into small villages or hilly refugia. At the same time, new groups entered the region from the Pontic steppe. Similar processes unfolded in the eastern Carpathian Basin, culminating between 4500 and 4200 BCE with the disappearance of the Tisza Culture. Eastern influences intensified throughout the Chalcolithic and the period concluded with the Yamnaya expansion around 2900–2800 BCE. This cultural transformation coincided with the neoglacial cooling phase of the mid-Holocene, characterised by gradually declining summer temperatures, rising winter temperatures, and century-scale fluctuations in precipitation that differed between the eastern and western parts of the region. Bond Event 4 (the 5.9 ka rapid climate change event) is embedded within this interval of pronounced climatic variability. Here we present new palaeoclimate results from pollen, chironomid, diatom and lipid-biomarker based climate reconstructions, and compare them with mid-Holocene vegetation changes inferred from pollen and sedaDNA. Our findings indicate that the settlement abandonments between 4500 and 4200 BCE coincided with a rapid reorganisation of the North Atlantic storm track, producing cooler and wetter summers, enhanced river discharge, and major changes in lowland hydrology. Thereafter, alternating centuries of wet and dry summers reflect the emergence of a NAO-like circulation regime. These environmental shifts promoted forest-steppe expansion on the Pontic steppe and favoured the rise of mobile pastoralist groups. The impact of Bond Event 4 is particularly evident in the abandonment of Gumelnița settlements along the Lower Danube. Only limited palaeoclimate archives indicate drying; cooling and hydroclimatic instability is the more consistent signal.

1922. From Expansion to Abandonment: Climate Variability and the Decline of Chalcolithic Cultures in the Lower Danube

Authors: Alfred Vespremeanu-Stroe – Cristina Covataru – Diana Hanganu (University of Bucharest) – Adrian Bălășescu (Vasile Pârvan Institute of Archaeology, Bucharest) – Luminița Preoteasa – Adrian Cîrjan (University of Bucharest) – Daniel Garvăn (Buzău County Museum of History) – Kamen Boyadziev (National Archaeological Institute with Museum, Sofia) – Cătălin Lazăr (University of Bucharest)

Format: Oral

The causes behind the decline of the Chalcolithic societies in southeastern Europe remain strongly debated, ranging from migration of nomadic groups from the Pontic steppes and long-term infiltration processes to climate-driven stress, social conflict or ideological change. We reassess these competing hypotheses through an integrated spatial and palaeoenvironmental study that examines major Chalcolithic cultures in the Lower Danube region (Boian, Hamangia and Cucuteni–Trypillia: C-T) maintaining the focus on the Kodjadermen–Gumelnița–Karanovo VI (KGK VI) in relation to mid-Holocene climate. GIS-based analysis of settlement distribution examines transformations during early and peak phases of KGK VI (Gumelnița A1–A2; c. 4700–4250 cal BCE) and the late phase (Gumelnița B1; c. 4250–3900 cal BCE), highlighting shifts in site density and landscape positioning. .These spatial patterns are evaluated alongside palaeoecological evidence, including pollen-based reconstructions and zooarchaeological datasets spanning early/middle and late KGK VI phases. In parallel, regional palaeoclimatic records and palaeoclimate databases from southeastern

Europe are synthesised to evaluate the potential role of increased aridity episodes around 4250–4150 cal BCE and during the 5.9 ka RCC, which may have contributed to the widespread abandonment of settlements and the disappearance of the KGK VI cultural complex around 3900 cal BCE. Recent geoarchaeological research conducted in the Mostiștea Valley suggests that this interval was characterised not only by a trend toward increasing dryness, but by higher hydrological instability. Preliminary results suggest a two-stage process rather than a sudden collapse: a contraction of settlement systems beginning around 4250 cal BCE, followed by socio-ecological reorganisation during the B phase and culminating in widespread abandonment at 3950–3900 cal BCE, broadly aligned with the 5.9 ka RCC. Integrating spatial modelling and environmental proxies, the study evaluates whether climatic stress was a primary driver or interacted with wider cultural dynamics shaping the KGK VI landscape.

1122. Holocene land use in the Moldavian forest-steppe: Eneolithic pastoralism and Bronze Age farming

Authors: Ilona Pál (Eötvös Loránd University) – Enikő Magyari (Eötvös Loránd University | HUN-REN-MTM-ELTE Research Group for Paleontology) – János Korponai (Eötvös Loránd University | University of Public Service | Sapientia Hungarian University of Transylvania) – Darabos Gabriella (Eötvös Loránd University) – Laurentiu Țuțuianu (ICUB Research Institute of the University of Bucharest) – Cristian Manailescu (Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering) – Andrei Asăndulesei ('Alexandru Ioan Cuza' University of Iași) – Daniel Veres ('Emil Racovita' Institute of Speleology)

Format: Oral

We present a high-resolution, multi-proxy Holocene palaeoecological record from Iezerul Dumbrăvița, a sinkhole lake on the Suceava Plateau (NE Romania), situated at the western margin of the Eastern European forest-steppe. The study evaluates long-term vegetation, land-cover and land-use dynamics and assesses human-environment interactions with a particular focus on the Cucuteni–Trypillia cultural complex (CTCC), within the context of Mid-Holocene climatic variability associated with the Bond 4 interval. Pollen, non-pollen palynomorphs, microcharcoal, loss-on-ignition and magnetic susceptibility analyses are integrated with 26 radiocarbon dates, REVEALS-based land-cover reconstruction and agricultural land-use probability (LUP) modelling. During Cucuteni lakeshore occupation (~5.9–5.65 ka cal BP), grazing-indicator fungi increase sharply, and episodic burning is indicated by microcharcoal, while cereal pollen remains consistently low and regional woodland cover does not decline further. These results contrast with strong archaeobotanical cereal evidence from other Moldavian Cucuteni sites and imply a specialised role for the Dumbrăvița settlement, oriented toward pastoralism, while crop cultivation likely occurring away from the lake. Site abandonment at ~5.65 ka cal BP coincides with rapid hornbeam-dominated afforestation, indicating a shift toward more humid conditions and reduced availability of open forest-steppe habitats. This environmental transition follows the ~5.8 ka climatic pulse within the Bond 4 event and parallels regional evidence for Eneolithic population decline, suggesting that climate-driven ecosystem change contributed to cultural reorganisation rather than abrupt collapse. Human impact intensifies during the Bronze Age (when grasslands expand, cereal pollen reaches ~15%, and LUP values peak around 3.3 ka cal BP), consistent with the regional expansion of Noua group. These results provide the first clear evidence for lakeshore wheat and barley cultivation by Noua communities in the region, despite the absence of identified contemporary settlements. Overall, the record highlights non-linear, culture-specific land-use responses to Mid-Holocene climate variability across the forest–steppe ecotone.

1879. Trial-and-error proxies: ceramic pot form & volume shifts across Gumelnița A2–B1 at Sultana-Malu Roșu tell site within Bond 4 dynamics

Authors: Catalin Alexandru Lazar – Gabriel Popescu – Sebastian Dumitrescu (University of Bucharest) – Theodor Ignat (University of Bucharest | Bucharest Municipality Museum)

Format: Oral

Bond 4 includes a cluster of abrupt hydroclimatic perturbations, among which the 5.9 ka pulse is frequently invoked when discussing the late fifth-millennium BC reconfiguration of tell-based societies in the Lower Danube. To move beyond simple correlation, we test whether ceramic forms and vessel volumes at the Sultana-Malu Roșu tell site (c. 4600-3900 cal. BC) can serve as a behavioural proxy that is both measurable and explicitly uncertainty-aware. Our dataset comprises whole or reconstructable vessels assigned to the KGK VI/Gumelnița A2-B1 phases, recorded in a standardized relational database, including paste, surface treatment, typology, weight, fragmentation, and volumetry (measured by filling or computed from complete profiles). Phase attribution combines archival/stratigraphic controls with radiocarbon data. Interestingly, the A2-B1 pottery transition corresponds with the KGK VI demographic trajectory modelled from radiocarbon summed probability distributions: a growth/plateau culminating c. 4500–4400 cal BC, followed by a sustained decline beginning c. 4400/4350 cal BC and continuing towards c. 3800/3750 cal BC. The results suggest that B1 phase is different than A2 phase in three analytical dimensions: (1) changes in assemblage composition and surface treatment, (2) a shift in vessel form toward more open shapes, and (3) a reduction and tighter clustering of vessel volumes, noting that the compressed volume range may partly reflect collection or survival biases rather than production patterns alone. Treating volumetry as a direct climate signal could be an important proxy for past population behaviors in response to climate change. Our study presents a "trial-and-error" approach that could shed light on unknown aspects of European prehistory. Finally, our paper compares these ceramic signals to independently documented Bond 4–related phenomena in the same micro-region, including a decline in local human pressure, changes in land-use intensity in the Mostiștea/Danube floodplain record, and isotopic evidence for changing crop water management at Sultana/Gumelnița sites.

1121. Neolithic to Bronze Age forest-steppe compositional change in East-Central Europe: the role of

climate

Authors: Gabriella Darabos (Eötvös Loránd University, Department of Environmental and Landscape Geography) – Enikő Magyari (Eötvös Loránd University, Department of Environmental and Landscape Geography | HUN-REN-MTM-ELTE Research Group for Paleontology) – Cătălin Lazăr (ArchaeoSciences Platform, Research Institute of the University of Bucharest,ICUB) – Ana Ilie ("Curtea Domnească" National Museum Complex in Târgoviște) – Laurențiu Grigoraș (Buzău County Museum) – Katia Vulcan (National History Museum of Romania) – Valentin Parnic (Lower Danube Museum in Călărași) – Diana Hanganu (ArchaeoSciences Platform, Research Institute of the University of Bucharest | GEODAR, Research Institute of the University of Bucharest)
Format: Poster

Reconstructing Middle Holocene vegetation in the Pannonian and Extra-Carpathian Lowlands has traditionally relied on pollen records, while wood-charcoal (archaeo-anthracological) evidence has remained limited. As a result, the use of woody resources by Neolithic and Eneolithic communities, especially the contrasts between ecological zones, has been only partly understood. This study reconstructs the principal forest types and vegetation composition of the southeastern Great Hungarian Plain (GHP) and the Lower Danube region by integrating charcoal assemblages, pollen data, and potential vegetation maps. Taxonomic analyses of large-volume charcoal samples from multiple archaeological sites reveal that *Quercus* was the dominant tree taxon in both regions and the preferred material for construction. In the southeastern GHP, charcoal spectra show a characteristic *Ulmus–Quercus* dominance, whereas along the Lower Danube the prevailing pattern is *Quercus–Fraxinus* or, at some sites, near-exclusive oak use. The Lower Danube lowlands and piedmont areas further exhibit thermophilous taxa such as *Ostrya carpinifolia* and *Carpinus orientalis*. In the floodplain and forest-steppe environments of the southeastern GHP, *Ulmus* played a major ecological and economic role. In contrast, in the Lower Danube lowlands elm became subordinate, while *Fraxinus* gained importance, a trend also observed in the Sub-Carpathian foothills with their species-rich deciduous forests. A marked decline of *Ulmus* during the Early Copper Age in the southeastern GHP may reflect climatic deterioration or elm disease. Romanian pollen records document the rise of *Carpinus* (*C. betulus*, *C. orientalis*) during the Gumelnița and Cernavodă periods, a pattern mirrored in charcoal assemblages from piedmont sites. Whereas southeastern GHP vegetation comprised mainly floodplain and forest-steppe woodlands, the Extra-Carpathian Lowlands also supported thermophilous mixed oak forests embedded within a predominantly forest-steppe landscape. Overall, the data indicate that prehistoric communities selectively exploited locally available wood resources and adapted their subsistence strategies to distinct ecological settings.

2011. Geoarchaeological evidence on prehistoric inhabitation of the lower Danube Valley: a case study from Jijila Lake (NW Dobrogea, Romania)

Authors: Mihaela Dobre – Diana Hanganu – Laurentiu Tutuianu – Luminita Preoteasa (Research Institute of the University of Bucharest) – Sorin Ailincai (Faculty of History, University of Bucharest) – Alfred Vespremeanu Stroe (Research Institute of the University of Bucharest)
Format: Poster

Floodplain stratigraphy preserves key proxies for reconstructing environmental–human interactions. This study is based on a 19-m-long sediment core retrieved from the Lower Danube floodplain in north-western Dobrogea. The core was multiproxy analyzed (sedimentology, pollen, charcoal and radiocarbon dating) to reconstruct paleoenvironmental changes and human activities. The integrated results from the Jijila core, recovered from a floodplain lake formed within a former delta plain system, provide new insights into mid- and late-Holocene floodplain environmental dynamics and offer a new perspective on the timing and nature of early human settlement in the study area. Human inhabitation in the Brăila–Jijila region remains debated, with archaeological evidence indicating Neolithic settlement while earlier radiocarbon dates suggest a possible Mesolithic–Neolithic presence (Brăiliţa). Unfortunately, the basal section of the core does not cover the Mesolithic period. However, newly generated charcoal and pollen records from the Jijila core indicate the onset or resumption of human activity around 5200 BCE, during the Chalcolithic (Late Neolithic), corresponding to two successive cultural phases (Boian and Gumelnița). This activity is reflected by low-intensity deforestation, increased fire incidence, and early crop cultivation. The transition to the Bronze Age is also well recorded, particularly through macro-charcoal profiles, and can be associated with the Cernavodă and Yamnaya cultures. Human impact intensified during the Late Bronze Age (ca. 1250 cal BCE), likely linked to the development of pastoral practices, and increased further during the Early and Late Iron Age, as evidenced by widespread fire-induced deforestation around 450 cal BCE, followed by the expansion of animal husbandry and crop cultivation. A peak in human presence in the Brăila–Jijila region is recorded during the Roman period (ca. 100–400 CE), as indicated by cereal cultivation and elevated charcoal concentrations, reflecting intensified land use linked to Roman frontier dynamics along the Lower Danube.

83 EXPLORING PUBLIC ARCHAEOLOGY: METHODS, TRENDS AND SOCIETAL IMPACT

Theme: 2. Crossing the divide. Archaeology and the open world
Organisers: Viviane Diederich (University of Bamberg) – Jessica Irwin (University of Edinburgh) – Patrick Cassitti (Archäologischer Dienst Graubünden / Amt für Kultur) – Natalie De La Torre Salas (Florida Public Archaeology Network)
Speakers: Ellen Thiermann (Swiss Archaeology) – Carenza Lewis (University of Lincoln) – Jens Notroff (German Archaeological Institute) – Pascal Ratier (Institut national de recherches archéologiques préventives INRAP)
Keywords: Public Archaeology, Knowledge Transfer, Citizen Science, Digital Tools, Societal Perception of Archaeology, Misinformation
Format: Workshop
Affiliation: Deutsche Gesellschaft für Ur- und Frühgeschichte e.V. (DGUF), Public Archaeology Community

SESSION ABSTRACT

In an era where digital transformation is reshaping scientific communication and influencing public engagement with archaeology, this session aims to explore the implementation of Public Archaeology across Europe, highlighting various methods employed to facilitate knowledge transfer. Public archaeology often aligns with citizen science and utilizes social media, which significantly aids in disseminating archaeological knowledge. However, pseudoarchaeology and misinformation reaches an alarmingly wide audience which must be recognized and adressed. Moreover, archaeology is connected to the public and society in many fields, and in some of these areas, engagement and interaction are not even fully recognized as such. These interactions vary in rules and dynamics, influencing societal perceptions of archaeology, which, in turn, affects the discipline itself. Historically, archaeological knowledge has often been manipulated to advance political and ideological agendas. Therefore, a deliberate approach to public archaeology and its narratives is essential, alongside a strong understanding of media and other interactions between archaeologists and the public. While research on public archaeology is increasing at a national level, it remains underrepresented in written professional discourse. Thus, fostering connections on a European level is still crucial. This session aims to link national initiatives and explore interaction areas between archaeology and society, focusing on social media, urban development, cultural heritage protection, and the climate-humanity nexus. Methodologically, key topics will include: a) identifying effective (digital) tools for public communication, b) understanding the societal structures that connect archaeology and the public, c) sharing best practices and real-life examples from successful implementations. Essentially, we will address common challenges and strategize overcoming them, with the goal of collaborativley drafting a position paper post-session. Conducted as an interactive 90-minute workshop, the session will begin with brief presentations to outline key concepts, followed by group discussions where participants will reflect on critical public archaeology areas needing empirical research.

85 POTTERY FUNCTION AND PAST SOCIETIES: A MULTI-DISCIPLINARY PERSPECTIVE

Theme: 1. Widening perspectives in material culture studies
Organisers: Pauline Coat (Paris 1 Panthéon-Sorbonne University, UMR 8096 ArchAm) – Pauline Debels (UMR 8215 Trajectoires, CNRS and Laboratory ARCAN, Genève University) – Vanessa Forte (Department of Science of Antiquities, Sapienza University of Rome) – Annelou Van Gijn (Faculty of Archaeology, Leiden University) – Julien Vieugué (CNRS UMR 8068 TEMPS Technology and Ethnology of Prehistoric Worlds)
Keywords: functional analysis of pottery, use-wear analysis, integrated approach, residue
Format: Regular session

SESSION ABSTRACT

Archaeological pots are often examined for their technological and stylistic characteristics, yet their functional roles remain comparatively underexplored. Functional analysis of pottery can provide valuable insights into food habits, ritual and craft activities of past societies, which are strong identity markers that help define cultural groups and understand their change through time and space. Such studies can shed light on the different stages of food and drink processing, from the storage of foodstuffs to the consumption of prepared meals and beverages, as well as the production of non-food substances. Identifying the actual function of archaeological pottery vessels, nevertheless, represents a real challenge insofar as it requires the integrated study of morphometry (shape, size and capacity), technological aspects (ceramic paste, surface treatment), use-wear (outer soot deposit and inner charred residue, abrasions, attritions, etc.), and content analysis such as microbotany (phytolith, starch analysis, charred macroremains identifications) and organic chemistry (GC-MS, isotopes…). This session invites contributions that employ multi-proxy approaches to investigate pottery function and demonstrate its potential to address broader cultural questions. By bringing together specialists in use-wear analysis, organic chemistry, archaebotany and related fields, we aim to foster dialogue across disciplines, addressing various cultural and social issues through the function of archaeological pottery in any time periods and geographical areas.

CONTRIBUTION ABSTRACTS

2084. Can salt be identified in pottery? Insights from the use-wear analysis of experimental and recent-past archaeological collections

Authors: Pauline Debels (UMR 8215 Trajectoires, CNRS, France | ARCAN Laboratory, University of Geneva) – Anne Mayor

(ARCAN Laboratory, University of Geneva | Global Studies Institute, Geneva) – Amadou Beye – Moustapha Sall (Université Cheikh Anta Diop) – Caroline Hamon (UMR 8215 Trajectoires, CNRS, France)
Format: Oral

While organic residue and microbotanical analysis provide key information on vessel contents, use-wear analysis offers a complementary perspective by inferring functions and activities through patterns of surface alteration. More rarely, however, has use-wear analysis been able to infer specific contents, such as acidic liquids (Van Gijn et al. 2020, Debels et al. 2023) or fermented products (Arthur 2002; Debels et al. 2024). This paper presents a contribution to the identification of a content that has so far remained largely invisible to archaeological proxies: salt. Because salt does not preserve archaeologically, its identification has been limited to exceptional contexts, primarily through chlorine detection via XRF analysis on briquetage ceramics used in salt production (Cassen and Weller, 2013; Weller and Ard, 2024). As a result, discreet salt production techniques and everyday culinary or craft uses of salt have remained poorly understood. Through controlled experimental research, we demonstrate that salt can be identified through distinctive use-wear patterns. Three ceramic vessels produced by potters in Lower Casamance (Senegal) were used to store saline solutions of varying saturation over a two-month period. The experiments produced highly diagnostic wear patterns, characterised by their location on the vessel surface and by specific modes of surface attrition. We present the key diagnostic criteria for identifying salt-related use-wear and apply this methodology to a ceramic assemblage from a 20th-century refuse area excavated in the same Senegalese village. The identification of matching wear patterns suggests local salt production and/or use, in agreement with ethnohistoric sources. This method opens new perspectives for documenting salt, a strategically vital resource at the centre of economic and social systems from prehistory to the recent past, through ceramic use-wear analysis with a high transcultural applicability.

75. Pottery and Salt in Neolithic China: the Jiandiping Amphorae as Brine Purification Devices

Authors: Linlin Song (Independent researcher) – Marcella Festa (Northwest University, Xi'an)
Format: Oral

The jiandiping amphora, a distinctive ceramic type of the Yangshao culture (c. 5000–3000 BC), is primarily distributed across the middle Yellow River region, with notable concentrations in the Wei River valley. Despite its widespread presence, the function of this vessel has long remained unclear in scholarly discussions. This study approaches the function of the jiandiping amphora through spatial patterns, vessel morphology, and experimental observations. Spatial analysis reveals a recurrent association between Yangshao sites with discovery of amphorae and natural salt resources, indicating access to brine-rich environments. Morphological characteristics, particularly the pointed base and elongated body, are well suited to sedimentation and the separation of impurities. Experimental tests focusing on vessel shape, fabric, permeability, and crystallization processes further indicate that these amphorae were unsuitable for long-term liquid storage or sustained exposure to high temperatures, yet effective in brine purification. Evidence from oracle bone inscriptions and ethnoarchaeological studies complements these observations, supporting a reinterpretation of the jiandiping amphora as a potential tool involved in salt processing, specifically as a brine purification device. This perspective on the functional use of jiandiping amphorae encourages a reassessment of Neolithic cultural and technological practices in China and highlights the complex roles of ceramic vessels within the Yangshao tradition.

208. Food practices in the Middle Neolithic: An integrated use-wear and residue approach

Authors: Lone Claudi-Hansen (Museum Vestsjælland | University of Copenhagen)
Format: Oral

Ceramic vessels are among the most abundant artefacts in the Middle Neolithic Funnel Beaker Culture of southern Scandinavia (c. 3300–2800 BC), yet little is known about how food was prepared and consumed in everyday and ritual contexts. Use-wear traces demonstrate that most vessels were used prior to deposition, indicating that ceramics placed in ritual contexts were not made exclusively for ceremonial purposes but also participated in everyday practices of cooking and handling. This raises questions about how pottery moved between domestic and ritual spheres, and how vessels acquired new meanings through use, reuse and deposition. This study combines ceramic use-wear analysis with lipid residue analysis across different depositional contexts to explore food practices and vessel use within Funnel Beaker communities in southern Scandinavia. The primary dataset comprises 329 ceramic vessels from western Zealand, Denmark, deriving from settlements, wetland deposits and passage tombs, supplemented by comparative material from nearly 500 Neolithic vessels and experimentally generated reference data. Two case studies illustrate the interpretive potential of this integrated approach. Vessels containing dairy lipids consistently display use-wear patterns associated with heating, supporting the interpretation of early cheese-making as a culinary practice. In contrast, interior erosion linked experimentally to fermented or acidic liquids occurs almost exclusively on fine-ware vessels deposited within passage tomb chambers, suggesting that fermented foods or drinks held particular ritual value in mortuary contexts.

740. A Telltale of Residues. An analysis of pottery types and functions through organic residues from a Bronze Age tell settlement

Authors: Magdolna Vicze (Hungarian National Museum Public Collections, National Institute of Archaeology) – Petra Jones (British Museum) – Zsuzsanna Czegeny (HUN-REN Research Centre for Natural Sciences, Budapest)
Format: Oral

An analysis of pottery types and functions through organic residues from the Bronze Age tell settlement of Százhalombatta-Földvár, Hungary. The Bronze Age tell settlement of Százhalombatta-Földvár has been extensively investigated for nearly three decades by an international research team within the framework of the SAX Project. The project applies a strongly multidisciplinary approach to the wide range of archaeological materials and datasets, such as archaeobotany, archaeozoology, soil micromorphology, ceramic petrology, and related fields. Its primary aim is to achieve a fine-grained understanding of the routines, practices, and challenges of daily life in a Bronze Age community that resonates through the archaeological find material. To this end, a household archaeology perspective is employed. Individual households are first studied independently and subsequently compared using multi-proxy approaches. This paper presents the integrated analysis of complete pottery assemblages from two households (House 4240 and House 6506) selected from a total of thirty excavated houses. The composition of organic residues preserved in the pores of ceramic vessels were investigated using Pyrolysis Gas Chromatography–Mass Spectrometry (Py-GC/MS) and compared with the range of pottery types present in each household. By integrating vessel form, typology, and residue composition, this study aims to provide new insights into the actual use—and thus the function—of specific pottery types. Furthermore, by contrasting two complete household assemblages supplemented with extensive Py-GC/MS analysis, the paper seeks to address broader questions related to household practices and/or social differentiation within the settlement and also contributing to a more nuanced understanding of pottery use in Bronze Age tell communities.

1047. Functional analysis of pottery, a multi-proxy approach to reconstructing mochica's culinary traditions (north coast of Peru 4th-9th century AD)

Authors: Pauline Coat (Paris 1 Panthéon-Sorbonne University, UMR 8096 Archaeology of the Americas) – Julien Vieugué (CNRS UMR 8068 TEMPS Technology and Ethnology of Prehistoric Worlds) – Martine Regert – Arnaud Mazuy (CNRS UMR 7264 Cultures – Environments. Prehistory, Antiquity, Middle Ages) – Belkys Gutiérrez (BGL Arqueología & contratistas generales S.A.C.) – Gabriel Prieto (University of Florida, Department of Anthropology) – Elena Vega (National University of Trujillo, department of Archaeology and Anthropology) – Edgar Bracamonte (Tumbas Reales of Sipán Museum) – Nicolas Goepfert (CNRS UMR 8096 Archaeology of the Americas)
Format: Oral

Between the 4th and 9th centuries AD, social groups now collectively known as the Mochica culture developed in the northern coastal valleys of Peru. Long considered as a unified and homogeneous cultural group, the various Mochica groups actually maintained complex socio-cultural relationships and developed distinct cultural traits. Thus, a question that is still debated is whether the occupants of the various Mochica centres were part of a single cultural group or were different ethnic entities. The study of culinary traditions (the type foods consumed and how they were procured, stored, prepared, and consumed) appears to be a privileged means of addressing this topic, in that they constitute strong markers of identity that can indicate socio-cultural boundaries. To reconstruct Mochica culinary traditions, a functional analysis of pottery, combining the shape of ceramic vessels, their use-wear (including lipid residue analysis of some samples), has been carried out on more than 1000 potteries from various Mochica sites. Such an integrated approach allowed us to make first assumptions about the ingredients consumed and the ways they were processed and stored - hypothesis that were refined through ethnographic surveys and experiments conducted among Peru communities that still use pottery for various food activities. This multi-proxy approach, which is unprecedented in South America, stands at the crossroads of typometry, traceology and organic chemistry to exploit the combined power of these disciplines to document Mochica identity through the reconstruction of their culinary traditions.

1240. Morphology, Technology and Use-wear analysis in Cogotas I Pottery: Ceramics form the Middle and Late Bronze Age in Inland Iberia

Authors: Áurea García-Fernández (University of Salamanca)
Format: Oral

The second millenium BC in central Iberia was characterized by the presence of the Cogotas I culture. Traditionally, this archaeological group has been defined through ceramic typology, which has also been used to establish an internal chronological sequence (Fernández-Posse 1986). However, Cogotas I pottery holds far greater potential as an archaeological source. The aim of this paper is to explore how identity can be studied through ceramic assemblages. To this end, we analyze pottery dated to the Middle and Late Bronze Age from a series of archaeological sites on the Northern Iberian Plateau. This study adopts three complementary analytical approaches: morphometry, technological analysis and use-wear analysis. Morphometric data indicate that most vessels associated with food consumption exhibit large diameters, suggesting their involvement in feasting practices (Dietler, 2006), as such dimensions are well suited to communal food-sharing contexts. In contrast, storage vessels have received only anecdotal attention in previous research, and to date no comprehensive studies have examined this category of pottery in detail. This paper seeks to address that gap by combining morphometric and technological analyses in order to identify differences in the chaîne opératoire —understood as a process that culminates not at production, but when the object enters the archaeological record—. Finally, use-wear analysis allows us to assess the possible functions of the vessels studied. Together, these approaches enable us to infer patterns of pottery production, shared practices within Cogotas I communities, and the implications of these practices for the construction of their identities.

1261. Cooking animal and plant substances among the Late Neolithic societies in the Southern Levant:

an insight from pottery residues

Authors: Julien Vieugue (CNRS - Technology and Ethnology of Prehistoric Worlds) – Martine Regert (CNRS - Cultures and environments, Prehistory, Antiquity, Middle Age) – Louise Martignac (CNRS - Archéorient) – Monica Ramsey (University of Toronto - Department of Anthropology) – Lindsay Ducan (University of Cambridge - McDonald Institute for Archaeological Research) – Yosef Garfinkel (Hebrew University of Jerusalem - Institute of Archaeology)
Format: Oral

It is now well known that the Early Pottery Neolithic societies in the Levant used some pottery to cook part of their food. Nevertheless, many questions remain unanswered about the cuisine of these Neolithic communities who lived during the late 7th/early 6th millennium cal. BC: What type(s) of food preparations were cooked in the ceramic vessels? Which cooking technique(s) were used? To answer these questions, we undertook the thorough analysis of 153 cooking pots coming from the major Early Pottery Neolithic sites of Sha'ar Hagolan and Muntaha located in the Upper Jordan Valley. Our multidisciplinary study method, developed at the interface between traceology, chemistry and botany, is based on the combined macro-, microscopic, molecular and isotopic characterization of the inner charred residues mainly trapped into the porous wall of the Neolithic pots. The visual aspects of the food crusts and their distribution alongside the profile of the ceramic vessels, as well as the starch spherulites found inside, suggest that all the pots were used to boil foodstuffs by being placed in the center of stone hearths. The integrated analysis of lipids, phytoliths and starches trapped in the inner charred residues of these ceramic vessels revealed that they had contained various animal products (such as subcutaneous ruminant fats and dairy products) and plant substances (such as cereals). These results open new perspectives to characterize the different recipes prepared by the Neolithic communities of the Levant and, beyond, highlight their food habits that are strongly linked to their socio-cultural identities.

1355. Cooking traces on medieval pottery: combining use-wear, starch grain analysis and chemistry

Authors: Aurélie Chantran (UMR 7041- ArScAn) – Cagnato Clarissa (UMR 8096 - ArchAm)
Format: Oral

Despite the extensive use of archaeological pottery in the study of food-related activities, the specific cooking practices involving vessels — including preparation sequences, heat exposure, and combinations of techniques — remain challenging to identify archaeologically. This paper presents a multi-proxy methodological approach developed to identify cooking techniques through the combined analysis of ceramic use-wear, starch grain alteration, and chemical residues, grounded in experimental archaeology. The method is based on a reference collection produced through controlled experiments replicating specific cooking techniques (e.g., boiling, frying, roasting and mixed preparations), allowing the characterization of diagnostic surface traces on ceramics (e.g., soot distribution, internal residues, fill lines) depending on the heat mediator used. We also document the transformations of experimentally obtained starch grains and chemical signatures. These experimental markers are then compared to archaeological material. The methodological framework was first tested on ceramic assemblages from Couzan Castle (France), allowing for the identification of diagnostic cooking-related traces across diverse contexts and ceramic fabrics, the association of specific preparation modes with certain plant taxa through the observation of starch alterations, and the assessment of the complementarity of these approaches. The study was then applied to a well-dated culinary refuse context from Orville Castle (France), dating to the early 15th century. The integration of use-wear analysis, starch grain studies, and chemical data reveals a clear predominance of wet cooking Methods, while also highlighting more complex, individualized preparations that combine multiple cooking stages or different modes of heat transmission. In addition, the analysis of meat butchery patterns in conjunction with ceramic vessel capacities offers supplementary insights into food preparation practices. Beyond the identification of vessel function, this study emphasizes the value of considering ceramic assemblages as material evidence of cooking gestures and proposes a transferable methodological framework for reconstructing food preparation practices in archaeological contexts.

1938. Re-enacting Ceramic Assemblages: A Dynamic Approach from Gestures to Function in Archaeological Interpretation

Authors: Melania Zingarello (CEPAM UMR 7264 - CNRS & Université Côte d'Azur)
Format: Oral

The functional analysis of archaeological pottery often relies on direct evidence such as residue analysis or use-wear studies. Yet, in contexts where sampling or close observation is not feasible – due to fragmentation, inaccessibility, or conservation restrictions – alternative frameworks are needed to reconstruct vessel use. This paper introduces re-enacting as a method for investigating the functional role of ceramic assemblages through the dynamic reconstruction of technical acts: the gestures, interactions, and material constraints that define how vessels operate within operational sequences. Developed through the study of functional ceramic sets from 3rd millennium BCE Mesopotamia, this approach shifts the analytical focus from individual artifacts to micro-assemblages, considering how groups of vessels interact spatially, ergonomically, and functionally. Experimental archaeology and embodied practice are employed as empirical tools to test hypotheses about operational processes, offering a systematic and replicable framework for contexts where established analytical methods are limited or impossible. This approach adds a further line of evidence to existing functional studies and provides insights into the gestural and ergonomic dimensions of vessel use, thereby broadening the methodological toolkit for understanding pottery function in diverse archaeological settings.

2051. Reassembling cooking practices in Neolithic Dispilio, NW Greece

Authors: Evangelia Voulgari (Aristotle University of Thessaloniki) – Marina Sofronidou (Ephorate of Antiquities of Drama)
Format: Oral

This paper examines cooking vessels from Neolithic Dispilio, a lakeside waterlogged settlement on the southern shores of Lake Orestias, near Kastoria in northwestern Greece. The site has been systematically investigated since the 1990s by the Aristotle University of Thessaloniki. The study is based on a corpus of 1,765 whole vessels and diagnostic profiles that we restored and analysed. This dataset provides a robust framework for identifying and characterising a wide range of cooking vessels, including wide-mouthed biconical or spherical jars, four-legged vessels, basins, pans, bowls, and oval-shaped containers described as boat-shaped vessels. Some vessel types are more prevalent than others, with certain forms exhibiting diachronic continuity, while others are restricted to specific phases of the settlement's development from the mid-6th to the early 5th millennium BCE. By analysing their morphological and technological characteristics, use-wear, secondary uses, and spatial distribution, we show that the apparent simplicity of Neolithic dwellings contradicts the complex shades of the daily lives performed inside and outside the domestic sphere.

2083. Material Matters: Raw Material and Function in Neolithic Vessels

Authors: Bonnie Nilhamn (Helsinki University)
Format: Oral

Archaeological interpretations of vessel function have traditionally prioritised form, style, and shape, yet functional roles often remain difficult to establish without a broader, integrated perspective. This paper argues that materiality, understood here through raw material properties, should be treated as a central component of functional analysis, as material choice fundamentally enables and constrains vessel use, shaping what activities are possible, practical, or improbable. The importance of material is well acknowledged in discussions of porous, plant-tempered ceramics versus denser mineral wares, where properties such as permeability, durability, and thermal performance directly affect function. However, material considerations are less consistently foregrounded in multi-proxy functional studies. This paper demonstrates how material characteristics influence not only vessel use but also analytical outcomes in organic residue analysis, use-wear studies, and fabric or fraction analysis. Practical aspects such as weight, portability, and the likelihood of repair are likewise materially determined and directly affect our interpretations of vessel function. The paper is based on material from the Neolithic site of Tell Sabi Abyad in Upper Mesopotamia (present-day Syria), dating to c. 7000–5900 BC, and compares ceramic vessels with contemporaneous non-ceramic plaster ware. In the case of plaster vessels, material properties strongly dictated functional roles, sometimes more decisively than vessel morphology. At the same time, experimental evidence cautions against rigid assumptions about material limitations, demonstrating that relatively simple manipulations can extend functional possibilities. Focusing on materiality and material properties alongside established analytical methods allows for a clearer interpretation of vessel function, particularly with regard to storage, food processing, craft practices, and technological choices in the Neolithic.

2137. Between consistency and diversification – pottery vessel use in the Lower Rhine region, Germany, during the 6th–5th mill. BCE

Authors: Elisabeth Krewer Von Wulfen (Institute of Geology and Mineralogy, University of Cologne | Institute of Prehistoric Archaeology, University of Cologne) – Helge Mißbach-Karmrodt (Institute of Geology and Mineralogy, University of Cologne) – Silviane Scharl (Institute of Prehistoric Archaeology, University of Cologne) – Christine Heim (Institute of Geology and Mineralogy, University of Cologne)
Format: Oral

The early Neolithic period in the Lower Rhine Region (ca. 5300–4400 BCE) is characterised by significant changes in settlement patterns and agricultural practices, which is also reflected in the pottery as a major part of the material culture. By performing biomarker analyses and compound-specific isotope analyses on fatty acids from early Neolithic pottery, it is possible to obtain information about diet and animal husbandry and in particular, comprehensive insights into the use of ceramic vessels during the Early and Middle Neolithic periods. Therefore, our aim was to collect a sample as representative as possible, including ceramic vessels of different shapes, volumes, decorations, applications, and further vessel morphological characteristics. The vessels originated from sites of different sizes and locations, dating from the oldest to the youngest LBK and the Middle Neolithic periods, including the Großgartach Culture, Planig-Friedberg Group and Rössen Culture. Our research shows that, there are consistent patterns in the use of specific vessel shapes for food preparation, handling and storage between the LBK and the Middle Neolithic alongside changes in the composition of prepared foods over time. Although handling patterns in the use of ceramic vessels were already emerging in the LBK, a more specific use of vessels with certain morphological characteristics, indicates an increasing significance of animal products, during the Middle Neolithic period. Furthermore, the results point to a more frequent dairy product processing in ceramic vessels, which consequently occurred across a wider range of shapes.

2308. Understanding Copper Age pottery use in the Carpathian Basin through morphometric and organic

residue analyses

Authors: Rebeka Solti (Institute of Archaeological Sciences, Eötvös Loránd University) – Isabel Wiltshire – Izzy Davis – Lilly Olet – Melanie Roffet-Salque (School of Chemistry, University of Bristol) – Lucy Cramp (Department of Anthropology and Archaeology, University of Bristol) – Zsuzsanna Siklósi (Institute of Archaeological Sciences, Eötvös Loránd University)
Format: Oral

This study investigates the everyday lives of Early and Middle Copper Age (4500-3700 BCE) communities through combined morphometric and organic residue analysis of pottery assemblages from 13 settlements across present-day Hungary. The frequencies of communal and individual vessels for preparation or consumption, as well as different-sized storage vessels can inform about economic, culinary and dining practices. This includes food processing methods, group size, drinking practices and storage capacity. Potteries from Early Copper Age cemeteries and grave groups are also included, making it possible to compare settlement and burial contexts, in order to study how grave goods relate to everyday pottery use. Organic residue analysis was performed on selected sherds to provide direct evidence of the significance of animal-derived products in the diet and to confirm the increase in dairy consumption in the discussed time period. The presence of certain ingredients can also narrow down possible uses indicated by morphometry. The combination of these methods can thus provide a comprehensive picture of the economy, subsistence strategies, and cultural practices. Results indicated the overall importance of communal aspects in food preparation and consumption. Notably, the frequency of drinking vessels indicated an emerging drinking culture toward the end of the Middle Copper Age. Individual consumption and preparation vessels, as well as small storage vessels were overrepresented in burials, suggesting intentional selection from a range of domestic vessels. The results of organic residue analysis did not show clear correlation between vessel form and the type of content, and they confirmed that pottery was mainly used for processing animal carcass products throughout the investigated period. At the same time, dairy processing became common only at the end of the Middle Copper Age.

2579. Food and Pottery: Culinary Practices of the Northern Neolithic around 3rd millennium BC through Organic Residue and Vessel Microwear Analysis

Authors: Lucy Kubiak-Martens (BIAX Biological Archaeology & Environmental Reconstruction) – Jonica Doliente (BioArCh, Department of Archaeology, University of York) – Tania Oudemans (Kenaz Consult & Laboratory, Berlin) – Wiebke Kirleis (Institute for Prehistoric and Protohistoric Archaeology, Kiel University) – Annelou Van Gijn (Faculty of Archaeology, Leiden University) – Oliver Craig (BioArCh, Department of Archaeology, University of York)
Format: Oral

Food residues preserved on the surface of ceramic vessels (also referred to as 'food crusts') provide an exceptional insights into past food preparation practices. The study of these residues, however, is complex and requires an integrated, multidisciplinary approach combining high-power microscopy and chemical analysis. This study presents a comparative analysis of charred organic residues from Middle–Late Neolithic pottery assemblages in northern Germany (Oldenburg LA77 and Hunte 1; c. 3270–2920 BC) and the western Netherlands (Steynhof, Vlaardingen, and Hekelingen; c. 2900–2450 BC). We applied a combined analytical framework including scanning electron microscopy (SEM), lipid residue analysis (GC-MS and GC-C-IRMS), and direct temperature-resolved mass spectrometry (DTMS). SEM was used to identify cereal remains, herbaceous plant tissues, and non-plant components preserved after cooking. Lipid residue analysis was used to differentiate fats from ruminant, non-ruminant, aquatic and dairy products. In addition, application of a recently developed University of York method revealed cereal-specific lipid biomarkers in numerous residues. Integrating these methods reveals both shared and regionally distinct patterns in food components and food processing techniques. For some of the Vlaardingen vessels microwear analysis added more details on culinary practices. We discuss how the similarities and differences inform interpretations of daily culinary practices and cultural connections among Middle–Late Neolithic communities in northwestern Germany and the western Netherlands.

821. The role of ceramics in storage strategies and household resilience in Pryssgården outside the modern city of Norrköping, southern Sweden

Authors: Fredrik Larsson – Marita Sjölin (National Historical Museums) – Katarina Botwid (Keramikarkeologi)
Format: Oral

Archaeological excavations at Pryssgården in Norrköping, conducted in the early 1990s and again between 2022 and 2024, have revealed an extensive settlement containing 210 well-preserved post-built buildings dated from roughly 2000 BC to AD 1200. These structures, together with numerous activity areas tied to food preparation and craft production, represent several farmsteads that occupied the area over time. During the Bronze Age, the settlement comprised multiple contemporaneous farms characterized by large numbers of pits located both inside and outside buildings. Their distribution suggests a sophisticated and well-organized storage system. The pits contained substantial ceramic assemblages with wide variation in form, manufacturing technique and function. Chemical and craft-focused analyses have identified specialized pottery-producing farmsteads and provided insights into the organization of ceramic production and everyday vessel use. Integrating these data with farmstead analyses offers a holistic understanding of storage strategies, household resilience and the role of ceramics in these systems. A cellar associated with one of the houses offers a rare glimpse into Bronze Age household interiors. The seven vessels recovered from this context form a highly selective subset, allowing detailed examination of technological choices and practical use. Their characteristics indicate adaptation to heat exposure and daily tasks. The functional composition—focused on cooking and storage—shows the cellar served as an active household space. This demonstrates how artisanal analysis can illuminate spatial practices and everyday life even within very small archaeological features.

2117. A biomarker obsession? The role of methylxanthines in reconstructing cacao-based recipes in Mesoamerica

Authors: Estelle Praet (British Museum) – Katie Sampeck (University of Reading) – Rebecca Stacey – Danny Zborover (British Museum)
Format: Oral

Nowadays a mass-produced global commodity, cacao was deemed a divine food at the heart of ritual, social, and economic life in ancient Mesoamerica. Its identification in the archaeological record mostly relies on the presence of theobromine in absorbed residues of ceramic vessels. Theobromine has, alongside theophylline and caffeine, been widely used as a chocolate biomarker and has contributed to understanding cacao consumption through time via absorbed residues in vessels from South to North America. Interpretations and discourses soon relied on this tiny biomolecule, considering that its presence suggests chocolate consumption. In this journey towards reconstructing the complex and diverse culinary history of cacao, this paper will present the results of an in-depth testing of an ethnographic vessel from Oaxaca alongside serving and storage vessels from Rio Ceniza (El Salvador) and Isla de Sacrificios (Mexico). These vessels were tested for the presence of methylxanthines (theobromine, caffeine and theophylline) via targeted liquid chromatography mass spectrometry (LC-MS) and their more general lipid profile via gas chromatography mass spectrometry (GC-MS). This paper will shed light on how reference vessels can help shape ORA extraction and analytical methods, as well as data interpretation by emphasizing sample variability. It will also reveal cacao lipid profile(s) and identify the addition of other ingredients, paving the way for reconstructing the diversity of cacao-based recipes across Mesoamerica.

1451. Cooking Pot Roles in Social Practices: A Multidimensional Analysis of Ordinary Vessels from Late and Inka Periods, Hualfín Valley, Argentina

Authors: María Iucci – Federico Wynveldt – Juana Fuertes (Laboratorio de Análisis Cerámico, Universidad Nacional de La Plata - CONICET)
Format: Oral

During the expansion of the inkas into the valley region of Northwestern Argentina (Southern Andes, 15th century), local pottery production was centered on the manufacture of two main sets of containers: "fine" or painted ceramics—Belén, Santa María, and Sanagasta styles—which had clear regional boundaries, and "ordinary", "coarse" or "culinary" ceramics, characterized by a broader geographical distribution and distinct material and symbolic characteristics. In the Hualfín Valley (central-western Catamarca Province), ordinary vessels are found in association with Belén pottery, including dwellings, areas of productive activity and burial sites, and are characterized by clear evidence of fire exposure and sooting. This study explores a wide range of social practices in which ordinary pottery was involved. To this end, we present the results of our analysis of production technology and define the performance characteristics—the mechanical and thermal properties for which these vessels were particularly suited. In addition, we examine use-wear traces on the ceramic bodies, including both soot deposits and attrition marks, which allow for the identification of the specific and repetitive activities to which the vessels were subjected. Finally, we review the depositional contexts and the presence of modeled imagery to define specific use-situations and identify representational practices that incorporate symbolic references into the production of these containers. The body of evidence suggests that these vessels were made in a production cycle distinct from that of fine ceramics, using a manufacturing technology that balanced efficient production with thermal shock resistance and rapid heating. The social practices in which they were involved transcend mechanical and thermal properties, integrating these containers into the broader worldviews of the societies that produced them.

594. Everyday Vessels, Enduring Practices: The Simple Hemispherical Bowl and Its Users at Neolithic Halai, Central Greece

Authors: Effimia Angeli (Maria Curie-Skłodowska University)
Format: Oral

Even the most ordinary objects can illuminate the intricacies of human life, revealing how everyday practices, habitual decisions, and material interactions structured the experiences of past communities. In the Neolithic settlement of Halai (ca. 6000–5300 BC), the simple hemispherical bowl—mostly with flaring walls but also vertical or slightly restricted profiles—provides a window into the daily routines, decisions, and bodily engagement of its users, reflecting both habitual and multifunctional use over time. Adopting a user-centred and contextual approach, the study integrates spatial distribution across household and open-air contexts, use-wear traces, and decorative evidence. At Halai, hemispherical bowls appear both indoors and outdoors, showing repeated handling, multifunctional use, and occasional repair. Decoration is occasional and situational, reflecting practical and social priorities. The simplicity of the form aligns with strategies of adaptability, efficiency, and routine utility. Foregrounding the relationship between users and vessels, this case study demonstrates how even everyday ceramics illuminate daily life, social interaction, and cultural priorities. The simple hemispherical bowl thus serves as a lens for understanding the stability and flexibility of Neolithic practices at Halai.

332. Use-wear traces and thermal food processing: A peculiar abrasion marks on the vessels from the site of Viškovci, Eastern Croatia

Authors: Jasna Vukovic (University of Belgrade, Faculty of Philosophy, Department of Archaeology) – Ina Miloglav (University of Zagreb, Faculty of Humanities and Social Sciences) – Jacqueline Balen (Archaeological Musem in Zagreb) – Miroslav Vuković – Mia Marijan (University of Zagreb, Faculty of Humanities and Social Sciences)
Format: Poster

The poster will consider a distinct group of finds from the Late Copper-Early Bronze Age (2570-2340 cal BC) site of Viškovci, a hill-fort settlement near the town of Đakovo in Slavonia, Eastern Croatia. Pottery assemblage originates from features which contained vessels related to food-preparation and long-term storage. A distinct group of finds stands out: it consists of bases belonging to the medium-sized and large vessels for thermal food processing. Their most striking feature is a use-wear pattern on their external surfaces, where two zones can be distinguished. Outer zone is in the form of a regular ring, smooth, even burnished. Inside this ring is a heavily abraded zone, characterized by the complete removal of the original surface, indicating a pressure caused by applying some strong force. The surface-alterations were examined macroscopically, microscopically, and using 3D models to detect use-wear traces in the microrelief of the pottery fragment's surface. The possible explanations of the activities in which this kind of mechanical damage originated will be considered.

2189. Technological choices for building Early Neolithic ceramics and their external mud coats for salt production in Añana (Basque country, Spain)

Authors: Olivier Weller (CNRS - Lab Trajectoires) – Javier Camara Manzaneda (Universidad de La Laguna) – Alberto Plata Montero (Fundación Valle Salado de Añana) – Cristina Camarero (Qark) – José Manuel Martínez Torrecilla (Qark Arqueología SL) – Louise Gomart – Laurent Aubry (CNRS - Lab Trajectoires)
Format: Poster

The Salt Valley of Añana has emerged as new representative site for understanding the development of the neolithisation process in the north of the Iberian Peninsula (Upper Ebro valley), and for gaining a better understanding of the economic strategies of these first farming communities around one of the oldest salt exploitations in the European continent. The NéoSal research project, launched by a French Spanish team, has revealed an exceptional stratigraphic sequence linked with the salt exploitation and processing dating back to at least 5200 cal. BCE, which has yielded a large quantity of potsherds associated with several Early and Middle Neolithic layers (more than 500kg). The analysis of the pottery assemblage of Valle Salado de Añana have provided a macroscopic and mesoscopic characterisation of the ceramic manufacturing phases that were performed in this site along the Early Neolithic: among which, the prevalence of the forming tradition of the patchwork technology, revealing the distribution of this Mediterranean tradition in the north Iberian Peninsula. In parallel, another key element from this Early Neolithic site corresponds to the mud coating sherds applied on the surfaces of those vessels that were used to process the brine coming from the natural springs by evaporation. This poster provides new insights into the technologies used for building the ceramic vessels and the mud coating sherds recovered in the Neolithic sequence of the Salt Valley of Añana by integrating the analysis of technological traces and the 3D scanning techniques. The aim is to address (1) what were the technological choices that were employed for forming, adding and using these mud coating sherds and (2) whether the community of practice that was producing the vessels followed the same operational scheme for building these clayey elements, shedding new light on their equal participation both in ceramic manufacture and salt production.

2193. Manufacturing and Storing the Pharmakon - Cookware and Vessels Used to Produce, Hold, and Serve Compounds for Group Ritual Use

Authors: David Anderson (Independent Researcher)
Format: Poster

Speculation continues on the precise nature of the Pharmakon used during the Greater Mysteries of Eleusis. My research has led me to believe the compound was most likely Lysergic Acid Amide (LSA), an ergot-derived compound that synthesizes at a lower temperature than the better-known Lysergic Acid Diethylamide (LSD). Hierophant families almost certainly had equipment used for the collection, storage, and processing of ergotized grain into a form that could be reconstituted for use during group rituals. The scandal of Alcibiades' theft and profane abuse of the Pharmakon preceded the disastrous Siracusan Expedition for Athens. How would such a substance be stored and consumed by non-Hierophants? I would like to create a poster that will illustrate current archaeological findings from hearth structures inside the Telesterion of Eleusis and around the wider grounds. The poster can include information on what reputable sources suggest to be plausible manufacturing processes to turn ergotamine extractions into something like LSA that is safe to consume. Heating an ergotamine - ash mixture is a plausible process for LSA synthesis. My poster will review the literature and illustrate findings on the type of pottery that could have been used in the manufacturing process. My 'Pottery of Eleusis' poster will also include examples of storage vessels found onsite, and speculate on how pottery used for storage and transportation of the Pharmakon may have appeared. Manufacturing processes will be considered if there is room on the poster. I plan to include historically-accurate Pottery and other objects to my Eleusinia Temple Complex world on Meta Horizons. My poster will review the pottery suggested in the Eleusis literature and offer artistic interpretations of what the cookware and vessels used to produce, hold, and serve the Pharmakon of Eleusis may have appeared.

86 FROM DECAY TO DATA: INTEGRATING TAPHONOMY, FORENSIC ARCHAEOLOGY, AND DIGITAL TECHNOLOGIES IN HUMAN DECOMPOSITION RESEARCH

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Pier Matteo Barone (The American University of Rome | Forensic Geoscience Italy - Geoscienze Forensic italia | ENFSI SoC WG Forensic Archaeology) – Lucia Elgerud (Uppsala University) – William Cawley (Arizona State University) – Patrick Randolph-Quinney (Uppsala University)
Keywords: Forensic Archaeology, Taphonomy, CSI, Archaeothanatology, Human taphonomic facilities, 3D/4D digital tools
Format: Regular session

SESSION ABSTRACT

This session explores how taphonomy, archaeology, and forensic archaeology intersect to advance the understanding, documentation, and interpretation of human decomposition in diverse environmental and cultural contexts across both deep and recent timescales, including medico-legal and investigative settings. Within mainstream archaeology there has been a rush to adopt inductive archaeothanatological approaches to understand burial practices, whilst not fully engaging with the immense datasets—and operational insights from crime-scene and mass-fatality investigations—generated by human forensic taphonomic facilities over the last five decades. As such, we invite contributions that address cross-disciplinary, experimental, field, forensic-archaeological, and humanitarian approaches to taphonomy and thanatology, including work on clandestine burials, mass graves, search and recovery protocols, context recording, and evidentiary reconstruction. We also invite contributions on the establishment, operation, and ethical management of human taphonomic facilities—both proposed and already existing—as crucial infrastructures for advancing this field and for training to investigative standards (e.g., chain-of-custody, data governance, and courtroom communication). Emphasis will be given to innovative 3D and 4D digital toolkits for analyzing taphonomic processes, reconstructing contexts, and improving training and evidentiary communication. By bringing together taphonomy and thanatology, forensic archaeology, forensic science, and digital specialisms, the session aims to stimulate dialogue on new methodologies, harmonized investigative protocols, and the future of taphonomic research and practice in Europe and beyond.

CONTRIBUTION ABSTRACTS

100. From Search to Context: Integrated Forensic Archaeology Workflows for Decomposition Evidence

Authors: Pier Matteo Barone (The American University of Rome | Forensic Geoscience Italy)
Format: Oral

Locating clandestine burials and recovering the missing increasingly requires that "search and recovery" be framed as a disciplined, data-producing pathway for taphonomic and investigative interpretation. Building on operational experience across humanitarian and judicial contexts, this paper presents an integrated forensic-archaeology workflow that connects: (i) remote-sensing triage (satellite time-series, UAV survey, historical cartography and imagery); (ii) scenario-adapted near-surface geophysics for complex environments (including outdoor, indoor, and submerged settings); (iii) GIS-based modeling that integrates environmental and anthropogenic indicators with testimonial and intelligence inputs; and (iv) phased verification through archaeological ground-truthing and standardized recovery protocols. To support the session's "decay to data" perspective, the workflow embeds digital documentation at each stage—interoperable geodatabases, structured context recording, and 3D/4D capture of grave architecture, depositional sequences, and decomposition-related proxies—so that taphonomic signals can be compared across cases and, where relevant, training and research infrastructures. Anchored in the ENFSI Scene of Crime Forensic Archaeology Best Practice Manual, the approach reduces uncertainty, minimizes unnecessary disturbance, and strengthens chain-of-custody and courtroom communication. The result is a flexible yet harmonizable framework that improves efficiency and evidential robustness while advancing the comparability of decomposition datasets across jurisdictions.

1956. Beyond the Body: A Reassessment on the Utility of Body Farms

Authors: William Cawley (Arizona State University)
Format: Oral

Outdoor research laboratories specialized in examining the postmortem decomposition processes of humans and animals, or human taphonomy research facilities (HTF)/ "body farms", have facilitated research in multiple fields since their inception in 1981. The necessity of such facilities and the value of research produced by these institutions, though, continues to be debated by scholars of anthropology, bioarchaeology, osteology, and related fields. However, conversations on the utility of body farms for solely decomposition research ignore the exceptional opportunities and broader benefits such facilities can provide. In this paper, the author reviews the broad utility of outdoor postmortem research laboratories by examining their ongoing activities and contributions to ethically minded science, education, professionalization, and science communication in an international context across several such institutions. Data for this project are derived from semi-structured interviews, questionnaires, and primary research of these facilities to better represent the scope of their respective activities. I argue that body farms succeed not only in contributing to academic

literature across multiple scholarly fields, but also in providing spaces for experimentation, training, and the ethical study of human remains. By further exploring the utility of such facilities, this paper sheds new light on the often neglected, but equally compelling, benefits of both existing and prospective outdoor postmortem research laboratories.

1689. The challenges of operating a human taphonomy research facility: from ethics to research

Authors: Giovanna Vidoli – Mary Davis (Forensic Anthropology Center, University of Tennessee) – Joanne Devlin – Dawnie Steadman (University of Tennessee)
Format: Oral

The Anthropology Research Facility (ARF) in Knoxville, Tennessee, established in 1981, is the original "Body Farm." The associated body donation program has grown from three body donations in the first year to the current yearly average acceptance of 75 donors, with more than three times this number declined. As the field of forensic anthropology has expanded over the last 45 years, so has the ethical standards in body donation, research, and data sharing. This presentation will delve into some of the lesser discussed challenges in managing a human taphonomy research facility, including why we accept or decline a body donor, what research is acceptable, how to ethically manage skeletal remains from 2000+ individuals, how to fund the daily operations and infrastructure of a decomposition facility, and what data should be collected and shared. In addition, we will share the breadth of possible research from body farms by highlighting forensic archaeological research from the ARF, including 3D documentation and grave detection methods. The juxtaposition of challenges and research will demonstrate the high risk and high reward of establishing and managing a human taphonomy research facility.

2111. Research after Death: The Feasibility of Establishing a Swedish Human Taphonomy Research Facility

Authors: Lucia Elgerud (Uppsala University)
Format: Oral

The establishment of human taphonomy research facilities (HTFs) has been a central focus in forensic archaeology and anthropology since the founding of the first such institute at the University of Tennessee, Knoxville in 1981. HTFs offer unprecedented opportunities for research and training in these and related fields. However, while a dozen HTFs have been established across the world most are within the continental USA and only four facilities exist elsewhere, half of which are located in Europe. Taphonomic facilities, especially those concerned with human remains, have to abide by complex local and regional policies surrounding environmental impacts, human tissue research and storage, and biomedical safety. Local perceptions also need to be taken into consideration including potential opposition amongst local communities and incorrect or sensationalised rumours about activities conducted at HTFs. Some researchers, including those based in the UK, have been unsuccessful in establishing an HTF despite concerted efforts to do so, begging the question of how other countries can best realise the establishment of such a facility. This paper presents an ongoing Marie Skłodowska Curie postdoctoral project funded by the Swedish Research Council to investigate the possibility of establishing an HTF in Sweden. The study includes an analysis of views amongst the general Swedish population on body donation practices as well as current organ and full body donor motivations. By combining this ethnographic data with a textual analysis of Swedish laws and policy, this study seeks to establish a "roadmap to an HTF in Sweden". Only by understanding local parameters, institutions, and policy can new human taphonomy research facilities be realised. This paper accounts for the ongoing analysis of one such context, which may inform similar efforts in other countries across Europe and beyond.

2147. Decomposition Facilities as Sites of Interdisciplinarity: Bridging the Gap Between Experimental Ecology and Forensic Casework

Authors: Hayden Mckee-Zech (Northern Michigan University) – Kelly Sauerwein (National Institute of Standards and Technology) – Angela Dautartas (Western Carolina University) – Erin Patrick (University of Tennessee - Knoxville) – Derek Boyd (University of Nevada, Las Vegas)
Format: Oral

Decomposition is a chaotic and dynamic ecological process, not a linear sequence of stages as traditionally understood. To have utility in forensic investigations, taphonomic changes to the body should be described and understood through an ecological systems framework that emphasizes interactions among microbes, insects, vertebrate scavengers, soils, and the environment as coupled drivers of decomposition trajectory. Such an approach is necessarily interdisciplinary and requires both lab- and field- based experimentation, which is currently an uncommon practice in the field. Integrating traditional lab-based experimentation with observational data derived from decomposition research facilities allows for iterative testing, refining, and translation of hypotheses into investigative protocols for more nuanced and advanced research and experimentation. This synthesis is essential for producing defensible, courtroom-relevant interpretations grounded in reproducible and reliable empirical data. The foundations of such a synthesis, however, require standardization - consistent study designs, sufficient sample sizes, universally measured variables, and clear and concise reporting. We therefore argue that taphonomic research needs new infrastructure supporting standardized data collection, cross-site comparability, and interdisciplinary training. Such integration is necessary to transform fragmented observations into scalable knowledge capable of informing forensic recovery, humanitarian investigation, and archaeological interpretation across contexts.

2434. Applying Archaeothanatology to Mass Graves: Implications for Humanitarian Forensic Archaeology

Authors: Shubham Thakur – Jagmahender Sehrawat (Panjab University)
Format: Oral

From the Humanitarian forensic archaeology standpoint, mass graves often present as a herculean challenge from a technical and ethical purview. These graves often entail commingled, secondary transfers, disturbed and variably decomposed human remains that ultimately hamper the identification process and the credibility associated with undertaking-controlled excavation and documentation processes. This is where archaeothanatology helps strengthen humanitarian forensic archaeology through its formal reasoning, associated with anatomical connections, decomposition space, etc., by providing a standardised framework that offers insight into evidentiary reconstruction and identification processes in mass grave contexts. This study explores the archaeothanatological principles and their systematic integration in the investigation of mass graves, offering deep insights into body deposition, burial timing, and post-depositional disturbances. Besides, it also attempts to understand the role played by key indicators towards assisting in differentiating per-mortem violence from post-mortem alterations, if any. Also, to determine whether the bodies were buried individually, in groups or as episodic deposits. Thus, by drawing on forensic archaeological casework and experimental taphonomic research, the study aims to give due consideration to contextual recording and stratigraphic excavation to preserve critical spatial information from mass graves. The inclusion of archaeothanatological approaches helps by enlisting digital documentation and advanced imaging methods that may further support visual analysis and courtroom communication in the context of buried remains recovered from mass graves. Thus, the amalgamation of archaeothanatology with a humanitarian forensic approach enables a more holistic and standardised approach for undertaking forensic investigation of the mass graves. It has great potential to strengthen evidentiary interpretation and identification processes, and to uphold the dignity of the dead. Thus, this study aims to demonstrate that archaeothanatology is not only a tool for burial interpretation but also acts as a vital component of contemporary humanitarian forensic practices.

2413. Experimental histological analysis of porcine bone; Advancing understanding of microtaphonomy in aquatic environments

Authors: Alexander Cook – Richard Madgwick (Cardiff University)
Format: Oral

The process of Wedl tunnelling's potential and global applications have yet to be fully tapped in the forensic field and little experimental work has been undertaken linking the presence with specific environments and timescales. The analysis of these cyanobacterial attacks on the cortical edges and haversian canals of bone has led to questions on how they can be utilized for understanding deposition timescales, as well as the environmental conditions required for such attacks. Through the lens of a Bermudian case study, this paper aims to understand how cyanobacteria within different aquatic environments interacted with fleshed/excarnated porcine bone within five separate sites over an eight-month period. This study revealed that reef environments produced the deepest and most abundant type 1 tunnelling, likely due to constant sunlit conditions and relentless predation by marine life. Brackish ponds produced the least, with attacks seemingly disabled due to the lack of both sunlight beyond the surface as well as absence of cyanobacteria in water samples. It also confirmed that fleshed samples take longer to develop tunnelling in comparison to excarnated samples, and that putrification bacteria does not play a role in the intensity of the attack unless presented with a model environment allowing for necrotization. Whilst further targeted experimental work is required, these finding provide key new insights into the timing, condition and severity of microstructural modifications in diverse aquatic environments and have ramifications for our understanding of depositional practice in both archaeological and forensic contexts.

123. The traumatic, pathological and taphonomic signatures of identity of Ajnala skeletal remains: A forensic archaeological investigation

Authors: Jagmahender Sehrawat (Panjab University, Chandigarh)
Format: Poster

Innumerable crimes against humanity have been reported throughout human history and human hard tissues of bones and teeth remain witnesses to such brutalities. The traumatic, pathological and taphonomic marks of osseous tissues help forensic anthropologists in interpreting the cause and manner of death as they play crucial role in reconstructing past events. Thousands of unknown human remains were excavated non-scientifically from an abandoned well at Ajnala (Amritsar, India) by amateur archaeologists in 2014. In present study, teeth (982), cranial and jaw fragments (452), femur (204), clavicle (19), vertebrae (29), hand and foot bones (987) retrieved from Ajnala skeletal assemblage were examined for such features. These skeletal elements reportedly belong to 282 soldiers killed in 1857, whose cadavers were dumped in an abandoned well nearby to the site of massacre (Cooper, 1858, Bates and Carter, 2017). The human skeletal remains dumped since more than last 160 years remain unattended for months in harsh environmental conditions before the same were handed over to this author for their biological profiling purposes. The spatial positioning of the remains in well sediments and the pattern of peri-mortem bone fractures indicated that the cadavers were thrown from top of the well. The post-mortem injuries on the frontal and temporal portions of crania were suggestive of their non-scientific excavation. The stone bullets found entangled inside the examined intact crania (revealed from their CT scans) and, their morphological examination were indicative of brutal killing using the musketry firings. Many, if not most of the teeth, had a thin layer of dust and

debris and color changes (grey, pink, tan to brownish), owing to prolonged burial, fungal actions and interaction with their burial environment (Brown et al 2014). Comparatively lesser dental pathologies (caries, wear and hypoplasia) signified that the deceased had sound dental health, endorsing their possible army affiliations.

1710. Taphonomy of Epidemic and Conflict Burials: The "Archem" Project

Authors: Jovita Kadikinaite (Faculty of History, Vilnius University) – Matas Vaitkus (Faculty of Chemistry and Geociences, Vilnius University) – Angela Mollica Nardo (Life Sciences Center, Vilnius University) – Dovydas Karoblis (Faculty of Chemistry and Geociences, Vilnius University)
Format: Poster

In recent years, numerous 19th–20th-century burial sites have been uncovered, many of which exhibit evidence of chemical substances applied to human remains. During decomposition, these materials interacted with soft tissues, bone, and surrounding sediments, influencing postmortem processes and skeletal preservation. Such alterations challenge archaeological and forensic interpretation while also offering insights into historical burial practices. A pilot study conducted in 2022, focused on SEM analysis of sediments from 20th-century conflict burials, revealed a complex and context-dependent nature of this phenomena. The results demonstrated that similar taphonomic outcomes may derive from different causes, prompting the development of the Archem project, funded by the VU Science Promotion Fund. The Archem project applies an interdisciplinary framework that integrates forensic archaeology, anthropology, history, chemistry, geology, and microbiology. Its primary aim is to investigate the use of chemical substances in the burial of human remains during 19th–20th-century war and epidemic episodes, to identify motivations behind their application, and to assess their impact on the preservation of human remains. The project also examines the broader decomposition environment, including seasonality, soil composition, and burial context. Methodologically, the project expands sediment and soil investigation approaches by incorporating additional chemical and geological analyses, including XRD, XRF, pH measurements, and stratigraphic analysis. It also focuses on a wider range of archaeological contexts, including burials associated with cholera and typhus epidemics as well as conflict-related sites. These contexts include both respectful burials and disrespectful disposals of participants of Lithuanian and Polish uprisings, in addition to mass graves of 20th-century soldiers. Preliminary findings suggest that certain soil types are particularly conducive to sediment formation, sometimes producing deposits in the absence of added chemicals due to naturally alkaline conditions. Such environments can act as taphonomic "capsules," preserving crucial information about postmortem processes, underscoring the importance of environmental context in interpreting chemically altered burials.

2733. Using Pig Teeth as a Proxy for Understanding Heat Related Effects to Human Teeth with Transferable Methods for Forensic Investigation

Authors: Grace Holmes (University of Manitoba)
Format: Poster

Teeth are an extremely durable element of the human skeletal system and are likely to survive heat alteration events; however, burnt teeth are understudied in heat related decomposition in forensic contexts such as cremation, body disposal, or car fires. This research used pig teeth (n=296) as a proxy for human dentition to model and identify target experimental conditions for heat exposure ranging from 100°C to 1000°C for 30 to 360 minutes. Three-dimensional scans were collected before and after heat exposure to be uploaded to an open-access site as dental comparisons, which expands available visual representations for forensic experts. Metric analysis, macroscopic analysis, high-resolution photography, and 3D scans were collected before and after heat exposure to document visual, structural, and dimensional changes. This research refines foundational knowledge regarding how teeth change under specific thermal conditions; creating a more comprehensive scientific understanding of known visual changes of heat altered teeth. This will allow forensic investigators to have better visual assessment methods to recognize heat exposure parameters at forensic sites. Preliminary results from 100°C-500°C demonstrate mass shrinkage rates of 1.87% to 30.82% for deciduous teeth and 2.52% to 27.94% for permanent teeth, providing an important baseline for comparison to human dental studies by refining empirical standards for heat-induced changes. This research is foundational in identifying and testing experimental conditions that will be replicated on human teeth, which supports improved forensic heat exposure assessment, more reliable odonatological comparison for identification, and clearer fracture pattern differentiation. Changes within the results from metric and macroscopic analyses help identify target conditions to be replicated on human teeth, which is valuable for improved heat exposure condition assessments for forensic examination by providing reproducible and experimentally derived benchmarks for estimating heat exposure conditions and evaluating thermally altered evidence.

88 MAKING ARCHAEOLOGY ACCESSIBLE: EDUCATION, OUTREACH, AND ENGAGEMENT IN THE FIELD AND THE MUSEUM

Theme: 3. Museums and cultural heritage in the era of 'permacrisis'
Organisers: Io Viktoratou (American School of Classical Studies at Athens) – Christina Pagoni (Swiss School of Archaeology in Greece) – Kyriaki Katsarelia (University of Fribourg | University of Lille | Swiss School of Archeology in Greece)
Keywords: Outreach, Education, Museums, Learning, Community, Heritage
Format: Regular session

SESSION ABSTRACT

The American School of Classical Studies at Athens - the Agora Excavations, and the Swiss School of Archaeology in Greece organize this session to explore methods for developing educational and outreach programs, based on archaeological research. These initiatives aim to promote learning, storytelling, engagement and enjoyment in contemporary society. We will present case studies of educational and outreach initiatives, alongside our new joint program. These free programs provide spaces for critical engagement, active learning, and hands-on experience. The session invites presentations that explore the design of online and on-site educational programs that incorporate object-based learning, copies of artifact handling, thematic storytelling, and new technologies such as 3D scanning and printing. We will also consider strategies for initiating and maintaining public support. By integrating primary and secondary sources, dialogue with professionals in the field, and interaction with archaeological and archival material, educational programs cultivate curiosity, critical thinking, and a deeper understanding of archaeology as a living, evolving process that connects past and present. In an era defined by political, environmental, and social instability, collaborative approaches highlight the role of educational outreach in building empathy, and a shared sense of heritage. Outreach programs have the power to strengthen local connections to archaeological sites and encourage identity-building and cultural heritage preservation. Museums and excavations can act as community builders and spaces for healing, reflection, and adaptation. In doing so, we contribute to the broader conversation on how societies inherit, interpret, and protect the ancient world. We welcome contributions that share methodologies and case studies from educational and outreach programs linked to museums, archaeological sites, excavations, and artifacts. We particularly encourage presentations addressing inclusivity, accessibility, digital engagement, and community participation.

CONTRIBUTION ABSTRACTS

233. reCLAYm – Re-connecting citizen scientists with material culture research in archaeology

Authors: Jakob Maurer – Julia Längauer (Univ. for Continuing Education Krems, Center for Museum Collections Management) – Doris Jetzinger (University of Vienna) – Lukas Kerbler (Krahuletz-Museum Eggenburg) – Caroline Posch (Natural History Museum Vienna) – Andreas Thinschmidt (Krahuletz-Museum Eggenburg) – Franz Pieler (State Collections of Lower Austria) – Michaela Schauer (Natural History Museum Vienna)
Format: Oral

Joint work of archaeologists and citizen scientists (CS) represents a particularly intensive form of dialogue between science and society. Beyond its direct academic value for archaeological research, CS-integration can generate multiple additional benefits, ranging from the personal level (e.g., mutual learning, increase of interests, education, skills, self-confidence, well-being) to broader impacts on archaeology (e.g., enhanced public support, visibility, funding) and society at large (e.g., reduced scepticism towards science, sense of appreciation within local communities). In this contribution, we introduce our reCLAYm project (newly funded by GFF NÖ) as part of the ongoing discourse on the integration of CS in archaeology, with a particular focus on the still underexplored field of material culture research. The project centres on the extensive pottery assemblage from the Early Neolithic Linearbandkeramik site of Asparn/Schletz in Lower Austria, whose material volume of >3.000 boxes represents a major challenge for comprehensive analysis. We argue that a deep integration of CS into a transdisciplinary research framework, with a standardized methodological approach, offers a viable way to address a corpus of this magnitude, which exceeds what even teams of professionally trained researchers can realistically process on their own. Focusing on Neolithic pottery, the project combines typology, experimental archaeology, and portable X-ray fluorescence (pXRF) to investigate prehistoric pottery production, raw material sourcing, cultural development, and social interaction. Through CS-involvement in all research stages, from proposal design, data collection, interpretation to dissemination, reCLAYm explores their integration as co-researchers in complex analytical workflows. The project also addresses methodological challenges such as user bias, data standards, and legal boundaries of CS-integration in archaeometry, aiming to develop scalable, inclusive models for participatory research. We will also draw on results from our "United by Crisis?"-project, in which we conducted field surveys and isotope analyses together with schoolchildren, collectors and CS without prior archaeological experience.

1008. Bridging Science and Society: A Multi-Scale Participatory Research and Outreach Strategy within the "Wood for Limoges (FR)" Collective Research Programme

Authors: Anne-Claire Misme (Éveha) – Sandrine Paradis (Éveha, Geolab)
Format: Oral

Since 2020, the Collective Research Programme (PCR) 'Wood for the City of Limoges' has examined the historical relationship between the city of Limoges and its forest resources over the past five centuries. The project has examined the timber species used in existing timber-framed structures, the supply chain logistics (via the river and roads) and the subsequent impact on the surrounding forest landscapes. This research is conducted by a multidisciplinary consortium including universities, the CNRS, regional and municipal heritage services, and private stakeholders. While four primary axes focus on wood as fuel, construction timber, supply networks, and landscape evolution, a strategic fifth axis dedicated to participatory research and outreach was integrated from the project's inception. Driven by the conviction that data should transcend the academic sphere, the team structured this outreach axis around three core missions: assessing public attachment to timber-framed architecture and to the historical areas under study; documenting local knowledge and collective memory linked to the role of wood within the city; and disseminating our scientific results (e.g. building studies and dating) to schools and the local community. Methodologies included urban street surveys, interactive

events on the riverbanks, pedagogical workshops focusing on dendrochronology and building archaeology, etc. This paper explores the various outreach activities that enabled this research project to engage with the local community and create opportunities for further research, particularly in the fields of building archaeology and dendrochronological dating.

294. Board games for international scientific dissemination: breaking cultural barriers through play in disseminating research on past energy use

Authors: Andrea Alias Sotos (Institut Català de Paleoecologia Humana i Evolució Social / IPHES-CERCA | Universitat Rovira i Virgili) – Daniel Gallego Morales – Aina Martí Peñas (MUCBO | Fundació Jardí Botànic de Sóller-Museu Balear de Ciències Naturals) – Piyumi Embuldeniya – Uditha Jindasa – P. Narmada Hansani – Theekshana Athukorala (University of Peradeniya) – Natacha Filippi (Els Corremarges SCCL, Cooperativa de trabajo asociado) – Prabath Ekanayake – R.M.M. Chandraratne (University of Peradeniya)
Format: Oral

Relevant aspects from our past and present are related to plants and are key to how we organize our daily lives and face global challenges. For this reason, understanding plants and their relationships with societies, from ancient times to the present, is crucial for enhancing environmental awareness. However, plants and their uses are often omitted from the historical record. To overcome this, we are developing educational resources that will be useful for teaching the value of plants in both the past and the present. Our dissemination strategy focuses on game-based learning (ABJ). We recognize that play is a universal language, inherent in all cultures and civilizations, with formats that transcend barriers, which makes it a key element for integration and social cohesion in an international context. Its inherently playful format facilitates the introduction of complex topics, such as archaeobotany, traditional plant uses, and past energy use of plants, in a relaxed and fun way, overcoming potential learning barriers. This game has been developed based on the results of our archaeological studies in Sri Lanka, France, Catalonia, and Majorca. We have adapted the game to be used at the different locations of our project, and for different educational levels, to provide a knowledge-based resource for museum curators in an informal learning setting, as well as an educational resource for teachers. We have tested the game in several schools in Sri Lanka and are in the process of implementing the necessary changes to improve its educational value. We are also adapting the game for SEN schools, following the advice of teachers from the blind school of Kandy and SEN educators from Sri Lanka.

219. Artemis Amarysia: School Classes and Public in Greece Educational and Outreach Programs of the Swiss School of Archaeology in Greece

Authors: Christina Pagoni (Swiss School of Archaeology in Greece)
Format: Oral

Thanks to the support of the Stavros Niarchos Foundation, the Swiss National Science Foundation «Agora» project was adapted for school classes in Euboea. The activities carried out so far include information workshops for teachers about the Agora platform (esag.swiss/el), presentation of archaeological finds to students through school visits, and guided tours of the Eretria Museum and the archaeological site of Amarynthos. In just six months, more than 650 students from primary and secondary schools in Euboea participated in the activities, as well as numerous students from international schools. Until now, approximately 2,000 students have visited the sanctuary of Artemis in Amarynthos and taken part in our educational programs in Greece. In addition, the ESAG guides groups from associations, Universities, and Archaeological Schools to Amarynthos and Eretria weekly. During the summer, two "Open Excavation Days" were also held, attracting several hundreds of visitors. The annual "Junior Archaeologists" event, taking place every summer, is particularly popular. Each year, more than 80 children and their parents receive an exclusive tour of the excavation in the sanctuary of Artemis in Amarynthos, while the children then take part in a simulated excavation on the nearby beach. Additionally, last year an artificial excavation site was created next to the sanctuary, where school classes can acquire their first archaeological experiences. The data so far show the strong interest of Euboean schools in the educational activities of the ESAG, reflected in the steadily increasing participation of students each year. In October 2025, the ESAG also participated in the Athens Archaeology Festival organized by the British School at Athens with an educational activity/game created for families and children, while during the ongoing school year we are implementing a new educational program for middle/high school students, in collaboration with the American School of Classical Studies at Athens.

2297. The Archäomobil – Archaeology on Wheels. The archaeomobile of Eastern Switzerland takes archaeological education to every destination

Authors: Christina Lolos – Kilian Graf (Archäomobil Ostschweiz)
Format: Oral

Every day Swiss archaeologists investigate new archaeological sites. Much of this work takes place behind closed doors at the regional department offices (Kantonsarchäologien). To provide the public with insight into their work, five eastern cantons – Appenzell AR, St. Gallen, Schaffhausen, Thurgau, and Zurich – are conducting an innovative educational project. Since January 2021, the Archäomobil Ostschweiz has been offering expert access to archaeological topics and artifacts. As a mobile information center, it visits school classes in their schoolyards and raises awareness of the specialist departments' work among the local population at public events. The Archäomobil is a converted VW van equipped with teaching materials for archaeological education. It carries original finds ranging from the Stone Age to the Middle Ages from all participating cantons, as well as illustrative material and

interactive educational modules. Specifically, it provides an insight into the various aspects of archaeological work, including excavation, find and site management, dating methods, bioarchaeology, anthropology, underwater archaeology and UNESCO World Heritage. Thus, the Archäomobil performs educational work that extends beyond archaeology, promoting an interdisciplinary approach to various areas of the humanities and natural sciences. The focus is on direct interaction between experts and the general public. Unlike conventional archaeological museums, it emphasizes the working methods and scientific methodology of archaeologists rather than findings and content relating to archaeological eras. Thus, the Archäomobil complements the museum-based presentation of archaeological collections without competing with them directly. The Archäomobil aims to spark the public's curiosity about science and strengthen their connection to the region's cultural heritage. Great importance is attached to striking a good balance between scientific content and experience-oriented cultural mediation.

606. From Replicas to Resilience: Care and Cooperation in Early Years Prehistory

Authors: Clara Masriera-Esquerra (Universitat de Barcelona)
Format: Oral

Over the past decade, the Department of Prehistory at the Universitat Autònoma de Barcelona (UAB) has developed and delivered a programme of prehistory outreach for early childhood (ages 5–6) and early primary (ages 6–8) classrooms in Catalonia. Designed by an interdisciplinary team combining archaeological research and educational expertise, and implemented in partnership with the Museu de Sant Cugat del Vallès within the Sant Cugat del Vallès City Council's Programa Educatiu d'Entorn (PEE) for municipal schools, the programme translates current academic knowledge into age-appropriate, hands-on learning experiences that respond to teachers' curricular aims and to children's interests. Recent school requests have foregrounded climate change, bodily diversity (human and animal), and environmental adaptation, offering a bridge between past lifeways and present concerns. Each workshop follows a consistent structure: (1) eliciting prior conceptions through guided dialogue and image-based prompts, introducing key concepts through thematic storytelling; (2) rotating through four stations that prioritise object-based learning and accessibility: a mobile "museum" with replica artefact handling; rock-art making using real pigments; prehistoric fauna (including Ice Age narratives such as the woolly mammoth); and a critical "materials and media" station using contemporary plastic toys to surface and discuss stereotypes and misconceptions. Programme refinement is supported through structured pre-workshop teacher consultation and immediate post-workshop reflective audio notes focused on engagement, misconceptions addressed, and inclusion measures (e.g., sensory needs, attention, neurodiversity). Across contexts, workshops consistently generate high motivation and sustained curiosity, while helping children move beyond "survival of the strongest" and big-game clichés toward evidence-based, empathetic understandings that foreground diversity, care, cooperation, and everyday collective work as fundamental to group resilience and survival.

1588. An Interdisciplinary "Artaeology" School Lab: Bridging Prehistoric Greek Rock Art with Contemporary Artistic Practice

Authors: Dimitrios Trakosas (University of Ioannina) – Vicky Papagianni (University of York)
Format: Oral

This paper presents the outcomes of an interdisciplinary archaeology-art education program developed for secondary school students (ages12-15), exploring how prehistoric Greek rock engravings (particularly those from Philippi, Mount Pangaio, the Angitis region in Eastern Macedonia, and the Asphendou Cave in Crete) can function simultaneously as archaeological evidence, pedagogical tools, and contemporary artistic expression. Created through scratching and chiselling onto stone surfaces from the Last Ice Age and Late Neolithic through the Early Iron Age, these engravings constitute early systems of visual communication and expression, featuring linear depictions of humans, animals, celestial symbols, and everyday practices. Through experimental studio workshops, students approached these engravings as "the first tools of thought", examining their communicative, ritual, and emotional roles. Art historical frameworks contextualized the influence of prehistoric imagery on modern and contemporary art, referencing artists such as Picasso, Miró, Giacometti and Dubuffet. Participants produced their own symbolic compositions, translating their personal concerns (e.g. identity, relationships, anxiety) into simplified visual vocabularies inspired by prehistoric mark-making. These works were exhibited as a collective "future archive", in which young students intentionally addressed viewers of their own generation across time. The project demonstrates how engagement with prehistoric visual culture enables students to reconstruct early human perspectives while generating new artistic directions. By bridging archaeological knowledge, art historical interpretation, and studio practice, this scholar-lab proposes an interdisciplinary model that repositions rock art as a living pedagogical framework, connecting humanity's earliest expressions with future-oriented artistic inquiry.

259. Reconstructing Locality without Travel: Archaeology, VR Exhibitions, and Area Studies Education in South Korea

Authors: Hyejin Kim (Hankuk University of Foreign Studies | Department of Greek Studies and Bulgarian Studies)
Format: Oral

In the context of Greek area studies education in South Korea, archaeology occupies a distinctive pedagogical position. For students engaging with the ancient Greek world from a geographically distant location, archaeological materials often serve as the most tangible means of accessing locality, cultural practices, and historical depth. This paper examines a course-based project that integrates archaeological data and VR-based exhibition design—implemented through ZEPETO, a metaverse platform developed by a South

Korean company—in order to reconstruct local experience without physical travel. The project was developed for undergraduate students specializing in Greek area studies, many of whom have limited opportunities for on-site fieldwork. Rather than treating VR as a substitute for direct field experience, the course framed virtual exhibitions as a structured engagement with archaeological ways of seeing, emphasizing spatial organization, object context, ritual practice, and material relationships. Students curated VR exhibitions based on selected Greek cultural heritage sites, translating excavation reports, site plans, and visual documentation into immersive environments. This approach positions archaeology not merely as a supplementary field within area studies, but as an epistemological bridge linking historical knowledge, spatial imagination, and material culture. By combining archaeological methodology with digital visualization, the project also addresses educational inequality caused by geographic distance and encourages interdisciplinary collaboration. The paper argues that VR-based archaeological pedagogy provides a critically grounded model for area studies education beyond immediate geographic accessibility.

402. `The city beneath the city beneath the city´ – Teaching through archaeology in a shared workspace

Authors: Mia Toftdal – Marie Andersson – Cecilie Hansen (Museum of Copenhagen)
Format: Oral

In the Archaeological Workshop at the Museum of Copenhagen, students get to experience history firsthand when they participate in sorting, washing and examining finds from archaeological excavations alongside museums professionals. Students gain insight into the working processes of archaeology and learn how archaeology supplements and challenges our knowledge of the Danish capital. The Archaeological Workshop is a shared workspace; besides the everyday archaeological work, the location functions as a reliable teaching environment that aims, via inclusive, participatory and people-centered outreach, to increase access to archaeological material and hence our common cultural heritage. Here archaeologists work with the processing of finds alongside student in elementary school, who are being educated in an authentic workplace setting, and where they are actively participating in object-based learning activities. Here the students are interacting with archaeology hands-on with the purpose of encouraging curiosity, critical thinking, society engagement and identity-building. With this paper we will present one or two case studies from our multible educational initiatives in the Archaeological Workshop and elaborate on how we interact in a shared workspace. Through interdisciplinary collaborations between archaeology and education, we have gained considerable knowledge as to how encounters between children and archaeology can contribute to the development of learning abilities and general formation, in not only learning about archaeology but learning through archaeology.

1919. Teaching the Polis Across the Ages: Education and Outreach in the Athenian Agora

Authors: Io Viktoratou (American School of Classical Studies at Athens)
Format: Oral

For more than 5,000 years, the Athenian Agora has evidence of continuous habitation. Widely known as the birthplace of democracy and the heart of public life in ancient Athens, the Agora is also a dynamic and constantly transforming urban landscape, shaped by archaeological excavation, urban interventions, and heritage management practices from 1931 to the present. Grounded in the archaeological material of the Athenian Agora, these outreach programs seek to connect formal education with place-based experiences of the site. This paper presents educational and outreach programs developed and implemented by the American School of Classical Studies at Athens, under the auspices of the Ephorate of Antiquities of the City of Athens. These initiatives aim to offer accessible, inclusive, hands-on, and experiential learning opportunities for students aged 6 to 18, while also providing engaging and innovative perspectives for the general public. The paper focuses on four educational programs designed for different age groups: “Dogs in the Athenian Agora”; “The Trial of Theramenes and the Overthrow of Democracy”; “Vrysaki: The Revival of a Neighborhood;” and the most recent addition, developed in collaboration with the Swiss School of Archaeology in Greece, “From the Ancient Agora of Athens to the Ancient Agora of Eretria (AthEre Agora Project)”. Spanning from antiquity to the twentieth and twenty-first centuries, these programs illustrate the Agora as a site of continuity, rupture, and reinterpretation. Additionally, the paper provides an overview of outreach initiatives, with emphasis on the videocast series “Agora Scholars Speak” as a further tool for engagement and education. The programs draw on school curricula to deepen students’ existing classroom knowledge while fostering direct encounters with monuments and artifacts already familiar through formal education. All initiatives share a common goal: to cultivate a sense of shared heritage, participation, and collective responsibility toward cultural heritage among people of all ages.

2588. When Public Outreach is Part of the Mission

Authors: Meredith Langlitz (Archaeological Institute of America)
Format: Oral

The Archaeological Institute of America has had a dual mission to serve scholars and the general public since the organization was founded in 1879. Early on, this took the form of lectures and local societies that carry on to this day, but was joined by initiatives such as ARCHAEOLOGY magazine, the AIA Site Preservation Program, International Archaeology Day, and more. While the AIA does not operate a museum or excavation projects, we are able to extend this mission to the field through several avenues. Through partnerships, programming, and promotional efforts, we can share stories of archaeological research straight from the field to public audiences that we have built up over decades. Through our network of professionals, we can promote the public mission through funding opportunities, sharing best practices, and challenging our professionals and emerging professionals to view their work through a wider lens. This paper will cover strategies and tactics used to share archaeology with local communities and international audiences as well as case studies for best practices for inclusion, accessibility, online engagement, and community participation through the AIA’s outreach, professional, and site preservation programs.

427. Could the popularisation of archaeology have supra-regional effects? The Prapuszcza Project – Science and Education in Eastern Masuria, Poland

Authors: Iwona Lewoc (Terra Desolata Foundation)
Format: Oral

Since 2023, the Terra Desolata Foundation has been conducting excavations in the Borecka Forest, in north-eastern Poland. Alongside our scientific activities, we also carry out a range of educational activities tailored to diverse audiences. The presentation will showcase original solutions for promoting archaeological heritage beyond museums and academic institutions, including: - educational activities in local primary schools based on original large-format board games presenting the history of the region, - thematic walks combining outdoor activities with storytelling, - field games for participants of all ages, - open days at excavation sites, - publications addressed to different groups of people: comic book for younger children, popular science book for teenagers and adults, - open-access popular science lectures, - temporary exhibitions of archaeological artifacts discovered in the region, - educational stands at various local ope-nair events held in the region, - training courses for metal detectos users focused on lawful practices. During the above-mentioned activities reconstructions of archaeological artefacts, mock-ups, board games, consumable materials, as well as virtual data, such as 3D models are used. A variety of actions form a coherent educational program, creating a bridge between the past and the present. The knowledge we promote complements the core school curriculum, which devotes little attention to local history. After two years of intensive educational engagement, we have observed that our audience has become more sensitive to the need for protecting local archaeological heritage and is showing growing interest in and pride in the region’s past. Another result of our educational efforts is a noticeable increase in the number of reports of accidentally discovered archaeological artefcts. All our activities are free of charge for recipients, as they are funded from the state budget, granted by the Minister of Science and Higher Education in Poland under the “Science for Society II” Programme.

2060. “Understand-Remember-Care”: Educational Experiences from Archaeological Research of the Scythian Cultural Circle Hillfort in Chotyniec (SE Poland)

Authors: Katarzyna Trybała-Zawiślak (University of Rzeszów, Institute of Archaeology)
Format: Oral

The presentation discusses the public outreach and popularization aspects of the archaeological research conducted at the Scythian cultural circle hillfort in Chotyniec (SE Poland). Years of excavations at this exceptional site have enabled the development of an educational program tailored to local communities – ranging from schools (education for children and youth, including those with special educational needs) to adults who have completed formal schooling (the concept of lifelong learning and continuous skill development). The educational offer for schools includes theoretical sessions focusing on the protection of archaeological heritage, as well as practical workshops featuring games and activities. Specifically for children on the autism spectrum, a dedicated archaeological board game was developed. Furthermore, science picnics are organized for the local population. Importantly, this program reaches residents of small towns in southeastern Poland, located directly on the Polish-Ukrainian border. Through long-standing cooperation with the Lviv University, excavation internships were also organized for female archaeology students from Ukraine, providing them with a unique opportunity to participate in fieldwork during the full-scale war. In line with the principles of community archaeology, a project dedicated to the conservation and protection of the hillfort was launched, engaging local museums and governments as key partners in this endeavor. The presentation addresses the issue of the future of archaeological sites after the completion of fieldwork (‘excavations – and what next?’). Through the motto ‘understand – remember – care,’ it highlights social responsibility for the protection of heritage and the possibilities for individual involvement in its preservation.

1071. The making of the prehistoric site “Ouriakos” archaeology film. A case study

Authors: Eleni Stoumpou (Ephorate of Antiquities of Chalkidiki and Mount Athos)
Format: Oral

In 2006, Nikos Efstratiou, Professor of prehistoric Archaeology at the Aristotle University of Thessaloniki, Greece, came across an unprecedented discovery: thousands of Paleolithic stone tools dispersed over a distant beach of the island of Lemnos. Twelve years later, he was our host in front of the camera at the excavation of the University of Thessaloniki on the site and explained the finds, the questions, and the problems of the research. He also attempted to portray those groups of hunters and gatherers who spent their summers on that remote wind-beaten shore of the Northern Aegean around 10.500 BCE, at a time of climatic crisis, when some Aegean islands were still connected to the mainland. For 15 days, the camera followed the phases of the excavation, discussion, and treatment of the finds without intervention. The editing included sketches and graphics for educational purposes. In this paper, we will present the making of the film, which claims an unmediated gaze into the excavation process and is also an educational tool for beginners and the general public. We will also assess lessons learned from this experience and propose guidelines for future archaeologist-film makers in the excavation field.

1613. Let's Not Grind the Past: A Case Study in Interdisciplinary Training, Community Participation, and Accessible Heritology

Authors: Mila Mitrovic (University of Belgrade - Faculty of Architecture | Neozoik Foundation) – Nemanja Pavlović (University of Belgrade - Faculty of Philosophy | Neozoik Foundation) – Boris Rančev (University of Niš - Faculty of Civil Engineering and Architecture | Center for Sustainable Spatial Development "BalkanARHitrav") – Simeun Srdanović – Anastasija Stojanović (University of Belgrade - Faculty of Philosophy | Neozoik Foundation) – Jelena Mihailović (University of Belgrade - Faculty of Architecture)
Format: Oral

This paper presents "Let's Not Grind the Past", an interdisciplinary heritage project developed by a non-governmental organization as a case study in making heritology accessible through education, outreach, and community engagement. The project focuses on the documentation and interpretation of the last remaining traditional watermill in the village of Senokos, Serbia, a rapidly disappearing form of rural heritage. Bringing together students and early-career professionals from archaeology, architecture, and ethnology, the project combines preparatory training, field-based learning, and public dissemination into a single educational framework. Participants engage in hands-on activities including ethnographic interviews, architectural recording, photogrammetry, and 3D modeling, while working directly with local residents as knowledge holders and stakeholders. The paper explores how NGO-led initiatives can function as flexible platforms that connect academic knowledge, professional expertise, and local experience. Particular attention is given to the role of interdisciplinary collaboration, digital tools, and storytelling in transforming technical documentation into accessible narratives for wider audiences. Exhibitions, on-site signage, public discussions, and conference presentations are analyzed as outreach tools that extend archaeological research beyond institutional boundaries. By situating heritology within contemporary social, environmental, and economic contexts, the project demonstrates how educational outreach can foster empathy, strengthen local identity, and encourage long-term stewardship of cultural heritage. The case study contributes to broader discussions on participatory heritage practices, youth engagement, and the potential of collaborative models in times of increasing cultural and environmental uncertainty.

1553. Evidence-Based Archaeological Outreach: An Eye-Tracking Study of a Medieval Fashion Show at the Bode Museum

Authors: Tomasz Michalik (University of Szczecin) – Tobiasz Trawiński (Liverpool Hope University)
Format: Oral

Engaging present-day audiences with the past requires innovative approaches that make heritage both accessible and relevant. This challenge is particularly pronounced with archaeological textiles: although clothing is a familiar aspect of everyday life, surviving textile remains are often fragmentary and typically displayed in static museum settings, limiting their accessibility for non-specialist audiences. Presenting textile reconstructions through fashion shows offers a promising alternative, bringing archaeological garments to life through movement and performance. However, it remains unclear whether viewers in fashion shows focus on the garments themselves or on the models, given that human perception naturally prioritises faces in social contexts. In 2025, we investigated how audiences attend to this new format of heritage presentation during a catwalk show dedicated to reconstructions of medieval Nubian garments. Using mobile eye-tracking during a live public event at the Bode Museum (Berlin), the study examined how viewers directed their visual attention when encountering reconstructed garments in motion. The findings indicate that the fashion show format effectively drew attention to the garments themselves, countering the well-documented tendency to focus on faces, and thereby supporting object-based learning without explicit instruction. By integrating cognitive methods with museum-based education and outreach, this study contributes to discussions on inclusive, accessible, and evaluable public programmes. It demonstrates that experimental tools such as eye-tracking can inform the design and assessment of educational initiatives at museums and excavations, offering practical insights into how archaeological storytelling, emerging technologies, and performative formats can enhance public engagement with the past.

2399. Social Media as a battlefield arena of archaeology: The case of ArqueologAs/Herstory 8M campaign

Authors: Valentina Valiente Arizmendi – Carito Tavera-Medina – Jorge Del Reguero (Universitat de Barcelona) – Margarita Díaz-Andreu (ICREA | Universitat de Barcelona)
Format: Oral

The increasing visibility of archaeology on social media is reshaping the discipline by relocating key processes of science communication beyond academic settings. This paper presents the results of a campaign created by the project of ArqueologAs/Herstory, as part of a wider social media project, developed in connection with International Women's Day (8M). Conceived and disseminated entirely through the social media platform of Instagram, "ArqueologAs: 8M" operated within a digital space not created by academia, yet actively inhabited by academic actors and diverse publics. The campaign spotlighted female archaeologists, highlighting archaeological discoveries that reshaped how history understands the role of women in the past. The project facilitated high levels of engagement, allowing social media to be examined as a participatory contact zone where scholarly narratives, user-generated content, emotional responses, and contemporary identity politics intersect. Rather than functioning as a unidirectional outreach tool, the platform became a site of dialogue, negotiation, and co-presence between academic knowledge and public memory-making. The study combines quantitative and qualitative indicators of engagement—including interaction patterns, commentary dynamics, sharing practices, and audience positioning—to analyse how different content strategies shaped participation around gender, heritage, and the archaeological past. Particular attention is paid to how the symbolic framework of 8M amplified affective engagement and transformed archaeological storytelling into a catalyst for broader social conversations. This paper argues that social media should be understood as an integral arena of contemporary academic archaeological practice. By conceptualising digital platforms as contact zones rather than neutral or purely instrumental spaces, the study offers evidence-based insights into participatory culture, storytelling, and the dissemination of memory in networked communication environments. Taking into consideration that ArqueologAs/Herstory (REF. PID2023-149477NB-I00) is a funded project that responds to public policies of the Ministry of Science, Innovation and Universities (MICIU) of Spain that have gender as a primary focus in research.

59. Objects of Interest: archaeology, education and community in Zeeland, the Netherlands

Authors: Helle Hochscheid (University College Roosevelt - Utrecht University)
Format: Poster

In the past years, the author of this paper has designed several community archaeology projects in Walcheren, a region in Zeeland in the Netherlands. The first project was a cooperation of University College Roosevelt with the Royal Zeeland Society of Sciences, the official owner of a large collection of archaeological, ethnographic and art objects that are housed in the Zeeuws Museum. Much of this collection is available online, but since the museum has limited exhibition capacity, actual display is impossible for many objects. Moreover, many local residents do not visit the museum or know the collection, among other reasons because they do not feel particularly represented by the objects highlighted online or in the museum displays. To give these members of the community a chance to directly interact with the collections and let their voices be heard, we called for volunteers bringing objects, heirlooms, objets trouvés or cherished purchases that they felt represented them. These objects were studied by the students and owners together, using materials from the Royal Zeeland Society of Sciences for comparison and historical context. The results of the research were put into a book, which was presented at a communal event. Subsequently, we explored how a similar approach could be used for a younger demographic. We invited a class of primary school children from the local school ABS Middelburg to bring objects that were special to them or their families to school. Students of UCR worked with the children to research the objects together. They then created research posters that were put into a temporary exhibition at the school. This poster will compare the results of these two projects for their qualities and limitations, and will outline how they managed to bring archaeology and museums collections into the respective communities.

800. Histoires d'os: Engaging Audiences with Astragali through Storytelling and Hands-On Educational Practices

Authors: Barbara Care (University of Lausanne)
Format: Poster

"Histoires d'os" is a public outreach and educational project developed within the framework of a SNSF Agora project and grounded in my long-term research on astragali. The project addresses a persistent distortion in both scholarly and popular narratives, which tend to interpret astragali primarily as toys or proto-dice. Drawing on archaeological, archaeozoological, and historiographical research, Histoires d'os challenges these traditional readings by foregrounding the material specificity, anatomical nature, and culturally embedded uses of astragali in ancient societies. The project translates current research findings into interactive experiences designed for museums, schools, and public events. Through hands-on workshops, the use of replicas for object handling, illustrated game-based activities, and short narrative formats derived from ancient sources, participants are invited to explore astragali as complex objects situated at the intersection of anatomy, play, ritual practice, and social meaning. Presented as a case study, this contribution reflects on methodologies for transforming advanced archaeological research into inclusive and accessible outreach programs. It demonstrates how object-based storytelling and educational game-based learning can serve as effective tools for public engagement while maintaining a critical stance toward simplified or misleading interpretations of the past.

1120. Unearthing Curiosity: 20 Years of School Archaeology Programmes at the Museum of Prague

Authors: Linda Danecková – Vendula Dedkova – Veronika Klimesova (Museum of Prague)
Format: Poster

Over the past two decades, the Museum of Prague has developed and refined its innovative archaeology programmes designed for school children—from primary to high school, including those with visual or cognitive disabilities. These programmes introduce young learners to the fundamentals of archaeology by exploring what the discipline is, why it is essential to our cultural heritage, and what archaeologists do—all through interactive, hands-on activities that reveal the fun and engaging side of the field. A cornerstone of these programmes is the opportunity for children to experience history first-hand. Whenever possible, students are invited to handle genuine artefacts or exact replicas—allowing them to feel thousands-of-years-old vessels, stone tools, or even prehistoric jewellery; to use real grinding stones and rotary querns; and to immerse themselves in the tactile reality of the past. This direct contact not only transforms abstract historical concepts into tangible experiences but also deepens their connection to cultural heritage. Reflecting on two decades of successful practice, this presentation explores how such immersive, sensory learning can evolve, including the integration of digital tools, experiential learning techniques, and community engagement, to continually

inspire future generations, ensuring that museums remain dynamic and vital educational partners in an ever-changing world. In 2025, this continuous concept of archaeological programs was awarded the Golden Mammoth Award for the presentation and popularization of archaeology.

1633. Public Archaeology in Action: Community Memory of Zadar's Centuriated Landscape

Authors: Josipa Baraka Perica (University of Zadar) – Gregory Zaro (University of Maine)
Format: Poster

Under the auspices of the project "Remember me: Valorization of Spatial and Social Changes in Zadar's Ancient Cadastre," we elevate and promote a community engaged approach within a broader research initiative focused on the spatial and social transformations of Zadar's ancient centuriated landscape. Zadar's centuriation system is among the best-documented Roman cadastral landscapes in the eastern Adriatic, with its remarkable preservation particularly evident in the road network outside the historic peninsula. However, traces of this past remain largely unrecognized by local residents, who often perceive the historic city to be restricted primarily to the walled peninsula. Understanding how citizens relate to spaces beyond the fortifications is therefore central to bridging professional archaeological research and public awareness. Here, we present strategies for incorporating public participation into archaeological interpretation, exploring both spatial perception and collective memory. The project engages multiple generations, inviting participants to share personal memories and reflections on how the urban and peri-urban landscape functioned during their childhoods. This approach allows professional interpretations of the ancient cadastre to intersect with lived experiences, revealing what aspects of the landscape people value, remember, or overlook. While the overall project examines the historical evolution and societal implications of urban and peri-urban landscapes, this project specifically addresses how the public engages with, perceives, and values these spaces and the archaeology within them.

1836. Digital archaeology as a bridge to experiencing the past and understanding our place in the present

Authors: Marta Cyran (National Museum in Lublin | Doctoral School of Humanities and Arts UMCS in Lublin) – Aleksandra Sztal (National Museum in Lublin) – Ingvild Andreassen – George Pantos (Museum of Cultural History, University of Oslo)
Format: Poster

This poster explores how digital archaeology can support accessible education, outreach and public engagement beyond the confines of the museum building and across different social and geographical contexts. It presents a virtual exhibition with a companion mobile exhibit developed as part of the Accessible Culture programme as well as a subsequent mobile exhibit based on the same principles. The virtual exhibition "Magic of Ornaments. Virtual Treasures of Archaeology" was conceived as a barrier-free platform offering open access to archaeological heritage. Based on thematic storytelling and object-based learning, it presents high-quality 3D models of artefacts from both Poland and Norway. The comparative presentation highlights cultural connections and historical similarities that cross modern borders, while three-dimensional documentation enhances the understanding of ornamentation, symbolism and the technological approach of modern-day archaeology. Accompanying this digital resource the Polish travelling exhibition "Magic of Ornaments. Archaeological Treasures of the Lublin Region", transforms digital documentation into sensory experiences. Presented in small towns, it provided hands-on experience, active learning. This physical presentation focused on local archaeological heritage and addressed the specific needs of local communities as a starting point to build bridges between communities and regions with the addition of the digital resources. The concepts and methodologies developed in these exhibitions formed the basis for a subsequent mobile exhibit called "The world beneath us" tailored to the needs of rural communities in Norway. By combining the virtual exhibition with locally adapted mobile outreach programmes, we demonstrate how digital technologies can support accessible education and hands-on engagement. These complementary formats strengthen local connections to archaeological heritage and address diverse audience needs while also providing access to broader national and international contexts. The case studies highlight flexible and inclusive exhibition models that support museums in their educational and outreach missions in the era of global challenges that affect us all.

1923. Potsherd Pavements as a Tool for Community Engagement and Changing archaeological narratives in West Africa: Insights from northern Yorùbáland, Nigeria

Authors: Bolaji Owoseni (Sainsbury Research Unit, University of East Anglia)
Format: Poster

Potsherd pavements represent one of the most visible yet underexplored forms of pre-colonial architecture archaeology in West Africa. Constructed from deliberately arranged ceramic fragments set into compacted earth, these pavements are found in palaces, shrines, elite compounds, and historic urban spaces, where they remain embedded in everyday movement and collective memory. Their material durability and continued presence within living communities make them particularly effective media for community-centred archaeological engagement. Drawing on recent archaeological and community-engaged research in Ìlọrin, northern Yorùbáland Nigeria. This poster explores how potsherd pavements can serve both as practical tools for public archaeology and as conduits for examining changing sociopolitical narratives in early West African communities. The study integrates archaeological documentation with participatory engagement involving community leaders, residents, museum professionals, heritage custodians, and local media. Rather than treating pavements as static archaeological features, this research foregrounds them as lived surfaces constructed, walked upon, and socially activated through which historical knowledge is produced and transmitted. The poster examines a range of engagement initiatives developed around potsherd pavements, including guided heritage walks, collaborative interpretation with community elders, and the translation of pavement patterns and histories into community exhibitions and educational resources that see the architectural feature as a pedagogical tool, fostering accessibility, dialogue, and the co-production of knowledge in West African archaeology.

2059. The Role of Student Initiatives in Archaeological Education in Odesa (Ukraine)

Authors: Anastasiia Pecherska (Odesa Archaeological Museum of the National Academy of Sciences of Ukraine)
Format: Poster

In 2015, the Nucleus, student research community formed at the Department of Archaeology and Ethnology of Ukraine, Odesa I. I. Mechnikov National University. The initiative united students, graduate students, and young scholars to promote involvement in archaeological research and foster cooperation. The community operated under the department and its archaeological laboratory. Maintaining social media accounts enabled a mixed (online and offline) work format and greater accessibility. The community significantly expanded students' direct involvement in field research, professional skill-building, and partnerships with leading academic institutions. Over ten years, members actively contributed to projects with the Odesa Archaeological Museum and the Institute of Archaeology, advancing their experience and career development. This continuity became especially important as the need for such communities has grown during the full-scale war. During this period, the number of students and faculty at universities and other academic institutions has decreased significantly, and field research in the Odesa region has been reduced due to security risks. The community continues to operate in a mixed format, inviting specialists from various fields and engaging students in volunteer activities in expeditions and rescue research in safer regions of Ukraine. Cooperation with the Odesa Archaeological Museum remains a priority, especially projects to digitize collections (photography, scanning, photogrammetry). Nucleus demonstrates that student research communities are effective at preserving scientific continuity, building networks, and sustaining research during crises.

2088. Making Stone Age coastal hunter-fisher-gatherer legacies relevant: "The Classroom of Europe" and other outreach activities in the Doctoral network ArCHe

Authors: Almut Schülke (University of Oslo, Museum of Cultural History)
Format: Poster

Coastal areas as transitional zone between land and water have attracted human beings since time immemorial. They bear testimony to crucial aspects of past human activity, and provide rich sources of archaeological data, including the remains of Stone Age hunter-fisher-gatherer living. However, these remains are highly vulnerable and threatened by environmental and anthropogenic impact. The combination of fragile material traces, often difficult to identify, as well as regional variation of preservation, leads to a missing awareness of this heritage. Combined with a generally low knowledge of (coastal) hunter-fisher-gatherers and their past and present relevance, this topic is often under-communicated to the public. The HORIZON MSCA Doctoral network ArCHe "Archaeological Coastal Heritage: Past, present and future of a hidden prehistoric legacy" (www.arche.uio.no ; 2024-2027; project number 101119258) educates 10 Doctoral candidates in five European countries in increasing the scientific and public value of this legacy in an international, interdisciplinary and intersectoral perspective. One important pillar of the project is outreach, with activities addressed at various target groups. Amongst them is the ArCHe-communication initiative "The Classroom of Europe", which produces open access teaching material for school children, translated into relevant languages. Addressed at diverse age groups ongoing research from the PhD-projects is communicated to teachers and school children across Europe – with the aim to foster interest in the use of the coast in the Stone Age and its relevance for today and for a more sustainable future. This poster presents this initiative as well as other outreach activities in the project which engage the public – in the classroom, museums and in the field.

89 MICRO-AGENCIES, SUBALTERNITY AND CAUSALITY IN ARCHAEOLOGICAL THINKING

Theme: 6. Transient theories
Organisers: Borja Legarra Herrero (UCL Institute of Archaeology) – Juan Antonio Quirós Castillo (Universidad del Pais Vasco - Euskal Herriko Unibertsitatea)
Keywords: agency, subaltern, bottom-up, historical explanation
Format: Regular session

SESSION ABSTRACT

Archaeologists are joining other disciplines in sharing a dissatisfaction with simplistic models that divide human societies into elites and the rest, and with the over-reliance of top-down historic explanations. Inspired by ideas such as 'collective action' and 'anarchical' perspectives that explore the agency of any type of individual (e.g. subalterns, peasantry) including those normally considered marginalised, we are beginning to explore the transformative power of combinations of these other agencies. This raises important questions: • What are examples of innovation and change that emerge from bottom-up processes, even within hierarchical societies?

• Has our limited recognition of other types of agencies led us to ignore significant parts of the human past? • Can subaltern and marginalised groups be agents of change? • How can we model relational approaches that reveal dialogues between different agencies across the full social spectrum? • How can we build explanations that recognise the agency involved in everyday situations? • How might we visualise the roles of 'intermediate' groups situated between elites and subalterns? The session invites studies that examine the different ways in which everyday or subaltern/marginalised agents were able to initiate and drive change. Contrasting case studies from a variety of regions and periods would help us reflect on the types of data, analytical frameworks and methodologies that can help to discover the actions of diverse agents and incorporate them into broader explanations of past processes and dynamics. These may include (but not limited to) the rise and fall of social institutions, cultural interactions, landscapes, power networks, ideological and ontological frameworks, concepts of value and morality, legitimacy discourses, and instances of conflict and resistance. We welcome contributions that address major societal changes but also those that identify smaller, often overlooked, instances that capture better the complexity and diversity of the human past.

CONTRIBUTION ABSTRACTS

1651. The transformative power of the fringes and in-betweens. Exchange and change in the Bronze Age Mediterranean

Authors: Borja Legarra Herrero (University College London)
Format: Oral

The presentation uses the case of prehistoric Crete to explore a conundrum. Why would elites in power aim to change the status-quo? We have grown to think about exchange in the Mediterranean as being transformative in a top-down manner, with local elites changing society based on the opportunities that new connections bring. Here we explore a different narrative: connectivity in the Mediterranean produced a wide range of individuals at the fringes and in-betweens: sailors, outcasts, marginalised populations, migrants, refugees, the dispossessed... Could these individuals be major agents of change through introducing new ideologies, economic systems, and social links? To illustrate the possibilities we will present the case of state formation on Crete at the start of the 2nd millennium BCE. In this case we have struggled to fit the evidence of new ties with the east Mediterranean with a top-down narrative of change. Here, we will present an alternative bottom-up model, fuelled by a more dynamic understanding of exchange and interaction.

2019. Interstices of Colonialism: Ceramic Approaches to a Critical Archaeology of European Expansion in the Andes (15th–19th Centuries)

Authors: Mauricio Uribe – Claudio Wande (Universidad de Chile)
Format: Oral

Archaeological research in the Andes has developed a systematic understanding of pre- Hispanic periods. However, little archaeological work has addressed the period following the fall of the Inca Empire and European colonial expansion, which has been largely dominated by historical and documentary studies, undervaluing the interpretive potential of material evidence. Against this backdrop, an interpretive void persists regarding key actors in colonial processes: the multifaceted local actors themselves. To address this gap or handicap, the archaeological study of pottery technologies offers a critical perspective on the constitution of the indigenous, black people and mestizos as social actors. This research explores the constitution of colonial worlds in the Atacama Desert through ceramic technologies, whose dynamics, continuities, transformations, and palimpsests during the Colonial Period remain poorly understood. Particular attention is given to fragments and vessels that subtly combine, or do not combine, local and Old World features, including new vessel forms, experimental or irregular techniques, and apparently European pieces that nonetheless reveal local knowledge and creative innovation. We propose that long-standing pre-Hispanic ceramic traditions followed diverse trajectories shaped by impositions, resistances, negotiations, coexistence, and juxtapositions. Not all of these persisted over time; some instead left micro-histories embedded in the interstices of grand historical narratives. By focusing on these interstices, we can begin to recognise subaltern local subjects constituted as colonial peoples, particularly the "indios". Through ceramic analysis, this study attends to subtle gestures, diversity, scarcity, isolated cases, fragmentation, failure, and irregularity, rather than subsuming these expressions within homogeneous categories. We argue that such an approach is essential for identifying the material subtleties that allow us to reconstruct the histories of subjects distanced from their own past by the very processes of the colonisation of the Americas.

896. Social complexity in Neolithic Thessaly: Case studies from the settlements of Dimini, Mandra, and Palioskala

Authors: Theodoros Malachtaris (University of Thessaly)
Format: Oral

The complexity of prehistoric societies is often correlated with hierarchy, social differentiation, and linear evolution, in accordance with evolutionist models. Research into social complexity is frequently confined to economics and hierarchical relations, while a tendency to dichotomize societies into simple or complex is observed. Adopting a different theoretical framework, social complexity was investigated across three Neolithic settlements in Thessaly, located in central Greece. The social complexity of the settlements at

Dimini, Mandra, and Palioskala was examined through various theoretical concepts, such as heterarchy, self-management, solidarity, and moral economy. The research on social complexity examined micro-agencies, the practices through which individuals, groups, and communities coexisted, the processes by which social cohesion was maintained, social relations within the inter-communal geographical environment of Thessaly, and the conditions under which collective memory was formed. The architecture of the three settlements reflects specialized construction knowledge, communal planning, and collective labor. The open spaces, the enclosures, and the common orientation of the buildings -as seen in Dimini- suggest a social environment that encouraged intra-settlement relations and interaction. The term moral economy could reflect the economic functioning of the three settlements, in accordance with their practices of production and circulation of goods, as well as the strong relations, obligations, and bonds developed among the inhabitants. It is noted that the material culture is uniformly distributed, with no evidence of accumulation of material remains that would suggest social differentiation. Social complexity within the three settlements reflects collective decision-making based on the values of equality and justice, rather than a hierarchical model of social organization. The recognition and investigation of micro-agencies during the Neolithic period are of significant importance to archaeological discourse, underscoring the need to examine the everyday practices of individuals and groups across every period of the human past.

970. The Body Politic: what the iconography of the human body can reveal about the sociopolitical structure of Minoan Crete

Authors: Michele Mitrovich (University of Heidelberg)
Format: Oral

The present study provides a new cross-disciplinary analytical approach to the iconography of the human body in Minoan Crete that seems to indicate a sociopolitical structure standing in stark contrast to the common model considered characteristic of the Eastern Mediterranean societies in the Bronze Age, where the top-down, class-conscious pyramidal hierarchy of power often marginalized the lower-class population and restricted the agency of subaltern individuals. Application of methodological tools borrowed from diverse disciplines such as sociobiology, evolutionary psychology, and other psychological sciences that study the expression and impact of power on the individual and on their sense of agency via their body, which we all share in common with our most ancient ancestors, can provide additional pieces of the puzzle that will aid us in our reconstruction of Minoan society, religion, political system, and relationships between power and a common individual. The present analysis of Minoan Protopalatial and Neopalatial iconography of the human body using these tools suggests a society defined not by an autocratic power hierarchy but rather by the power distribution that is more equitable, where a power differential between the governing and the governed is intrinsically minimized and/or outwardly deemphasized. The results of the study indicate that the religious and political model in Minoan Crete was not presented as fundamentally based on fear and physical submission as its dominant factor. The mechanisms of state propaganda and coercion appear to have been of a more subtle and community-based nature. The study also suggests that Minoan, pre-Mycenaean-domination Crete was likely a society characterized by a relatively high sense of agency and self-confidence among the population at large and by a surprisingly firm resistance to mold the distinctive nature of their culture and society to the powerful and widely influential models prevalent in the neighboring Near East and Egypt.

581. The emergence of inequality and socio-political complexity in early Mycenaean Laconia: a bottom-up story?

Authors: Youp Beld (Groningen University and Macquarie University)
Format: Oral

This paper explores the increase of inequality and the emergence of more hierarchical socio-political systems in the early Mycenaean period in Laconia, Greece. So far, research into Mycenaean political trajectories has been mostly top-down, focusing mainly on the "palatial" centers that stood at the top of the political hierarchy. Consequently, we lack understanding of the role of non-palatial settlements in processes of socio-political change, as well as the unclear pre-palatial situation, which should form the basis of our explanations of emerging power structures. Accordingly, socio-political change in Mycenaean Greece is mostly imagined as elite-driven, predicated on competition and control over resources, with the ultimate goal to dominate others. This view is increasingly hard to align with recent archaeological and anthropological work that stress the relational and dialectic nature of power. Although this idea is not new to the Aegean, when political developments are viewed from a landscape perspective, most researchers still fall back on domination-driven narratives. This paper recontextualizes the emergence of inequality by combining an analysis of settlement patterns, monumental construction and the distribution of (prestige) goods in a bottom-up network approach. Substantiated by cooperation research, which stresses the importance of strategic contingent cooperation as an organizing principle for social groups, this paper gives agency to subaltern groups in processes of emerging inequality and socio-political complexity. Using a network approach that extrapolates from the assumption that cooperation will benefit all agents involved, interaction models and measurements of network properties (mainly centrality) will be used to predict where in the settled landscape inequality can emerge through cooperative mechanisms. These theoretical results are then compared against the actualization of inequality in the Laconian archaeological record. Offering an alternative narrative, I argue that the socio-political trajectory of this particularly understudied region can be better explained through mechanisms of quotidian bottom-up cooperation.

2649. Non-palatial Agency in Mycenaean Settlement Development

Authors: Sarah Hilker (University of North Carolina at Chapel Hill)
Format: Oral

The socio-political landscape of the Late Bronze Age in mainland Greece is characterized by the development and collapse of the palatial administration system(s). The extent of palatial control has been challenged in some respects, but top-down historical narratives still predominate and grant significant agency to the palace centers or palatial elites. Even away from the palaces, the archaeological record still privileges communities that may have had a degree of prominence. Truly marginalized groups of the Aegean Bronze Age are difficult to identify as promotors of settlement change, but shifting the focus away from palatial centers adds nuance to our understanding of Mycenaean settlement development. In this paper, I use examples from mainland Greece to consider the diachronic development of the Mycenaean settlement landscape with a focus on choices and responses that may have been made by individuals and communities potentially unaffiliated with palatial centers. Non-palatial decision-making processes happened at multiple scales, from singular buildings to the whole settlement. Individuals or families likely made choices regarding the placement, construction, and renovation of buildings within the confines of their means and social norms. Settlement foundations, restructuring, and abandonment, however, may have been the result of local, perhaps community-wide, decisions even when responding to larger socio-political events like palatial expansion or collapse.

2692. Building Agency in Late Bronze Age Crete: Architectural micro-history as an approach to social change

Authors: Tia Sager (University of Toronto)
Format: Oral

The monumental labyrinthine structures that we know as the 'Minoan palaces' have captivated the scholarly imagination for over a century. Significant work has focused on the circumstances that led to the emergence of these impressive built environments, but far less attention has been paid to the changing architectural landscape of Late Bronze Age Crete after the fall of Neopalatial society ca. 1450 BCE (Hayden 1981). The architecture of the proceeding periods (the so-called Final Palatial and Postpalatial) has been of less interest to archaeologists and architectural historians alike, due to the poor preservation of architectural remains dating to this period, and the pervasive reuse and remodelling of existing built environments that defies straightforward typological or stylistic categorization. But during this somewhat marginal period, bookended by two significant societal 'collapses,' architectural innovation and change begins to take place through bottom-up processes. These processes involve small, almost architecturally insignificant changes at the level of individual built environment- such as the blocking of doorways, the raising of floors, and remodelling of existing earlier built environments (Sager 2024). But these seemingly local architectural adaptations were remarkably widespread. By tracing architectural micro-histories at the building level, individual agencies can be brought to life, bringing us closer to understanding the ways in which individuals responded to changing circumstances and a changing society. Using an approach that combines spatial analysis (Space Syntax Analysis) with a phenomenological perspective grounded in the Theory of Affordances (Gibson 1979), this paper argues that architectural micro-histories are a microcosm of broader collective actions in response to changing economic and socio-political circumstances and concepts of value, particularly during transitional periods that have often been overlooked due to their less impressive material remains.

1774. Agencies in Iron Age eastern Iberia: what clay figurines may reveal

Authors: Jaime Vives-Ferrandiz Sanchez (Museu de Prehistòria de València) – Mireia López-Bertran (Universitat de València)
Format: Oral

Clay figurines of the Iberian Iron Age (roughly 6th-1st centuries BC) are a relevant source of information for dealing with social aspects of the communities that created and used them. As in many other Mediterranean contexts, these objects have been mainly studied from an iconographic and contextual perspectives. The study of clay figurines can shed light on an array of aspects such as technological processes, ritual practices, group and gender identities, and body conceptions. Little emphasis has been placed on their potential to explore different agencies involved in the production and also in the manipulation on a daily basis. This paper aims at addressing these issues. On a empirical level, we will present Iberian clay figurines from settlements in the territory of the ancient city of Edeta (nowadays Llíria; Valencia, Spain) dated to the 3rd-2nd centuries BC. Our methodology in the project TERRACOT underscores the value of tracing technical gestures and body worlds. First, because the production of figurines may be mediated by the technological traditions of groups -which are specific to modelling, gestures, or symbolic aspects- structural variations in manufacturing processes would reveal communities with social ties determined by learning through modelling practices. Secondly, a comparative perspective of figurines at different spatial scales -from the landscape to the site; from the shrine to the house- would enable us to uncover the agencies of a diversity of people that interacted in everyday life in this territory. The ultimate objective is to gain a better understanding of the social practices of the communities that produced and used clay figurines in the past. TERRACOT (PID2023-150349NBI00) is funded by the Spanish Ministry of Science, Innovation, and Universities.

304. Commercial Subalternity: Economic Tactics of the Urban Non-elite: Four Seasons of Excavation at Pompeii I.14

Authors: Gabriel Higgs (Higgs Heritage Consulting) – Allison Emmerson (Tulane University) – Mary-Evelyn Farrior (Princeton University) – Jordan Rogers (North Carolina State University)
Format: Oral

Tulane University's Pompeii I.14 Project now has completed four seasons of excavation in a large building complex located on the southeastern side of Pompeii. We have identified several major activities conducted here at the time of Vesuvius's eruption in 79 CE and in the decades prior—activities presented in Roman literary sources as associated firmly with the lower classes—while also reconstructing the urban development and pre-urban history of the broader neighborhood over several centuries. This paper presents the initial results of the project in summary, focusing especially on the later phases of the building's occupation. By the mid-first century CE, the complex featured three shops, a take-away restaurant, a dine-in restaurant with both interior and garden dining spaces, and a workshop dedicated to producing reed mats and baskets; it likely also housed the workers who staffed and managed these businesses. While preliminary, the results suggest three strategies by which sub-elites living in Pompeii navigated an economy undergoing intense changes across the first centuries BCE and CE. The first is diversification, with the building bringing together several types of industrial and commercial activity under one roof. At the same time, those activities show signs of spatial clustering, given that both reed-weaving and commercial dining extended to neighboring buildings that appear to have shared management and resources with the central complex. Finally, the complex shows increasing commodification of its spaces over time, a tendency made particularly clear through changes to its garden and water infrastructure. Our findings indicate the potential complexity of Pompeii's urban spaces, undermining common attempts to understand the city by interpreting individual buildings in isolation and assigning them to single functional categories, while shedding new light on how non-elite agencies shaped the form of the local market but also the physical spaces of insula I.14.

2584. Enslaved workers as drivers of change in fourth century BCE Laurion

Authors: Sara Eriksson (Finnish Institute at Athens)
Format: Oral

In the fourth century BCE, the ancient mining region of Laurion just south of Athens underwent a transformation. Innovations in mining and ore processing techniques exposed new, rich veins of silver- and leadbearing ore. New tools and methods increased the output of the ore processing workshops, which during this period were developed into walled compounds featuring towers that could serve as controlled quarters for the enslaved work force. While these developments of mining and processing techniques led to a boom for the industry, many of the changes made the tasks involved more dangerous and debilitating for the enslaved workers performing them. In 413 BCE, just prior to this period of increased industrialization, Athens lost large territories to Sparta in the Peloponnesian war. This loss, which included the Laurion mining district, led to 20,000 χειροτέχναι, 'handicraftpeople', running away and joining the Spartan enemy. In this paper, I ask how this mass flight of workers relates to the changes that the mining industry underwent in century that followed. I argue that reading archaeological traces of mining activities and historical recordings of enslaved resistance through each other allows for tracing enslaved agencies that contributed to the ways that the Laurion mining industry developed. Theoretical approaches to agency and practice open up for using traces of change in the archaeological record to understand the actions and intentions that created that change – including in cases where a change might be the opposite of what was intended by those who initiated it.

1562. Fracture Management in the Viking Age – Exploring Community Care and Agency through the Analysis of Fracture Patterns and Healing

Authors: Madeleine Lamer (University of British Columbia, Department of Anthropology) – Benjamin Raffield (University of Uppsala, Department of Archaeology and Ancient History) – Darlene Weston (University of British Columbia, Department of Anthropology)
Format: Oral

The management of skeletal trauma following an injury can impact the prognosis of an injury, and whether the injured individual will face permanent disability. The success of post-injury treatment is also dictated by the level of care received by the individual while they are actively healing, during which the individual may require additional assistance. Several individuals from the Viking Age cemetery of Kopparsvik (900-1050AD), Sweden, had evidence of well-healed but complex skeletal trauma, indicating that they received adequate medical attention and care following their injuries. In some cases, despite the well-healed nature of the fractures, it is possible that the affected individuals experienced permanent disability and a decrease in mobility, resulting in the likely increased need for care during life. This presentation explores how the study of fractures and fracture healing can showcase the agency of community members in providing medical care to individuals of varying socioeconomic status. Case studies involving individuals with severe injuries such as an open cranial fracture, a well-healed trochanteric femur fracture, a healed possible flail chest segment, and a vertebral fracture with possible neurological deficits will be examined. These case studies exemplify both the level of medical knowledge possessed by the individuals residing at Kopparsvik, as well as the level of care provided to these individuals to facilitate their recovery and long-term survival of their injuries. While the individuals providing care to the injured community members remain unknown, their actions and decisions while providing care have a visible and lasting effect on Kopparsvik, resulting in the

survival of individuals who may otherwise perished from their injuries. The study of fractures and healing can therefore be seen as a window into the agency of everyday individuals by illuminating the decisions taken while providing long term care to those in need.

90 INTEGRATING MICROMORPHOLOGY: EMERGING TRENDS AND RESEARCH TRANSFORMATION IN THE APPLICATION OF ARCHEOLOGICAL SOIL MICROMORPHOLOGY

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Daniel Fallu – Laura Matilde Magno (University of Groningen | Malcolm H. Wiener Laboratory for Archaeological Science, ASCSA) – Panagiotis Karkanas (Malcolm H. Wiener Laboratory for Archaeological Science, ASCSA)
Keywords: Geoarchaeology, Soil Micromorphology, Multidisciplinary Research, Biomolecular, Archaeobotany, aDNA
Format: Regular session

SESSION ABSTRACT

The technique of soil micromorphology and its application to archaeology have improved tremendously in recent years allowing researchers not just to bridge the scale difference existing between the field macro scale and the microscopic scale but also to connect and integrate geoarchaeological data with results acquired from other methods such as biomolecular analysis, geochemistry, geochronology, and archaeobotany, among others. This integration permits researchers to better place state-of-the-art methods in their stratigraphic, chronological, and pedological contexts. This, in turn, provides a stronger foundation for understanding the taphonomic, environmental, and cultural implications of the results. With this session, we seek to bring together the current states of the art in micromorphology and the greater archaeological sciences. We invite studies showcasing the integration of micromorphology with new and innovative methods from other scientific fields. Topics for consideration include (but are not limited to) micromorphology, isotopes, scanning and imaging, biomarkers and biomolecules including aDNA. Methodological and theoretical contributions at both site and landscape scale are welcome with no restrictions to specific geographic areas or time periods, including experimental studies.

CONTRIBUTION ABSTRACTS

2073. Site Formation Processes at Apidima: a Preliminary Micromorphological Framework

Authors: Aristeidis Varis (Department of Earth Sciences, University of Oxford | Senckenberg Centre; Human Evolution & Palaeoenvironment, University of Tübingen | German Research Foundation Centre for Advanced Studies, University of Tübingen) – Panagiotis Karkanas (Malcolm H. Wiener Laboratory for Archaeological Science, ASCSA) – Vangelis Tourloukis (School of Archaeology, University of Ioannina | Department of Geosciences, Paleoanthropology, University of Tübingen) – Katerina Harvati (Senckenberg Centre; Human Evolution & Palaeoenvironment, University of Tübingen | Department of Geosciences, Paleoanthropology, University of Tübingen | German Research Foundation Centre for Advanced Studies, University of Tübingen | HUMAN ORIGINS-Cluster of Excellence, University of Tübingen)
Format: Oral

The site of Apidima is a key location for the study of human evolution, given the discovery of the oldest Homo sapiens skulls in Eurasia and a sediment record spanning across five caves [1, 2]. Ongoing excavations at the Apidima caves aim to provide a clearer understanding of human activity and site use, as well as reconstruct the depositional history of the fossil record preserved within the sediments. This paper focuses on the lower part of the Apidima sequence, using micromorphology to establish a preliminary framework for the formation processes in caves A, B, E, and their adjacent talus. Despite their differences in fabric, the Apidima deposits share similarities in terms of geogenic input. The main sediment sources include limestone fragments and weathering by-products derived from the talus infill and cave collapse, along with finer sediments originating from the terra rosa deposits mantling the cliffs and the aeolian material blown into the caves. A high frequency of combustion by-products, mainly ashes and charcoal fragments, provide evidence for human activity in the microscale. The formation histories of these combustion by-products vary depending on the depositional and, especially, post-depositional context of each cave. Cementation and bioturbation in particular have greatly influenced the taphonomy of the Apidima record, resulting in a complex overlap of formation processes. Overall, the Apidima caves were not exclusively used by humans but also served as carnivore dens, as evidenced by the frequent carnivore coprolites embedded in the sediments. These results highlight the dynamic depositional environment in Apidima, provide additional evidence for human activity at the site, and address challenges for future research.

1728. Micromorphology reviling processes of floor renewal and resurfacing in the Temple of Artemis Amarysia in Amarynthos, Euboea

Authors: Dimitrios Roussos – Panagiotis Karkanas – Myrsini Gkouma (American School of Classical Studies at Athens) – Tamara Saggini – Jérôme André – Samuel Verdan – Thierry Theurillat (Swiss School of Archaeology in Greece) – Angeliki Simosi (Ephorate of Antiquities of Euboea) – Sylvian Fachard (Swiss School of Archaeology in Greece) – Olga Kyriazi (Ephorate of Antiquities of Euboea)
Format: Oral

Excavations at the site of Artemis Amarysia in Amarynthos, Euboea, have brought to light an extensive temple complex with multiple occupation phases. The area of the central temple has been constantly evolved, including several architectural phases from the Mycenaean up to the Archaic period. Up until and including its Early Archaic phase the building was composed of three distinct rooms, each containing its own hearth/altar, where grand pyres were maintained and animal sacrifice took place. Archaeological soil micromorphology coupled with Fourier Transform Infrared Spectroscopy (FTIR) conducted on the deposits related to these periods of the temple's history, revealed a complex microstratigraphy composed of multiple floor surfaces and occupation deposits. In more detail, it has allowed us to identify a purposeful process of constant floor renewal and resurfacing tightly linked with the use of the altars. This process is expressed through the presence of alternating fine white floors made of lime and mud plastered floors, often intercalated with layers composed of the altar's debris that bare evidence of careful sweeping, and resurfacing. This cycling process including any variations, evident throughout the entire length of the temple and transcending all the aforementioned periods, has helped us to understand the internal dynamics of the temple's use both spatially and temporally. Moreover, it has allowed us to identify diachronic practices that were repeated with devotion and care and helped refine the chronology of the temple's deposits.

867. Soils and sedimentary records in human-enviroment interaction in prehispanic populations of Mexico.

Authors: Thania Alejandra García Zeferino (ENAH | INAH)
Format: Oral

This work presents evidence of anthropic or natural impacts at three archaeological sites in pre-Hispanic Mexico: Templo Mayor in Mexico City, El Pitayo in Michoacán and Cerro del Teúl in southern Zacatecas. The paleosols and subsequent soils of these sites were studied based on the identification of pedogenic processes and the type of construction materials use to build large cities. In the case of Templo Mayor, an archaeological site in the center of Mexico City located in a lake environment, the stratigraphic profiles of operations 29 and 44 were analyzed, which consist mainly of floors, firms and fillings. The other two sites studied, El Pitayo in Michoacán and Cerro del Teúl in Zacatecas, are associated with volcanic events that caused the migration of the populations settled in the sites. At the Cerro el Teúl site, a white layer was observed that covered the site and corresponded to an eruption of the Ceboruco volcano, located near the city of Nayarit, specifically the Jala phase (990-1020 AD). This evidence suggests that, despite this event, the inhabitants did not completely abandon the site. In addition, they used this ash in a mixture with soil to use it as construction material for the following stages of the site such as the Patio Hundido. In the case of El Pitayo, the activity from the Michoacán-Guanajuato Volcanic Field caused architectural changes and modification during the occupation of the site. These results allow us to conclude that, despite human intervention, the paleosols and construction fills record both natural and anthropogenic events as well as their impact on pre-Hispanic populations.

2213. Investigating human activity and sediment formation through micromorphology: a case study of cut features in Early Neolithic Paliambela, Greece

Authors: Georgia Koromila (University of Reading)
Format: Oral

Pit structures commonly found in Early Neolithic sites in SE Europe pose challenges for archaeologists as their variability seems to resist firm, consistent, overarching interpretations. Micro-contextual approaches are thus well suited to investigate such features; by examining these at the microscale level and placing them within their specific spatial and temporal configurations, we can aim to disambiguate this wide-ranging category. This paper employs archaeological soil micromorphology to investigate histories of sediment formation in an Early Neolithic stratigraphic sequence at the prehistoric site of Paliambela, Greece. The sequences examined comprise features cut into the natural calcareous bedrock, with complex, intersecting stratigraphic relationships. Samples of intact sediment blocks were collected from targeted areas of interest based on macrostratigraphic observations of deposit variation and potential for layering preservation. The subsequent microstratigraphic examination led to identification, categorisation, and interpretation of thin section micro-units and sequences, offering insights into the pre- and post-depositional histories of these sediments. The evidence suggests unique processes of infilling for different features, variability in preservation of depositional episodes and surface indicators, fluctuations in the rhythm of sediment build-up, and variable anthropogenic impact on sediment formation. These insights can further our understanding of key questions about intensity of use, continuity and discontinuity / abandonment processes, and preservation bias, and ultimately help paint a picture of early neolithic lifeways as richly configured realities.

1564. Integrating Archaeological Micromorphology, Phytoliths, and Chemical Proxies from Earthen Building Materials at Motya (Sicily)

Authors: Melis Uzdurum (University of Helsinki) – Doğa Karakaya (Istanbul University) – Benjamin Cutillas-Victoria (University of Murcia) – Marta Lorenzon (University of Helsinki) – Paola Sconzo (University of Palermo)
Format: Oral

This paper presents an integrated study of earthen building materials from the Phoenician settlement of Motya (Mozia, Sicily), a

key Mediterranean site of the 6th–5th centuries BCE where earthen and calcareous construction technologies intersect in an urban setting. The materials examined derive from different architectural contexts within the settlement, allowing intra-site comparisons of construction practices. Archaeological soil micromorphology, phytolith analysis (from both bulk samples and thin sections), and X-ray fluorescence (XRF) data from mudbrick and mortar reveal marked variability in construction recipes, including clay-rich, calcareous, and mixed materials. Blurred boundaries between mudbrick and mortar point to flexible building practices and material recycling within the chaîne opératoire of earthen construction, from raw material selection and preparation to use and reworking. Phytolith assemblages indicate vegetal inputs largely derived from raw material sources rather than systematic tempering, while XRF analyses support compositional contrasts between contexts. Together, these results highlight the value of integrated micro-scale approaches for interpreting construction practices and material circulation in Mediterranean earthen architecture.

2289. A micromorphological approach to phytoliths

Authors: Luc Vrydaghs (Archaeology, Environmental Changes & Geo-chemistry Research Group - VUB) – Monica Alonso-Eguiluz (Archaeology, Environmental Changes & Geo-chemistry Research Group - VUB | Universität Innsbruck, Institut für Archäologien, Innsbruck, Austria) – Alexandre Chevalier (Royal Belgian Institute of Natural Sciences) – Yannick Devos (Archaeology, Environmental Changes & Geo-chemistry Research Group - VUB)
Format: Oral

The presence of mineral plant microremains, such as silicophytoliths, is often reported in archaeological soil and sediment thin sections across a wide range of contexts, periods and regions. Yet, the full interpretative potential of these observations is often underexploited. Over the last decades, it has become clear that thin section silica phytolith analysis is particularly well-suited to understand their depositional and post-depositional processes . Beyond taphonomical reconstruction, silicophytoliths analysis in thin sections can also improve their botanical attribution. Although reference collections confirm that some taxa produce very distinctive types at different taxonomic levels, closely related taxa may generate highly similar forms – a phenomenon known as redundancy. This is especially critical for domesticated plants. Morphometric approaches – measurements of different sizes and shapes of phytoliths – have proven effective in overcoming this limitation. Nevertheless, to obtain confident results all measured phytoliths must originate from single taxa, individuals and plant parts. Detailed examination in thin sections enables to record silicophytoliths that meet this criterium. Through a series of case studies, this contribution intends to illustrate the potential of a fully integrated approach to obtain more reliable botanical attributions of silicophytoliths observed in archaeological contexts.

2661. Detecting Disturbance: Integrating Micromorphology, Geochemistry, and Luminescence to Disentangle Cemetery Site Formation in Bronze Age Greece

Authors: Daniel Fallu – Sofia Voutsaki (University of Groningen)
Format: Oral

Burial grounds are an integral, and often stratigraphically complicated, aspect of human communities. Soil and sediment memory allow researchers to delve further into the history of burial grounds, beyond the evidence provided by human remains and grave goods. This paper presents the preliminary results of the MSCA-funded project Geoarchaeological Reconstruction of Ancient Burials in their ENvironment (GRABEn). Through the application of soil micromorphology, augmented by geochemistry and the novel application of portable optically stimulated luminescence (pOSL) to isolate instances of grave disturbance and re-opening, the project seeks to provide evidence of grave use and re-use where more traditional methods are wanting. The primary case study, the Bronze Age Northern Cemetery of Ayios Vasileios in Lakonia, Greece, represents an important point in time, where mortuary traditions where transitioning into the Mycenaean palatial period. The cemetery (ca. 1700-1500 BCE) comprises a varied collection of burials, including simple single burials and more complex multiple burials. Traditional soil micromorphology, paired with pXRF and FTIR geochemistry, and pOSL were applied in order to establish the formation processes both in the graves and in the greater archaeological fills used in the construction of the cemetery. Importantly, the history of sunlight exposure provided by the pOSL analysis confirms observed changes in the movement of calcium and formation of calcite features in the soil, highlighting episodes of disturbance and reopening even in supposed single use burials. The integrated method we propose allows researchers to detect re-openings and manipulation of the sediment and remains providing, in this case, a fuller picture of developing mortuary traditions at an important point in the development of Greek Bronze Age society. It is our hope that a broader application of these methods will aid researchers in reconstructing the specific actions involved in burial traditions.

2215. Major and Trace Elements as Markers of Anthropogenic Activity at the Neolithic Site of Cova de les Cendres

Authors: Gianni Gallello – Oreto García-Puchol (University of Valencia) – Salvador Pardo-Gordó (University of La Laguna) – Joan Bernabeu Auban (University of Valencia)
Format: Oral

Major and trace element analyses are widely used to characterize archaeological sediments and to identify geochemical markers of human activity, complementing mineralogical and sedimentological approaches. This study presents elemental concentration data from the Neolithic site of Cova de les Cendres, located in the western Mediterranean region. The excavated cave preserves a continuous stratigraphic sequence spanning from the Neolithic to the Bronze Age. Several stratigraphic units have been interpreted

as corral-related combustion features associated with the stabling of ovicaprids. The sequence is interpreted as a multifunctional settlement. Evidence suggests a mixed subsistence strategy that included livestock husbandry, agricultural activities, and the exploitation of marine resources. Concentrations of major elements, together with trace elements—including rare earth elements—provide valuable insights into both anthropogenic inputs and post-depositional processes affecting the sedimentary record. Geochemical data are integrated with sedimentological and archaeological information to improve the interpretation of site formation processes. Multivariate statistical analyses reveal geochemical patterns that distinguish anthropogenic contributions within the cave profile, supporting the interpretation of activity areas and occupation phases. These results highlight the effectiveness of elemental geochemistry as a tool for reconstructing human activities and understanding depositional dynamics in complex archaeological contexts.

1001. Excellent Data, Terrible Timing: pXRF at a Site Excavated 150 Years Too Early

Authors: Michaela Schauer (Natural History Museum Wien | Vienna Institute for Archaeological Science | Research Network Human Evolution and Archaeological Sciences) – Mario Wallner (GeoSphere Austria) – Raimund Karl (University of Vienna) – Tanja Trausmuth – Helga Rösel-Mautendorfer (Independent)
Format: Oral

Geophysical survey at a former orchard, now a meadow, in the centre of Sollenau, near Wiener Neustadt (Austia), identified several circular anomalies interpreted as levelled burial mounds. To assess their character, we conducted a systematic portable X-ray fluorescence (pXRF) survey of archaeological soils before and after topsoil removal, applying a regular 2 m grid with targeted high-resolution sampling. Elemental distributions derived from uncalibrated analytical pXRF data for Cu, Zn, Pb and locally As delineate mound structures and distinguish individual features in the field. Such patterns would normally be taken as evidence for metal grave goods or burial-related deposition. Excavation and in depth archival research, however, later showed that the site had already been excavated in the nineteenth century and that artefacts were removed. This contradiction shifts the focus from interpretation to methodology: if the materials are gone, what exactly are we mapping? To address this question, we compare different approaches to processing and visualizing pXRF data – including raw counts, instrument-derived concentrations, and alternative mapping strategies – and demonstrate how these choices substantially change anomaly visibility, patterning, and archaeological inference. Rather than offering a definitive explanation, the paper uses this disturbed context as a stress test for pXRF-based prospection and highlights the interpretive uncertainty that remains when chemical signatures outlast the objects, that we think, might have produced them.

2250. Schrödinger's Sample - informing the micro through the macro: using field science to visualise and prioritise archaeological sampling

Authors: Chris Carey – Andy Boucher – Ruschane Joginder (Headland Archaeology)
Format: Oral

This contribution focuses on the interrelationship between the macro-scale excavation, recording and sampling of archaeological features and their relationship to the microscale analyses that are undertaken during post excavation. At its simplest level, the sampling of any archaeological sequence provides a gateway to application of scientific analyses at the micro-level. Whist significant attention has been paid to the integration of micro-level analyses back to the feature level of archaeological recording, there has been less consideration of how suitable samples are collected during the fieldwork stage of a project. The selection of whether to sample an archaeological deposit sequence is often based upon specialist advice or knowledge of archaeological science methods by the field excavator. As the scientific evidence that is uncovered at the micro-level is often invisible at the macro-level, how do we as archaeologists understand what features have been sampled and how do these features compare across sites and landscapes? Headland Archaeology has been developing the magnetic susceptibility scanning of archaeological features during excavation to inform sampling processes. Through the development of a bespoke integrated analysis system, a whole site population of scanned sections can be cross compared, identifying variation in their depositional histories. This cross comparison allows the identification of features or sequences that are 'different', alongside providing a way to group together features with similar patterns of magnetic susceptibility. As such, it provides a holistic overview across a site population and allows the alignment of features to the samples retrieved, facilitating in the prioritisation of stratigraphically intact samples for further micro-analysis. Furthermore, the display of the stratigraphic sections across each scanned feature, allows a direct relationship to be drawn between the wider processes of sedimentation referenced by a depositional environment and the detail of the micro-scale analyses, which can further unlock our understanding of past human activities.

2411. From grain size to landscape scale: an interdisciplinary geochemical and chronostratigraphic approach towards archaeological landscape biographies

Authors: Doris Jetzinger (University of Vienna) – Michaela Schauer (Natural History Museum Vienna) – Tim Kinnaird – Aayush Srivastava (University of St Andrews) – Wolfgang Wanek (University of Vienna)
Format: Oral

One of the biggest challenges in archaeological landscape research is the four-dimensional nature of landscapes, encompassing all three spatial dimension and the fourth dimension, time. A holistic understanding of an archaeological landscape's history therefore comprises the identification of evidence of anthropogenic activity, use of space, and formation processes, as well as establishing

connections between identified events and processes and a chronological framework or specific archaeological time periods. To identify traces of cultural activity in the landscape's sedimentary record and enable their chronological classification, we present an interdisciplinary methodological approach that centres on the combined use of geochemistry and chronostratigraphy. The approach is implemented in the "Life of a Landscape" project that aims at creating an archaeological landscape biography of the Kreuttal microregion in Lower Austria. We employ pXRF of bulk sediment as a key method to trace evidence of anthropogenic presence and activity in the sediment archive, supplemented by C and N stable isotope analysis, while relative and absolute chronological context is provided by portable OSL profiling and OSL dating. Sediment samples were collected via percussion coring from stratigraphic sequences of landscape features of potential anthropogenic origin, as well as from natural features to provide neutral background data for comparison. We screen samples with pXRF for enrichment of elements that are associated with human activity to trace anthropogenic presence and land use and use OSL to date anthropogenic features. The combination with OSL and sedimentological data also allows us to study formation processes and their influence on the localisation, movement, and preservation of these soil and sediment trace elements. Preliminary results from selected cores demonstrate that studying all four dimensions of the project's landscape through geochemical and chronometric applications facilitates insights into human-landscape interactions and anthropogenic space and land use through time.

539. Improving micromorphological analysis with CNN-based segmentation of flint/obsidian, bone and charcoal

Authors: Pedro García-Villa (AMBILAB, University of La Laguna) – Rafael Arnay – Javier Hernández-Aceituno (Department of Computer Engineering and Systems, University of La Laguna) – Sara Rueda-Saiz – Carolina Mallol (AMBILAB, University of La Laguna)
Format: Poster

This study explores the use of Deep Learning for quantitative micromorphological analysis of scanned thin sections using Convolutional Neural Networks (CNN). A total of 57 high-resolution thin-section scans were subdivided into 2000 × 2000 pixel images and manually annotated for bone, charcoal, and flint/obsidian. These annotations were used to train CNN models combining different encoder–decoder architectures. Model performance was assessed using the Intersection over Union (IoU) metric and results were contextualized using standard abundance classes. The final dataset comprised 5,054 annotated images, split into training (70%), validation (20%), and testing (10%) subsets. Three decoders (U-Net, FPN, PSPNet) were paired with four pre-trained encoders (ResNet, VGG, InceptionV4, Xception), generating 42 experimental configurations. The best performance was achieved by the U-Net–InceptionV4 combination, with IoU values of 0.96 for flint/obsidian, 0.82 for charcoal, and 0.80 for bone. Test images were further classified into Stoops' abundance categories based on pixel proportions. Performance differences among categories reflect intrinsic variability in fragment morphology and texture. Lower accuracy for bone and charcoal is linked to their higher heterogeneity, the inclusion of multiple preservation states within single classes, and annotation difficulties, whereas flint and obsidian benefit from more uniform optical characteristics. Abundance classification revealed a dominance of "Very Few" and "Few" categories. Overall, the results demonstrate the robustness and scalability of CNN-based micromorphological analysis, while highlighting future improvements such as dataset expansion, AI-assisted annotation, and full thin-section reconstruction.

2407. Earth building materials study from the Early Bronze Age settlement at Tell Galabovo, Stara Zagora, Bulgaria

Authors: Bozhidar Todorov (Paul Valéry University Montpellier 3) – Hanna Aleksandrova (National Archaeological Institute with Museum - Bulgarian Academy of Sciences)
Format: Poster

The transformation and degradation of earthen building materials are fundamental processes influencing the accumulation, stratigraphy, and morphology of tell settlements, particularly in present-day Bulgaria. This study is researching Early Bronze Age architectural remains from Tell Galabovo in the Upper Thrace Valley. The analyzed assemblage comprises fragments from hearth installations, plastered dwelling walls, and roof elements, examined through integrated macroscopic and microscopic analyses to reconstruct technological practices and material selection. The research aims to characterize the composition and structural variability of earthen construction materials and to identify primary raw resources alongside anthropogenic modifications introduced during production. A multidisciplinary methodological framework is established: meso- and micromorphological analyses, archaeobotanical analyses, FTIR spectroscopy, etc. The total number of samples is twenty. Results demonstrate the intentional or not incorporation of tempering agents – sand, straw, ceramic fragments, bone, and plant residues – into raw aggregates to enhance cohesion. Micromorphological observations reveal variability in porosity and compactness; in some cases, increased density appears linked to anthropogenic shaping processes, including manual pressure applied during wall construction or surface finishing. Archaeobotanical analyses identify hulled wheats and barley, by-products of threshing used as temper, as various grassy plants, reflecting the selective exploitation of plant resources for construction purposes. Variations in mineral and organic inclusions indicate diverse technological choices and adaptive strategies in response to locally available resources. It can be said that all the studied samples of earth building materials have largely similar indicators at the meso- and micro scales. There are also many of those that distinguish them from each other. Integrating archaeobotanical, micromorphological, and complementary analytical data allows the reconstruction of production techniques and emphasizes human–environment interactions. This interdisciplinary approach demonstrates how such evidence contributes to understanding settlement formation, construction strategies, and adaptive responses of Early Bronze Age communities in the region.

2504. Stronger Together: The Global pXRF Network (GopXRF.net)

Authors: Michaela Schauer (Vienna Institute for Archaeological Science | Natural History Museum Wien | Research Network Human Evolution and Archaeological Sciences) – Roger Doonan (AtkinsRéalis) – Luisa Dallai (University of Siena) – Michelle Richards (University of Melbourne) – Mai Abdelgawad (Centre d'Études Alexandrines | Université Bordeaux Montaigne) – Brandon Drake (University of New Mexico) – Ioannis Liritzis (Alma Mater Europaea University)
Format: Poster

Portable X-ray fluorescence (pXRF) has become a routine tool in archaeology and heritage science, enabling rapid, non-destructive geochemical analysis directly in the field, laboratory, and museum. Despite its widespread adoption, users often face persistent challenges, including limited access to methodological expertise, inconsistent analytical protocols, and a lack of shared standards for data acquisition, processing, and interpretation. These issues hinder reproducibility, comparability, and training across the discipline. The Global portable XRF Network (GopXRF.net) addresses these gaps by establishing an open, volunteer-led international community that connects specialists and newcomers and promotes best practice in archaeometric pXRF applications. The network provides a collaborative platform for knowledge exchange, mentoring, and teaching, and centralises key resources such as reference materials, calibration guidance, and methodological documentation. Current activities include an online colloquium series, research forums, conference workshops, a developing web portal, and task forces dedicated to material-specific guidelines, beginning with soils and ceramics. This poster introduces the aims, structure, and first initiatives of GopXRF.net and invites participation from researchers, students, and practitioners. By fostering communication and standardisation, the network seeks to improve data quality, transparency, and accessibility, strengthening the role of pXRF across archaeological and heritage research contexts.

2798. Using light elements in portable XRF analyses to interpret French and German archaeological and experimental contexts

Authors: Clara De Clercq (INRAP Hauts-de-France) – Kai Fechner (INRAP Hauts-de-France | CNRS/ UMR 7041 ARSCAN Archéologies environnementales) – Frederic Broes (INRAP Hauts-de-France) – Guillaume Hulin (INRAP Direction scientifique et technique) – Annaelle Belloche (—)
Format: Poster

Archaeological and experimental soils were compared using both classical laboratory soil analyses and results of the Bruker portable XRF from the Environmental Archaeology team of the CNRS (UMR ARSCAN). In a second step, a statistical approach limited to phosphorus validated a sample preparation method that yielded similar results (90-99%) in both approaches. These results validated the portable XRF as an alternative tool to the laboratory XRF, if correctly applied. The lack of such preparations limit the validity of results obtained with the portable device directly on a soil surface in the field, as for instance for precise chemical mapping within former architectural units. Light elements other than phosphorus, in particular magnesium, have been the subject of a specific approach as it is important for certain types of soil studies (initial fertility and mineral fertilisation in the past; types of excrements, etc.). Ultimately, a generalisation of an approach initiated by F. Bazile, based on a combination of mineral elements, is proposed. It has been applied to a reference set, selected from 35 years of sampling, of approximately 850 samples collected in well-dated (Late Glacial to modern) and well characterised contexts (pits, enclosures, surface horizons, cumulative anthropogenic layers, architectural units, etc.). Finally, some of these analyses will be duplicated by Near Infra-Red spectrometry for 400 of them (D. Ertlen, Univ. Strasburg), and by molecular organic chemistry for 40 samples (E. Jardé, Univ. Rennes). A particularly large and well-preserved site, currently being excavated over 18 months (Bourlon, Pas-de-Calais, France) serves as a test site for systematic application of these approaches (C. De Clercq, F. Broes, K. Fechner) and their combination with others (magnetic properties, G. Hulin, A. Belloche).

91 RESONANT CUSTODIES: RESTORING PAST IDENTITIES THROUGH FORENSIC AND ARCHAEOLOGICAL COLLABORATION

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Joanna Drath (Pomeranian Medical University) – Victoria Swenson – Nicholas Herrmann (Texas State University) – Andrzej Ossowski (Pomeranian Medical University)
Keywords: Forensic archaeology, Forensic anthropology, Human identification, Isotope and genetic analysis, Post-conflict recovery, Provenance and context
Format: Regular session

SESSION ABSTRACT

Forensic archaeology has become an increasingly prominent field, situated at the nexus of scientific investigation legal accountability and social memory. Individuals serve as enduring witnesses to lives once lived and to events that continue to shape the present. From ancient cemeteries or recent conflict sites, skeletal remains carry evidential, ethical, and emotional weight. Yet, processes of recovery, curation, and interpretation often fracture what might be understood as the chain of custody—the continuum of context,

documentation, and care that connects individuals to their life histories, identities, and descendants. This symposium invites contributions that explore the methodologies, casework, and ethical responsibilities of practitioners working in a variety of legal, humanitarian, and post-conflict contexts across Europe and beyond. Participants will present research that highlights archaeological expertise in the recovery and documentation of human remains; the reconstruction of events through material evidence; and return meaning and identities to dislocated remains. Such work exemplifies how scientific practice can become an act of remembrance and social repair. Presenters will discuss the methods in which the investigation of human remains resonates with contemporary concerns and how forensic and archaeological methods can contribute to post-conflict reconciliation, historical accountability, and the re-humanization of the past. We welcome papers that address the: • recovery and identification of individuals from mass disasters, armed conflicts and/or human rights investigations; • comparative case studies linking archaeological and forensic practice; • management and ethical stewardship of human remains; • theoretical reflections on documentation and the social life of evidence. • use of isotopic and genetic analysis to trace migration; By bringing together specialists from diverse fields, this session bridges laboratory, archival, and field practices, showing that restoring provenance and contextual integrity is not merely procedural but an act of reconnecting evidence, identity, and history.

CONTRIBUTION ABSTRACTS

2513. Operation Identification: A holistic anthropological approach to restoring identity in Texas

Authors: Courtney Siegert – Molly Kaplan – Chloe Mcdaneld – Victoria Swenson – Kate Spradley – Nicholas Herrmann (Texas State University)
Format: Oral

Operation Identification (OpID), a humanitarian forensic project based at Texas State University, operates within a deeply fragmented medicolegal landscape to restore identities to deceased migrants who would otherwise structurally disappear within the state's mixed Medical Examiner and Justice of the Peace system. OpID employs a holistic anthropological approach to resolving unidentified persons cases by integrating forensic science with community-engaged practice. This approach encompasses community outreach and informal interviews with local stakeholders, cemetery surveys using geophysical methods to locate and map unmarked burials, and biocultural interpretations of forensic anthropological assessments of both decomposing and skeletal remains. Through these combined efforts, OpID works to educate local actors, improve local capacity, and re-establish chains of custody broken by poor documentation, ad hoc burials, and minimal inter-agency coordination. Since 2013, the project has managed over 700 migrant decedent cases from 20 border and border-adjacent counties near the US-Mexico border in Texas. Over the years, the project has evolved from a primary focus on exhumation of the long-term dead to increasingly receiving direct transfers from county officials, necessitating OpID's incorporation of postmortem fingerprinting into operational workflows. This presentation provides an overview of OpID's work and our current advocacy efforts towards restructuring the medicolegal system in Texas.

2708. The Humanitarian Border Crisis: Burial Practices in Dignity of Unidentified Presumed Migrants from South Texas Cemeteries on the US-Mexico Border

Authors: Alaska Justice – Kate Spradley – Victoria Swenson – Molly Kaplan – Courtney Siegert – Chloe Mcdaneld (Texas State University)
Format: Oral

This research examines unidentified presumed migrant burials exhumed by Texas State University's Operation Identification at six South Texas cemeteries to evaluate how dignity is materially expressed in mortuary practice. Previous research documented deficiencies in identification efforts and procedural compliance, as well as burial practices that may be considered undignified, such as face-down placement and unconventional containers. This study extends this archaeological inquiry by incorporating data from additional exhumation sites and quantifying dignity in the treatment of unidentified migrant decedents through a necropolitics framework. Dignity is applied through a systemic assessment of the burial context of unidentified individuals buried in six border-county cemeteries: Tres Norias Cemetery, Willacy County; Maverick County Cemetery, Maverick County; Panteon de Guadalupe #4 Cemetery, Dimmitt County; Sacred Heart Cemetery, Brooks County; and Río Grande City Cemetery and La Grulla Cemetery, Starr County. Variables assessed include grave depth, body positioning, burial contents, usage of grave markers, documentation within the National Missing and Unidentified Persons System (NamUs), and evidence of identification attempts or autopsy before interment. Multifactorial analysis using anthropological reports, NamUs records, and field documentation reveals a broad expanse of burial conditions ranging from unmarked/shallow graves, those with medical waste or multiple individuals, and varying containers. This study demonstrates that materially observable burial neglect represents failure in ethical care for both the dead and their families and introduces significant barriers to future identification. By highlighting dignity, these findings contribute to the ongoing discourse of ethics, structural violence, and stakeholder accountability in burial contexts. It underscores the need for standardized forensic mortuary protocols and highlights the role of forensic archaeology in developing best practices in resource-limited jurisdictions.

2456. Postmortem Fingerprinting of Decomposed and Exhumed Human Remains: A Case Study from the U.S.–Mexico Border

Authors: Victoria Swenson – Molly Kaplan – Courtney Siegert – Chloe Mcdaneld – Kate Spradley (Texas State University)
Format: Oral

Since 2012, Texas has surpassed Arizona as the U.S. state with the highest number of migrant deaths, yet medico-legal responses remain highly decentralized. Unlike in Arizona where medical examiners offices have the capacity to investigate death, in Texas is county dependent, with only 14 of 254 counties operating medical examiner offices. Consequently, statutory requirements for the investigation and identification of unidentified remains— including fingerprinting and DNA sampling—are inconsistently applied. This has led to the burial of hundreds of unidentified individuals without meaningful identification efforts. Recent shifts in migration routes have made Maverick County a new epicenter of migrant deaths, overwhelming local capacity and creating a chronic mass-fatality crisis. This presentation demonstrates how postmortem fingerprinting can facilitate identification of migrants recovered in advanced stages of decomposition. In March of 2024, Operation Identification (OpID), a forensic humanitarian project of the Forensic Anthropology Center at Texas State University (FACTS), completed advanced postmortem fingerprint training with the FBI Disaster Victim Identification (DVI) Unit. During this training, OpID personnel fingerprinted four individuals at FACTS who were previously exhumed from Maverick County Cemetery in 2022 and 2023, using multiple techniques including degloving, dermal rehydration, boiling, and an automated fingerprint system. This effort resulted in the identification of one individual, demonstrating the viability of these methods for long-term cases, even after burial. These results underscore the value of advanced fingerprinting techniques for decomposed remains and argue for their routine application in unidentified death investigations. This presentation further highlights the critical role of interagency and international collaboration in humanitarian identification efforts.

1578. A Forensic Anthropological Study of a Soviet-Era Mass Grave in the Republic of Georgia

Authors: Meri Gonashvili (Georgian Association of Forensic Anthropology | Tbilisi State Medical University) – Nicholas Herrmann (Texas State University) – Kelly Kamnikar (University of Nebraska Lincoln) – Keegan Beane (Texas State University)
Format: Oral

The Soviet repressions left a profound and enduring legacy in the Republic of Georgia, yet the material traces of this violence remain largely undocumented and scientifically understudied. Thousands of individuals were extrajudicially executed or forcibly disappeared and buried in clandestine, mass graves intended not only to conceal death, but to erase identity, suppress mourning, and remove victims from social and historical memory. This paper examines how Soviet power operated through both mass killing and long-term disappearance, and how this necropolitical erasure has persisted into the post-Soviet period through institutional neglect and delayed forensic engagement. We address the consequences of unsystematic recovery practices through the examination of five of the six mass graves excavated in Adjara. In 2017, four graves were excavated by local religious authorities without professional oversight, resulting in commingling of remains and loss of contextual data. No comprehensive forensic investigation followed, leaving the physical evidence of violence largely unexamined. In response, the Georgian Recovery, Documentation, and Identification Project (GRDIP) was launched in 2021 as the first interdisciplinary, evidence-based initiative to investigate Soviet-era mass graves in Georgia. We present the forensic anthropological examination of individuals excavated from Grave 5 under controlled conditions within the framework of the GRDIP, with a focus on identification and trauma interpretation. Methods include documentation and analysis of trauma morphology and patterns, which demonstrate all individuals from Grave 5 sustained perimortem gunshot injuries. These injuries predominantly affect the cranial vault and exhibit consistent entrance and exit wound characteristics. Trauma uniformity across individuals indicates a systematic method of killing consistent with execution. By identifying execution patterns, this study demonstrates how forensic anthropology functions as both a scientific and ethical endeavor. In contexts where archival records are incomplete or silent, biological evidence provides testimony to state violence and enables the reconstruction of individual identities and historical justice.

1560. Understanding Patterns of Violence through Archaeology: A comparison of two mass graves in Georgia

Authors: Keegan Beane – Nicholas Herrmann (Texas State University) – Kelly Kamnikar (University of Nebraska, Lincoln) – Meri Gonashvili (Tbilisi State Medical University | Georgian Association of Forensic Anthropology)
Format: Oral

The Great Terror (1937-1938) during the Soviet occupation of the Republic of Georgia resulted in the execution of thousands of civilians and their burial in clandestine mass graves across the country. In 2017, four mass graves were discovered on an abandoned Soviet military base near Batumi, Georgia, and excavated by the local Dioceses without anthropological expertise. When a fifth mass grave was discovered in 2021, public outcry led to the development of the Georgian Association of Forensic Anthropology who initiated the Georgian Recovery, Documentation, and Identification Project to anthropologically exhume and analyze the victims, including those previously excavated. A sixth grave was excavated and the results published in 2022 by the Polish Institute of National Remembrance. Literature surrounding mass graves in Georgia is limited. Individuals discussed here represent victims of the Soviet-era of Terror in Georgia exhumed from mass graves, providing the first physical evidence of the events that occurred. Understanding patterns of spatial positioning and placement sequences within these graves allows knowledge gained here to extend beyond isolated contexts to understand patterns of execution and burial if additional mass graves are discovered. Further, victims, families, and the community have the right to know the truth, both through identification of remains and knowing the circumstances surrounding the violent event. Answers can help families and communities begin the process of reconciliation. This research compares Graves 5 and 6 to identify patterns in the deposition of individuals within the graves. The spatial and depositional structure of the graves is detailed, including body positioning, burial placement, and placement sequence, using a Harris Matrix. The study examines each

grave individually and then compares the graves to identify patterns of deposition that shed light on the violent events resulting in these graves and contribute to the historical record, reconciliation, and families' right to know.

2053. Project Recover – America's Promise Upheld by a Motley Crew

Authors: Svenja Weise (University of Southern Denmark | Project Recover)
Format: Oral

For over 30 years, Project Recover (PR) has been a citizen-led, non-profit organization committed to search and recover American service members missing in action in order to provide recognition and closure for the families. As partner of the Defense POW/MIA Accounting Agency (DPAA), PR conducts missions on land and underwater. Co-Founders include the Scripps Institution of Oceanography and the University of Delaware's School of Earth, Ocean, and Environment, which contribute cutting-edge science and technology. The team also includes historians, archaeologists, forensic anthropologists, and a Family Outreach Team for families requesting assistance. Diving expertise is provided by Legion Underseas Services (LUS), a Veteran-owned commercial diving company. In 2021 and 2023, PR carried out two underwater recovery missions at a TBM-1C Avenger crash site in the Republic of Palau, leading to the successful identification of all three missing servicemen by the DPAA. The diverse excavation team comprised archaeologists, commercial divers, volunteers from different backgrounds, and a Palauan entrepreneur who supplied equipment and local workers, which are vital part of the team. While the cooperation between scientific and commercial diving personnel requires constant matching of expectations, it is precisely this constant adjustment that leads to focused teamwork and valuable results. Using these excavations as example, the talk will highlight the complexity of these missions, showcasing the positive cooperation with local authorities, the teamwork between scientists and veterans during excavation, and the profound impact on the families of the identified MIAs.

2352. Reliability of documentary autopsies in the context of Francoist repression in Spain: The case of Castellnou de Bages (1945)

Authors: Xavier Jordana (Research Group of Biological Anthropology, Universitat Autònoma de Barcelona) – Marta Riba-Vidal – Antònia Díaz-Carvajal (Laboratori d'Antropologia de Fosses, Universitat Autònoma de Barcelona) – Ignasi Galtés Vicente (Institut de Medicina Legal i Ciències Forenses de Catalunya)
Format: Oral

In June 2025, a mass grave associated with Francoist repression in the post-Spanish Civil War, was excavated in Castellnou del Bages (Barcelona), within the framework of the exhumation project promoted by the Directorate-General for Democratic Memory (DGMD) of the Government of Catalonia. The grave contained the remains of four individuals killed during the night of 22–23 February 1945 by the Guardia Civil: two maquis (guerrilla fighters) and a married couple of tenant farmers who had been sheltering them at the Creu del Perelló farmhouse. Following the recovery of the remains, comprehensive anthropological and genetic studies were carried out with the aim of identifying the victims. The anthropological analysis included the reconstruction of the biological profile, the assessment of antemortem alterations, and the detailed description of perimortem trauma. In parallel, historical research conducted by the DGMD led to the discovery of the original autopsy reports of the four individuals, dated 24 February 1945 and preserved in the Municipal Courts of Castellnou de Bages. This documentation provides an opportunity to compare the trauma descriptions recorded during the autopsies with current osteological evidence and to assess the reliability of such documentary sources in forensic identification. The comparison revealed significant discrepancies between the historical autopsy reports and the findings of the forensic anthropological analysis, affecting both injury descriptions and the medico-legal procedures reportedly performed, including the absence of osteological evidence for some of the procedures described. Similar inconsistencies have been documented in other exhumations related to the Spanish Civil War and Francoist dictatorship. In conclusion, this case underscores the need for a critical, interdisciplinary approach to the use of historical documentation as secondary evidence in forensic identification processes, particularly in contexts of armed conflict, political repression and authoritarian governance.

1772. From Battlefield to Burial. Bioarchaeological Analysis of a First World War Mass Grave at Cima Cady, Northern Italy

Authors: Daniel Gaudio (Department of Archaeology, Durham University) – Wiktoria Baranowska – Cyrus Edgcombe (Department of Archaeology, Durham University) – Mauro Gobbi (Climate and Ecology Unit, MUSE-Science Museum) – Stefano Vanin (Department of Earth, Environmental and Life Sciences-DISTAV, University of Genoa) – Geoffrey Nowell (Department of Earth Sciences, Durham University) – Janet Montgomery (Department of Archaeology, Durham University) – Franco Nicolis (Archaeological Heritage Office of the Autonomous Province of Trento)
Format: Oral

During World War I, intense fighting took place in areas of the Italian Alps, including the Tonale Pass and Cima Cady (provinces of Brescia and Trento). Based on testimonies preserved in a war diary describing "Operation Avalanche" (12–13 June 1918), an archaeological investigation was undertaken to locate the documented mass graves. In 2022, a mass grave containing the remains of Austro-Hungarian soldiers was identified at Cima Cady, at an altitude of 2,309 m asl. The remains were subsequently excavated and recovered, and a multidisciplinary analysis of the remains was conducted. The osteological investigation included the estimation of

the minimum number of individuals, the reconstruction of biological profiles, the assessment of skeletal trauma and pathologies, and the evaluation of taphonomic evidence and processes affecting the remains. Fragments of insects associated with the remains were analysed. Geographical isotope analysis was undertaken to narrow down possible places of origin, analysing strontium, oxygen, and lead isotope ratios in dental tissues, where available. The skeletal remains were characterised by poor preservation, primarily due to acidic soil erosion, with widespread reddish staining affecting over 80% of the elements. This staining was linked to invasive shrub root activity, specifically Juniperus sp. Entomological evidence, including ground beetles (Pterostichus multipunctatus) and puparia of blow flies (Protophormia terraenovae), indicates colonisation of largely exposed remains. The analysis identified twelve male soldiers, with an estimated age at death between 18 and 35 years. Dental and skeletal pathologies were observed, including caries, osteoarthrosis, and signs of cribra orbitalia. Five individuals exhibited evidence of perimortem skeletal trauma (blast and projectile trauma). Geographical isotope analysis suggests probable origins for six individuals, primarily from Debrecen (Hungary) and Timişoara (Romania), with additional tentative links to Bela Crkva (Serbia) and Sabinov (Slovakia). The twelve soldiers were reburied at Castel Dante (Italy), in March 2024, with full military honours.

2447. Recovering What Was Lost: Research on 20th-Century East Prussian Necropolises

Authors: Joanna Ciesielska – Magdalena Kozicka (Wojewódzki Urząd Ochrony Zabytków w Olsztynie)
Format: Oral

The former province of East Prussia was the site of extensive military activity during both World Wars in the 20th century. During the First World War, much of the region served as a continuous frontline. Military operations at the end of the Second World War caused the complete destruction of certain places, resulting in the disappearance of numerous villages. Some of them are cut by the border with Russia. Ongoing management of cultural heritage in Warmia and Masuria, combined with increasing anthropogenic pressure, has led to the frequent discovery of forgotten cemeteries during construction activities. For war cemeteries, the legal context is relatively well-defined and established procedures exist. However, identifying the deceased's nationality and determining the appropriate treatment of their remains often presents considerable challenges. In contrast, civilian cemeteries lack a clear procedural framework. Nevertheless, a general practice for managing the remains of the deceased has emerged over time. Simultaneously, a distinct approach to the recent heritage of these lands has emerged. Minimally invasive archaeological research is increasingly used to restore the memory of former inhabitants displaced by geopolitical changes. This study presents recent archaeological investigations in Masuria, highlighting best practices and the positive, though challenging, transition associated with the growing adoption of the forensic archaeology paradigm, notable especially amid investor-driven pressures.

836. Reconstructing Forgotten Identities Through the Bioarchaeological Relocation of the Historic Crawley-Wilson Cemetery

Authors: Alexandra Bybee – Hannah Whelan (Cultural Resource Analysts, Inc.) – Jaycee Castro (University of Kentucky)
Format: Oral

On a rural water utility plant in the heart of the Bluegrass region of Kentucky, a forgotten late nineteenth through early twentieth-century cemetery was subjected to archaeological relocation in 2024. The Crawley-Wilson Cemetery was found to contain 12 graves consisting of infants through elderly adults, most of whom were not identified at the time of excavation because the graves lacked in situ inscribed gravemarkers. Biological profiles obtained from skeletal and dental remains, in conjunction with details obtained from extensive archival research and analysis of the recovered mortuary and cultural materials, revealed the probable identities of all 12 individuals. Further, involvement by descendants before, during, and after the relocation of the historically interred Crawley and Wilson families shed light on the lives of these people around the turn of the twentieth century. This paper will present the process of cemetery relocation in Kentucky and the results of the bioarchaeological excavation and analysis, with a focus on the importance of communicating with descendant communities.

1494. Beware of scholar ghouls! The problem of illegal use of historical and contemporary skeletal remains for educational purposes

Authors: Agata Bisiecka (Pomeranian Medical University in Szczecin)
Format: Oral

In 2026, narratives of grave robbery may seem like relics lifted from the pages of Mary Shelley or R. L. Stevenson. On the contrary, however, this constitutes a significant legal challenge in the academic education of medical and paramedical students. It is closely linked to the issue of protecting cultural heritage—which can include human skeletal remains—as well as to the broader phenomena of governance and ethical oversight of human skeletal remains. Moreover, the discussed phenomenon directly affects the real image of the protection of the identity of remains and respect for the rights related to them. In Poland, a persistent practice among students of medical and related universities is the illegal acquisition (through entrustment or purchase) of human bones, intended for study in osteology and the anatomy of the human skeletal system. Such practices may contravene regulations pertaining to the protection of cultural monuments, particularly when the remains being traded originate from the liquidated historical graves — remains that may, in fact, form part of a broader archaeological burial site requiring proper and multifaceted scientific analysis. Furthermore, they constitute a direct violation of Article 262, paragraph 1 of the Polish Penal Code, punishable by a fine, restriction of liberty, or imprisonment for up to two years. The speaker will present a summary of information gathered through individual

interviews conducted among medical and paramedical students at various Polish universities (intentionally unnamed) between January and April 2026. The purpose of these interviews is to obtain data regarding students' knowledge and attitudes towards the aforementioned practice, as well as to diagnose its causes and identify potential preventive measures, with the analysis of possible impact on the archaeological heritage. The issue will be illustrated through a case study —a forensic assessment conducted by the author in a case concerning the alleged desecration of human remains.

92 HANDS, CLAY, AND FIRE: PEOPLE, PRACTICES AND PRODUCTIONS

Theme: 1. Widening perspectives in material culture studies
Organisers: Julie Marchand (Université Libre de Bruxelles) – Natacha Massar (Royal Museums of Art and History, Brussels) – Sonja Willems (Université Catholique de Louvain) – Elpiniki Naoum (Hellenic Ministry of Culture, Ephorate of Antiquities of Pella)
Keywords: Workshop, chaine opératoire, clay, tool, skill
Format: Discussion session

SESSION ABSTRACT

Pottery, one of the most ubiquitous materials, has long been the subject of extensive investigation, addressing every stage of its life cycle. The present session focuses on the production of pottery and terracotta objects—such as lamps, figurines, and architectural elements—in all its aspects. This craft encompasses a complex system involving materials, tools, spaces and individuals. It requires knowledge, skills, and experience, through a series of chaînes opératoires from clay extraction to firing. Techniques and styles developed and transformed in response to new functional requirements, changing tastes, innovations, technological advances, and broader social, cultural, and economic transformations. Workspaces are also places of learning and transmission organized around a stable core of master craftsmen. They constitute dynamic loci of both material and immaterial culture, where knowledge is continuously negotiated and reshaped. This panel focuses on all material, technical and social aspects of pottery and terracotta production prior to sale of goods, without chronological or geographical boundaries. Approaches emphasizing material, technical, and human dimensions of production are encouraged. By examining workshops as dynamic spaces of manufacture, innovation, and knowledge transmission, it fosters dialogue between archaeological, archaeometric, and anthropological perspectives. We address the following topics: • Workshop location and organization: spatial setting, internal organisation, from fuel-supply to clay treatment or drying and storage facilities. • Production techniques: raw materials, water availability, clay processing, surface treatment, firing procedures. • Tools and marks: potter's wheels and molds, tools, as well as marks, signatures, and other identifying features. • Workshops as social communities: the roles of potters, training, transmission and specialization, interactions with other crafts and mobility of artisans. • Innovation and transformation: origins, mechanisms, and consequences of technological or organizational change. • Economic and cultural connections: market demands and fashion trends, processes of adaptation, acculturation, and cultural interaction.

CONTRIBUTION ABSTRACTS

934. Buto (Delta, Egypt) : Productions and connections with the Mediterranean world in the Hellenistic and Early Roman periods

Authors: Pascale Ballet (Nanterre University)
Format: Oral

This paper will present the pottery workshops of Buto (north-west of the Delta, Egypt), during 5 centuries of activity, from the Early Hellenistic/Ptolemaic period to the Early Roman time. The French mission, in the frame of the Deutsches Archäologisches Institut (Cairo) concession, has engaged a large program to investigate the evolution of the workshops, and their connections and influences with and from the Mediterranean world. In the Hellenistic time, four workshops are showing different kinds of adaptation to the Greek pottery (overpainted, black, table and common wares). Concerning the local Black wares, if they show some morphological influences from the Greek Black ware, the firing process is different, using a reduction firing technic. For the cooking wares, the adaptation of the Greek types is one of the main change in the local pottery repertory. During the Roman period, beside a workshop producing table and common wares, sometimes painted, a group of kilns located in the north part of the settlement is remarkable due to the use of 'radial heating' system of firing. In this peculiar bipartite type of kiln, smoke and heat were conducted through columns of tubes set into the upper chamber (continuously oxidizing firing) with a complex ventilation system in the lower chamber. It underlines the highly elaborated technique used by the local potters who want to imitate the more prestigious production of sigillata, with flasks for perfume industry. The beginning of this kind of this production must have been relatively early, around the very end of the first century BC. These workshops provide the first examples of this technic in the Near East and show evidence for connections with the Eastern Mediterranean centers producing Eastern Sigillata A (without archaeological proof for this radial heating) and the Western workshops (Arezzo or La Graufesenque).

1348. Beyond the use of tools. Molds, punches and signatures of the Macedonian workshop circle of relief vases

Authors: Elpiniki Naoum (Hellenic Ministry of Culture, Ephorate of Antiquities of Pella)
Format: Oral

The relief ceramic production, and specifically the relief bowls, is one of the most representative type of Hellenistic pottery. The use of specific tools, such as molds and punches, was essential for their production, and finding them is particularly rare. In the region of Macedonia, relief vases have been found in several locations such as Pella, Thessaloniki, Aigai, Veria, Aiani, Polymylos Kozani, Florina, Petres, Amphipolis, Heraclea Lynkestis, and Isar-Marvici, while it is certain that relief pottery workshops also operated in those places. It seems that there was an active network of ceramic workshops (Macedonian workshop circle) in the area of central and Western Macedonia, and possibly in eastern and northern areas, which communicated and exchanged products under the influence of the workshop of the capital, Pella, that exported molds, punches, vessels, due to the specialization it had particularly in the construction of relief vessels with narrative representations. In this paper, we will examine the tools used in the construction of relief vessels in the region of Macedonia which reveal the high technological level and demonstrate the required specialization, overturning the image of their mechanistic easy production. At the same time, the exchange of expertise between the ceramic workshops will be highlighted, and questions will be raised regarding the circulation of tools among the workshops and their small number. Furthermore, the examination of the tools reveal elements of the way the workshops operated as well as information about their internal organization. Finally, there will be a brief mention of the minimal signatures of the Macedonian workshop circle and their significance.

561. In Pistillus' workshop: immersion in the work of a coroplast from Roman Gaule in the early 3rd century AD

Authors: Loïc Androuin (EPHE | ANHIMA)
Format: Oral

Pistillus was probably the most famous coroplast – a craftsman who made terracotta figurines – in Roman Gaul. Hundreds of his signed figurines, found in the western provinces of the Roman Empire, attest to the quality and abundance of his work, as well as its widespread distribution. The discovery of two potter's workshops containing his production equipment enabled archaeologists to determine that he worked in Augustodunum (modern-day Autun, France) in the early 3rd century AD. These excavated workshops provide essential information for understanding how the workspaces were organised. The function of the different sectors is determined by the presence of specific structures, such as kilns, storage pits and potter's wheels, while the distribution of moulds and production waste enables us to hypothesise about where the figurines were shaped. A detailed analysis of moulds and production waste provides new insights into the techniques employed by craftsmen and the operational processes involved in this craft. The development of a new typology, exhaustive and standardised recording in a database and the use of three-dimensional digital models make the operational chain easier to understand. Iconographic developments and influences between workshops and coroplasts become visible, revealing a rich and complex artisanal landscape.

1195. From Raw Material to the Consumer: Coroplastic Workshops and Distribution on Late Hellenistic Delos

Authors: Eléonore Favier (École française d'Athènes)
Format: Oral

The site of Delos stands out for the preservation of its remains, made possible by the absence of modern urban occupation. Extensive excavations have thus allowed for a precise reconstruction of the urban layout dating to the late second and early first centuries BC. Despite this rich body of archaeological evidence, production activities, workshops, and their organization remain poorly understood. Ceramic workshops in particular are absent from the archaeological record, and the question of how the city was supplied with vessels and tableware has been a longstanding issue for decades. The only workshops working clay currently identified on Delos are coroplastic workshops. This paper focuses on these two workshops, examining their location within the urban fabric, their functioning, and their clientele. The analysis is based on a study of the production chaîne opératoire, considered in all its stages, in order to shed light not only on the internal organization of the workshops but also on broader aspects of Delian production. The absence of local clay resources necessarily implies the importation of raw materials by sea, a constraint that may also have applied to the supply of fuel. A comparative examination of the two workshops reveals distinct yet complementary structural and spatial characteristics. The discovery of molds and finished products provides insight into manufacturing processes and raises the question of a possible spatial division of labor between the two sites, thereby prompting reflections on the identity of the producers and workshop owners. Finally, the study addresses the distribution of the products by considering their destination and the identity of their purchasers. Beyond objects intended for domestic contexts, the workshops also supplied statuettes to the city's sanctuaries, in particular the sanctuary of Apollo, located in the vicinity of one of the workshops.

2070. Knowledge transmission systems among the Early Chalcolithic pottery-making communities from

Eastern Romania

Authors: Florica Matau (Alexandru Ioan Cuza University of Iasi)
Format: Oral

This study explores the relationship between the transformations that occurred in the decorative style and the technological traits developed by the Early Chalcolithic potters located in Eastern Romania. Our objective is twofold: first, to assess their abilities to innovate and to produce elaborate objects, and then to identify the transmission mechanisms that influence the "technological choices." In our approach, we have considered ceramics as the result of a wide range of conscious choices made by the potters regarding the raw materials they select and transform in various ways. These choices are a result of a learning process acquired and passed on via social relationships. The various sequential choices made by the potters are determined by their enrollment in a community of practice, which represents a group of participants acting in a similar learning environment and sharing a common practice. The study will use the chaîne opératoire methodology to investigate the learning and cultural transmission systems practiced within the Early Chalcolithic communities. To determine how communities of practice acted within the pottery production chain, the theory of artifact design will be applied to target the high- and low-visibility attributes revealed by macroscopic observations and petrographic investigations.

2093. Traces of touch: contrasting Egyptian and Greek craft traditions through fingerprint analysis

Authors: Leonie Hoff (University of Oxford)
Format: Oral

This work is based on a chapter from my PhD thesis on the production of terracotta figurines found at Thonis-Heracleion in the western Egyptian Nile delta. Although the site is an Egyptian city (now submerged underwater following several natural disasters), it witnessed extensive contacts with the Greek cultural sphere across its occupation from the Late Period to the mid-Ptolemaic Period (ca. 600-150 BCE). A range of different terracotta figurines have been found at the site, consisting of a mixture of imported Greek figurines and locally produced Egyptian specimens. In the current absence of evidence for workshop spaces at Thonis-Heracleion, I incorporated anthropological methods of fingerprint analysis to gain insight into the population segments who were involved in the production of these figurines. This analysis especially highlighted the involvement of women and children, while also presenting differences in the production- and possible apprenticeship processes of Egyptian and Greek coroplastic traditions. To further contrast Egyptian and Greek figurine production I will be drawing on a range of other sources about the production of figurines and ceramics more widely, including also textual evidence and inscriptions on the figurines. The evidence that has emerged from fingerprint analysis will be integrated with theories about workshop organisation and the social makeup of workshops, shedding light on artisanal professions about whom relatively else is little known.

947. Potters' Signatures in the Islamic World (8th–15th Centuries): A Diachronic Synthesis

Authors: Julie Marchand (Université libre de Bruxelles)
Format: Oral

The practice of signing ceramic objetcs – apparently unknown in the proto-Byzantine world – re-emerges in the Islamic sphere from the eighth century onwards. This practice displays considerable formal diversity, shaped by the complex structure of Arabic names (ism, kunyā, nasab, nisba, laqab) as well as by their social uses. Initially produced by molding, signatures gradually became handwritten from the Fatimid period (969–1171) onwards. Adopting a long-term perspective, this study compares different modes of signing (molded versus handwritten): whether the name is visible or hidden on the pottery, integrated into the decorative program or isolated and thus emphasized. Since artisans were also identified by their specialisations (such as Naqqāš, the painter, or al Muʿallim, the Master), the paper also explores the organisation and composition of several major workshops. Finally, through selected case studies, this paper addresses the question of whether the practice of signing is compatible with large-scale production and the possible added-value it may brought to objects.

2667. Crafting Identity: Exploring Terracotta Production and Knowledge Networks in the Mature Indus Period

Authors: Sutapa Lahiri (University of Calgary)
Format: Oral

The Indus craft industry produced a wide array of objects from diverse raw materials. It was during the Mature phase of the Indus civilization (c. 2600–1900 BCE), which witnessed the expansion and intensification of craft production, offering critical insights into how technological practices contributed to the formation of shared cultural identities across a vast and diverse landscape. While terracotta objects formed a persistent and ubiquitous component of Indus craft traditions and are abundantly recovered from settlements across the civilization, systematic research into their manufacturing techniques and the mechanisms of knowledge transmission involved in their production remains limited to date. In this presentation, I demonstrate that terracotta artifacts, ranging from personal adornments to figurines, exhibit a range of technical choices that can be effectively investigated using the chaîne opératoire approach. The results of this study highlight the presence of complex and resilient learning networks, as well as cross-crafting practices that are instrumental in sustaining a shared Indus identity in craftsmanship.

2246. Continuities and discontinuities in pottery practices around the archaeological site of Mahasthangarh (Bangladesh)

Authors: Coline Lefrancq (CNRS UMR 7041 ArScAN)
Format: Oral

The archaeological site of Mahasthangarh located in the Northwestern part of Bangladesh was founded around the 4th c. BCE and occupied until at least the 13th/14th c. CE when its decline began. However, this fortified site built on a terrace overlooking the Karatoya River has never been completely abandoned and the modern village has expanded in the southeast part of the citadel. The different excavations conducted in Mahasthangarh and its surroundings have yielded thousands and thousands of potsherds dated to the different periods of occupation of the site. This abundance, especially of 'local' pottery groups, led to think that Mahasthangarh was a production centre at certain times. This practice remained until the contemporary times. Indeed, several potters communities were identified in the surroundings villages attesting of the continuity of certain technical features (manufacturing, decorative and firing processes). In this presentation, I will highlight some case studies illustrating these continuities and discontinuities in pottery practices.

150. Reconstructing Production: A Chaîne Opératoire Study of Corinthian and Attic Plastic Vases

Authors: Mostafa Alskaf (Université libre de Bruxelles)
Format: Oral

This paper presents a study of the technological and organisational factors involved in the production of plastic vases in archaic Greek pottery, focusing on workshops in Corinth and Attica from the 7th to the 5th c. BC. We examine pottery production methods, tool marks, workshop dynamics, and the impact of technological change. By applying the chaîne opératoire framework, the research traces the manufacturing process, beginning with the shaping of clay and continuing through to the final stages of decoration. The use of microscopic, macroscopic, and X-ray analyses helps to identify specific technological choices and workshop practices, drawing attention to both regional characteristics and broader cultural connections within ancient Greek society. Our study of 682 vases reveals seven principal forming techniques, ranging from mould-made and wheel-thrown to hand-modelled and hybrid methods. Corinthian workshops displayed versatility, using wheel-coiled and wheel-modelled approaches, while Attic workshops preferred the specialised wheel-mould technique. Careful examination of finishing processes, piercing, smoothing, polishing, painting, incising, and modelling, shows potters' attention to detail through tool marks, fingerprints, and decorations that conceal joins and enhance appearance. Regional styles are clear: Corinthian vases frequently feature dotted patterns with incisions, whereas Attic plastic vases are notable for their extensive red-figure and black-figure scenes, reflecting distinct artistic traditions within each region. The analysis of tool marks, signatures, decorative styles, and potting decisions reveals how technical and artistic knowledge circulated and how workshops adapted to external influences and changing economic conditions. Distinct regional decorative styles and manufacturing choices highlight the exchange of expertise across local and wider networks. By examining the evolution of production techniques, this study reveals how skills and motifs transferred between workshops, highlighting collaborative ancient Greek craftsmanship. Combining technical analysis with insights into workshop organisation, this paper clarifies both regional differences and shared traditions in archaic Greek plastic vase production.

2077. Early Pottery from Gournia (Crete): facts, hints and traces. Reconstructing the inner workings of a Late Prepalatial Production Centre.

Authors: Agnieszka Kaliszewska (Systems Research Institute, PAS)
Format: Oral

Since the discovery of the site and the early excavations, pottery has been a significant focus of the research on Gournia. The site, being one of the few non-palatial sites in Crete, provided evidence of the daily lives of the Minoans. The seminal article of Edith Hall, "Early painted pottery from Gournia, Crete", published in 1905, presented the pottery coming from the so-called North Trench: a large deposit of Prepalatial pottery, predominantly decorated with a distinctive decoration in white paint on a dark background. The article introduced the Light-on Dark style to the study of Minoan pottery, as Gournia became the type-site for this style. Since 1905, pottery of the Light-on Dark style has been found on many sites, but never in abundance. In 2011, the Gournia Excavation Project excavated a section of the North Trench and obtained a large sample of the pottery, same as the pottery published by Hall in 1905. The presentation explores the production techniques and characteristics of the Late Prepalatial pottery from Gournia. Gournia was long assumed to be a significant centre of pottery production. The investigation of the North Trench deposit seems to point to the pottery production being an important craft at Gournia as early as Early Minoan III. In the presentation, we explore the style and production techniques that distinguish the Gournia pottery from its counterparts in other sites and regions of Crete.

1232. The process of creation: the role of the chaîne opératoire and scientific analysis in the study of

Mycenaean terracotta figurines

Authors: Mirtill Árvai (Institute of Archaeological Sciences, Eötvös Loránd University)
Format: Oral

One of the most characteristic objects from the Greek Late Bronze Age are small, hand-formed terracotta figurines. Their most common types—anthropomorphic figurines called Phi, Psi, and Tau, alongside animal-shaped examples—were fundamental elements of Mycenaean religious practice and daily life. In my presentation, I examine five Mycenaean terracotta figurines from the Collection of Classical Antiquities of the Museum of Fine Arts in Budapest (Hungary). As these artifacts are museum objects lacking their original archaeological context, their study requires a complex, interdisciplinary methodology to compensate for the lack of primary archaeological data. The fundamental goal of this research is to reconstruct the technical process of these objects through the chaîne opératoire approach, supplementing traditional typology with advanced scientific diagnostics and experimental methods. To understand the materials used, non-destructive portable XRF (pXRF) analysis determined the chemical composition of the clay and pigments, while multispectral imaging (MSI) revealed surface treatments and manufacturing traces invisible to the naked eye. A cornerstone of this research is experimental archaeology; by creating authentic replicas and physically re-enacting the entire production chain—from raw material processing to final decoration—it became possible to identify the technical nuances of ancient craftsmanship. This practical reconstruction not only allows for a deeper understanding of ancient manufacturing techniques but also brings us closer to identifying the identity and skill level of their makers. In my presentation, I will not only describe the technological phases but also attempt to outline the entire life cycle of the objects, touching on the role of their creators, the possible functions of the figurines, and their social significance in the Late Bronze Age Aegean.

1568. Pottery production in a Neolithic village – a case study from the LBK site Ludwinowo 7 in Kuyavia, north-central Poland

Authors: Joanna Pyzel (Maria Curie-Sklodowska University in Lublin) – Louise Gomart (CNRS Paris) – Marcin Szeliga – Gabriela Gdula – Maksymilian Łuszcz – Martyna Nawrocka (Maria Curie-Sklodowska University in Lublin)
Format: Oral

The earliest farmers in Central Europe produced pottery within their settlements, yet the organization and variability of this production remain unevenly studied across regions. In the Linear Pottery Culture of the North European Plain, detailed technological analyses of ceramic production are still lacking. This presentation introduces the preliminary results of an ongoing project applying the chaîne opératoire approach to LBK pottery from Kuyavia in north-central Poland. The aim is to apprehend technological variability, particularly at the vessel-forming stage, which can reflect distinct technical traditions, carried out by specific social groups. We focus on selected households from the LBK settlement at Ludwinowo 7, a site comprising more than 30 houses and occupied for at least six generations. By comparing technological practices between households, we seek to determine whether different learning networks can be distinguished and how these pottery-making groups developed and interacted through time within the settlement. Research is financially supported by the National Science Centre, Poland, OPUS 26 (project no. 2023/51/B/HS3/00207).

1975. From Prehistory to Present: Pottery Production in the Tao River Valley

Authors: Xueyang Cheng (University of Chinese Academy of Social Sciences)
Format: Oral

Pottery is an important prehistoric material for understanding the period from the late Neolithic to the early Bronze Age in northwestern China. Systematic research on pottery-making tools and workshops in this region remains insufficient, and ethnographic data, especially the involvement of modern potters in ancient ceramics, have been underemphasized in related studies. This study aims to fill these gaps, focusing on the pottery industry in the Tao River Valley in China, with an emphasis on the Majiayao and Qijia cultural periods. It proposes the use of multiple research methods: referring to archaeological excavation reports, conducting experimental simulations, carrying out ethnographic surveys, and integrating these approaches following the logic of chaînes opératoires to clarify the use of pottery-making tools and techniques, In addition, this study will also incorporate petrological data and analyze the existing pottery kilns and workshops reported in previous studies to further deepen the understanding of ceramic production technologies and potters' practices. By focusing on the local pottery industry, it provides empirical cases for prehistoric pottery production, fostering dialogue between archaeological and anthropological perspectives, and enriches the understanding of the production processes of prehistoric ceramics and their socio-cultural significance.

2375. Workshop management and adaptation to market demands: the Famars case (1–4 th c. AD; N-France, Valenciennes)

Authors: Sonja Willems (Catholic University of Louvain)
Format: Oral

Northern France is renowned for its numerous ceramic workshops, which interacted within complex local, regional and long-distance market networks. These interactions involved market sharing, competition and adaptation to local geographical and geological conditions. This lecture addresses differences in production management through the case study of Famars. With more than twenty kilns, its pottery production can only be understood in relation to other nearby workshops. The proximity to the Scheldt River played a key role, responding to increasing market demand. Excavations conducted between 2011 and 2014 revealed a wide range of production facilities and a complex evolution of fabric testing, adaptation and standardization from the 2nd to the early 4th century AD. These developments were initially interpreted in connection with workshops in the civitas capital, though several aspects remained unclear. New data from the 2019–2020 excavations now allow a better understanding of the beginnings of production from the late 1st century and their evolution through the 2nd to 4th centuries. Different categories of products can be identified, intended respectively for long-distance, regional or strictly local markets. These categories correspond to distinct modes of organization. Highly standardized, nucleated kiln groups contrast with isolated kilns located at the back of gardens or integrated into the urban fabric. The lecture explores divergences in fabric evolution linked to production categories and vessel types, as well as variations in kiln structures and their spatial distribution. It proposes a hypothesis of potter mobility driven by economic pressure, with craftsmen transferring their technical traditions to new and unfamiliar workshop settings.

2597. Convergent Adaptations in Archaic Greek Pottery: Parallel Responses to Common Clientele (6th c. BC)

Authors: Antoine Attout (Université libre de Bruxelles)
Format: Oral

It is now widely accepted that, on occasion, certain Greek pottery workshops of the 6th century BCE 'adapted' their production to appeal to foreign clientele, sometimes over long distances. However, the current state of research allows us to move beyond this observation: these dynamics of 'adaptation' were far more widespread and complex than previously thought. Above all, we can now observe, across various ceramic production centers in the Greek world, the existence of convergent adaptation strategies—all targeting the same customer base. Our research is based on a cross-analysis of the stylistic features of vases (shapes and decorations) and their geographical distribution. Through this approach, we have observed in a series of selected sites (Miletus, Tocra, Tarquinia) that multiple imported ceramic productions from major centers (such as Athens, Southern Ionia, Laconia, or Corinth) exhibited striking convergences. Clearly, these productions indicate that workshops from different regions of the Greek world could simultaneously target the same clientele and, in doing so, develop similar products. One might naturally wonder whether these workshops were competing with one another for control of a shared market. Regardless, the existence of these convergent adaptation dynamics underscores that such phenomena were relatively widespread and certainly not coincidental. They suggest a form of collective and coordinated response to demand—one that, while not formalized as a 'commercial strategy' in the modern sense, reveals an economic logic and remarkable responsiveness: as soon as a new demand emerged in a particular site, multiple workshops—sometimes located far from one another—could seek to meet it. This research invites us to reconsider workshops not as isolated entities, but as complexly interconnected actors capable of rapidly transforming their productions in response to evolving supply and demand.

1307. More than just imports: a local response to Greek pottery in Colchis in the 6th-4th centutries BC

Authors: Evgeniia Viaznikova (IMT School for Advanced Studies Lucca)
Format: Oral

Greek pottery was distributed over great distances from its original manufacturing areas and attracted the interest of different communities all over the ancient world. The area of the Black Sea, populated by culturally diverse peoples, was not exempt from this network. Various examples of East Greek and Attic ceramics were discovered as far as the Eastern Pontic shore, known in antiquity as Colchis. The paper aims to examine the use and interconnectivity of imported and local ceramic shapes in various contexts (settlements and burials) by the local population of Colchis between the 6th and 4th centuries BC. During this period, the area is believed to be a part of the Greek trade network, entailing a certain degree of intercultural contacts and exchange. Indeed, despite well-developed local pottery production, excavations of the area demonstrate the use of Attic vessels alongside local ones. This interaction between imported and local ceramics seems to have stimulated a response from local craftsmen, who attempted to incorporate certain foreign hapes into their production either by adapting Greek forms to local needs or directly imitating imported vessels. Case studies of imported and local pottery assemblages from different sites of Colchis are considered to understand the external cultural impact and internal reaction which shaped the local users' and producers' choice of pottery shapes. While the presence of local adaptations of foreign ceramics certainly reflects a transfer of technique, the shapes selection and their contextual placement demonstrates that the object – meaning connection might have been reevaluated by potters, following the consumers' demand. Overall, through contextual analysis of local and imported pottery shapes, the paper argues that Colchians had their own way of selection and interpretation of the imported pottery which was adapted to local cultural contexts and might have affected the choices and production repertoire of local craftsmen.

443. A Psychological Coding System for Cognitive Archaeology: Quantifying Three Millennia of Morphological Change in Jōmon Clay Figurines (Dogū)

Authors: Miki Kakinuma (Nippon Veterinary and Life Science University) – Shoko Hiranaka (Okinawa Christian Junior College) – Ayako Uechi (Clinic Prop) – Michiko Konno (Tokyo City University) – Mikihiko Wada (Hosei University) – Juko Ando (Keio University)
Format: Poster

Cognitive archaeology seeks to understand the minds of ancient peoples, yet faces a methodological challenge: how to move beyond intuitive interpretation toward empirical analyses of prehistoric cognition and material form. This study addresses this challenge by developing a systematic morphological coding framework adapted from developmental psychology and applying it to anthropomorphic clay figurines (dogū) from the Japanese Jōmon period. The large number of dogū and their clear temporal continuity over three millennia provide a dataset for examining long-term relationships between artefact form, production, and embodied experience. Although stylistic change in dogū has long been recognised, quantitative assessments of morphological variation and its relation to modes of making and social norms remain limited. To address this gap, we developed the Archaeological Figurine Coding System (AFCS), adapted from the Draw-a-Person test, which offers a standardized protocol for documenting bodily and facial features, including breasts, protruding bellies, eye shape, hairstyles, and ornamentation. Using this system, we analysed approximately 400 figurines from the Middle to Final Jōmon periods (c. 5500–2400 BP). Our results reveal several diachronic trends. Representations of pregnancy, prominent in the Middle Jōmon, decrease markedly over time. Facial depictions shift from naturalistic forms toward increasingly abstract and stylised expressions, while hairstyles and personal adornments become progressively more elaborate. These patterns suggest not only cognitive and cultural change but also transformations in the social roles of figurines, production norms, and visually mediated identities. By integrating quantitative morphology with psychologically informed coding, this paper demonstrates how artefact form records changing requirements of production and use. We argue that Jōmon dogū provide a unique case for exploring how repetitive material practices, socially mediated learning, and evolving modes of making shaped both object form and concepts of personhood. More broadly, this approach offers a transferable framework for investigating technological and functional evolution across archaeological contexts.

535. Characterizing and Dating of Pre-modern Stilts

Authors: Yastami Nishida (Institute of Cultural Studies, Chuo University) – Yorinao Shitaoka (RIssho University)
Format: Poster

The advancement of the pottery industry necessitated the invention of increasingly sophisticated firing techniques. With the emergence of glazed wares, potters faced new technical challenges, as these vessels required specialized handling to prevent damage during firing. This led to the development of "distancers," which allowed vessels to be stacked efficiently while preventing them from fusing to the kiln floor or to one another. Among these tools, stylized tripod-shaped stilts first appeared in China around the 2nd century and gained widespread adoption after the 6th century. The technology subsequently disseminated eastward to Korea and Japan, as well as westward toward Europe. Notably, similar stilts are documented in late Byzantine kilns and continued in use through to modern European ceramic production, demonstrating a remarkable technological continuity. However, other variations, such as serrated stilts, did not achieve the same level of global adoption. In the Japanese context, while the general use of stilts declined during the Middle Ages, serrated varieties saw a localized resurgence during the 18th and 19th centuries, particularly in Northeastern Japan. Because stilts often bear the unique technical markers of their makers, they serve as vital diagnostic artifacts for tracing the migration and exchange of potters. To further refine this chronology, we are currently utilizing thermoluminescence (TL) dating on pre-modern kiln furniture. Initial results show that estimated dates align closely with historical records, suggesting that the study can provide a reliable chronological framework for kilns where documentary evidence is otherwise absent.

872. Provenance and identification of technological features in pre-Hispanic ceramics from Tenayuca and Pol Box, Mexico

Authors: Thania Alejandra García Zeferino – Pamela Garcia Ramirez – Serafin Sanchez Perez (ENAH)
Format: Poster

Ceramics are the most abundant material found in archaeological excavations in Mexico; sometimes they are complete pieces, but more frequently they are fragments (tepalcates or sherds). Their abundance clearly demonstrates the everyday use of this material and its importance in daily activities. For geoarchaeological studies, this material has allowed for a deeper understanding of the knowledge that populations possessed of their natural environment and how they utilized it. In this sense, identifying the locations where raw materials were obtained will allow us to understand the qualities of the materials, their transformations, and the techniques used in their production. This work presents the results of research in two different regions of Mexico: 1) Aztec II ceramics, from the Postclassic period of Mesoamerica, in central Mexico; and 2) Maya ceramics from the Yucatán Peninsula, from the Preclassic to the Postclassic periods. In each of the sites studied, the manufacturing technique was developed according to the resources provided by the environment and was further refined according to the type and form of ceramic produced. This technique can be a characteristic of the group that created it. The studies presented focus on distinguishing the mineralogical and micromorphological characteristics that differentiate these ceramics, proposing the geological origin of the raw materials, and outlining the technological features used in their manufacture. The results indicate that in each of the sites studied they use the raw materials from their immediate environment, modifying them according to the characteristics they present, as in the case of the Pol Box site which, having mud rich in minerals of the smectite clay type, uses a large proportion of anti-plastic particles to prevent the contraction of these clays.

93 TRACING THE FLOW: NEW PERSPECTIVES ON ANCIENT IRRIGATION SYSTEMS AND THEIR LEGACIES

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Roberto Arciero – Johanna Lhuillier (Lab. Archéorient, CNRS - UMR 5133) – Jaafar Jotheri (University of Al-Qadisiyah)
Keywords: irrigation, water management, remote sensing, geoarchaeology, landscape
Format: Regular session

SESSION ABSTRACT

The study of ancient irrigation systems has long been central to understanding the emergence and development of complex societies across arid and semi-arid regions of the World. From the alluvial plains of Mesopotamia to the oases of Central Asia, the investigation of water management infrastructure has provided crucial insights into social organization, technological innovation, and environmental adaptation. Recent advances in archaeological methodologies, ranging from remote sensing and geoarchaeology to hydrological modeling, have profoundly transformed how we reconstruct ancient landscapes and interpret the socio-economic dimensions of irrigation. These approaches not only refine our comprehension of past human-environment interactions, but also illuminate the enduring legacies of ancient water systems that continue to shape local ecologies and cultural identities today in places such as Uzbekistan, Iraq or Jordan. This session aims to foster a cross-regional dialogue on ancient irrigation through three interrelated thematic pillars: 1. Methodologies of Investigation: approaches to documenting, analyzing, and modeling irrigation systems, including remote sensing, GIS-based hydrological studies, geoarchaeological approaches. 2. Case Studies: Case studies that highlight the regional diversity of technological adaptations to water management, social organization, and agricultural practices across the arid regions of West and Central Asia, North Africa, the Indus region, and the Mediterranean basin—with a focus on eastern Mediterranean. 3. Irrigation as Heritage: the cultural and historical importance of traditional irrigation systems, their continuity and transmission over time, and the threats they face today from climate change and dwindling water resources. We welcome contributions that address these themes through regional case studies (as outlined in point 2), interdisciplinary approaches, and theoretical reflections spanning from prehistory to the modern periods. Submissions focusing on methodological innovation, long-term irrigation dynamics, or the heritage management of irrigation systems are especially encouraged.

CONTRIBUTION ABSTRACTS

1246. Human Impact on Arid/Semi-arid Environments: Mixed Urbanization in the Water Systems of Murghab (Southern Turkmenistan) and Karakul (Western Uzbekistan) Rivers

Authors: Barbara Cerasetti (Freie Universität Berlin)
Format: Oral

Since ancient times, Central Asia and neighboring Iran have been affected by profound climate changes. The consequent radical transformations of the territory by human beings to survive have strongly endangered the delicate ecosystem of these geographical areas, often with catastrophic effects. During the 2nd millennium BCE, urbanization extensively modified and deeply influenced the local environment of vast water systems, from Helmand in Iranian Sistan to Murghab in prehistoric Margiana, and Karakul to the west of Bukhara region. A specific aspect of this phenomenon deserves to be taken into consideration, i.e. the resulting settlement pattern after the "distribution" of territories between GKC (Greater Khorasan Civilization) and Andronovo-related populations in the alluvial fan of the Murghab River (southern Turkmenistan) and the fossil system of Makhan-darya (western Uzbekistan). In particular, how the spatial interaction (intra/off-site) between these two cultures has been deeply influenced by the difficult adaptation of the techniques, known at that time, to the exploitation of water and primary resources.

300. From Springs to Karez: Investigating Water Infrastructure and Settlement Organization in the Pashkurt Valley, Uzbekistan

Authors: Roberto Arciero – Johanna Lhuillier (Lab. Archéorient, CNRS - UMR 5133) – Ulugbek Shapulatov (Termez State University)
Format: Oral

The Pashkurt Valley, situated in southwestern Uzbekistan along the Kugitang Mountains and the Amu Darya River, has emerged as a critical area for understanding settlement organization and water management in Central Asia. Since 2017, the French-Uzbek Mission (MAFBAP) has undertaken extensive multidisciplinary investigations at key sites, including Burgut Kurgan, Boyqushtepa, Kayrit Tepa, Kamyshtepa, Gaza Kutan, and Kuduk Bulak. From the outset, it became evident that the region's complex irrigation systems—previously dated primarily to the Soviet and contemporary periods—may have originated in much earlier phases. As part of the MAFBAP project, systematic investigations of the hydrological network linking these sites began in 2019. The research methodology has since been expanded to integrate remote sensing analyses, targeted excavations, and Optically Stimulated Luminescence (OSL) dating of canal sediments. Preliminary results reveal a multifaceted hydrological landscape, shaped by a combination of natural river systems, springs, and engineered irrigation structures, including karez (qanat) networks. More than 284 traces of karez

were identified, underscoring their central role in sustaining regional settlements. Canal excavations at Burgut Kurgan area document a stratified canal sequence, indicative of repeated reuse over extended periods since the Bronze Age. These findings offer novel insights into the interaction between natural and engineered water systems and the spatial and organizational dynamics of Iron Age settlements in Central Asia. They also highlight the importance of integrating hydrological and archaeological approaches to reconstruct past landscapes, providing a robust framework for examining long-term settlement strategies and resource management in arid environments.

2105. Redefining the Sherabad Oasis

Authors: Ladislav Stanco (Institute of Classical Archaeology, Faculty of Arts, Charles University) – Jan Petřík – Martin Hanáček (Department of Geological Sciences, Faculty of Science, Masaryk University)
Format: Oral

Understanding the functioning of artificially created water supply systems for settlements and agricultural production and their precise dating has always been key to understanding the dynamics of settlement patterns as such. For the Sherobod Oasis in southern Uzbekistan, we had attempted to reconstruct the irrigation system based on the historical maps, field observations and correlation with settlement patterns. Our conclusions were based on the assumption that the most accurate depiction of the remains of water canals in the landscape in this area is the Soviet topographic maps from before World War II. However, these lack precision and the depicted phenomena may be selective. After our publication in 2019, the possibilities for reconstructing the historical landscape were multiplied by the publication of a groundbreaking dataset – the images referred to as Hexagon. Moreover, at present, a Holocene floodplain level with archaeological sites dated to the Kushan, medieval and post-medieval periods is preserved along the Sherabad River. This floodplain is incised by the modern, dynamically evolving braided channel. This configuration indicates significant hydrological changes in the area, which we aim to place into a chronological framework through the study and dating of fluvial sediments. In this paper, we will use Hexagon along with new direct observations and dating of sediments to verify and perhaps redefine our model of historic water management in this otherwise archaeological relatively well-known oasis in southern Uzbekistan.

2095. Along the contour: New insights on irrigation and water management in the foothills of Northern Bactria

Authors: Jakub Havlík (Institute of Classical Archaeology, Charles University) – Jan Petřík (Department of Geological Sciences, Masaryk University) – Nikola Mořkovská (Institute of Classical Archaeology, Charles University)
Format: Oral

Given their indisputable importance for settlement development in arid and semi-arid environments, irrigation systems have long been one of the focal points of Central Asian archaeology. Unlike the lowlands of Northern Bactria, where decades of mechanized agriculture have largely erased traces of ancient irrigation, the much better-preserved foothill zones offer a unique opportunity for their study. This paper draws on the fieldwork of the Czech-Uzbekistani Archaeological Expedition in the foothills of the Kugitang mountain range, southern Uzbekistan. Special attention is paid to the dry valley, which hosted a Late Antique settlement of Kulal Tepa, however, for most of its past, it seems that seasonal use has been predominant there. Utilizing remote sensing, results of pedestrian survey, and OSL dating, this study explores the variety and long-term transformations of water management in the Kulal Tepa valley. The gathered evidence links the peak of the (Late) Antique human activities with the existence of a 5,5 km long canal fed from the Loylagan Say river – a feature that likely remained in use until the Soviet period. However, the research reveals a more complex hydraulic landscape: a sophisticated network of contour canals was developed, partly integrated with the main canal and partly operating as independent units. This network served not only for irrigation but indicates a deliberate, well-planned strategy of landscape water retention and rainwater harvesting.

2199. Reconstructing Water Management Systems: Interdisciplinary Methodologies Across Time and Landscapes

Authors: Ella Egberts – Soetkin Vervust – Ralf Vandam (Vrije Universiteit Brussel)
Format: Oral

Presenting three case studies spanning from the third millennium BCE to the early modern and contemporary periods, and drawing on nearly a decade of research, this paper explores technological and methodological developments in the study of water management systems across arid and semi-arid regions. The case studies address the urban waterscape of third-millennium BCE Girsu (southern Iraq), Late Islamic agricultural water management in remote and marginal landscapes of the Hajar Mountains (UAE), and the modern revival of historic water management systems in Cyprus as a response to present-day climate challenges. Each case applies a set of interdisciplinary approaches, including remote sensing, automated detection, hydrological modelling, geoarchaeological fieldwork, radiocarbon dating, optically stimulated luminescence (OSL) profiling and dating, and environmental proxy analyses. Together, these methods are used to reconstruct the socio-economic and environmental dimensions of water management practices across different temporal and regional contexts. By bringing these case studies together, the paper provides an overview of current methodological possibilities and reflects on their challenges and opportunities. The results allow for a comparative reconstruction of how water management infrastructures functioned within dynamic landscapes and how communities combined technologies

of varying cost, complexity, and labour organisation to respond to changing environmental and social conditions. In doing so, the paper highlights both the long-term adaptability of water management systems and their relevance as cultural heritage and potential resources for addressing contemporary sustainability concerns.

892. Rediscovering a Sumerian Hydraulic Legacy: Architectural Study and Conservation of the Girsu Bridge

Authors: Ebru Torun – Sebastien Rey – Göze Üner – Hamed Arnaout – Fatma Husain (The British Museum)
Format: Oral

During the early 20th-century excavations in southern Iraq, a monumental fired-brick structure was uncovered at the Sumerian city of Girsu, but its function remained uncertain until recently. After decades of abandonment, archaeological research restarted in 2016 with a project led by the British Museum. This paper presents the architectural study and conservation programme undertaken on the monument between 2018 and 2026. Research on the waterscapes of Girsu, combined with targeted excavations, demonstrated that the structure was built on a former canal bed. Aerial imagery revealed traces of a street joining the centre of the structure from the east. Based on these results, and because the monument narrows the canal from approximately 30 m to 4.6 m at its centre, it has been provisionally identified as the Girsu Bridge. High-resolution photogrammetric survey enabled the production of detailed measured drawings. The building materials and techniques were investigated, and inscribed bricks were studied epigraphically. Archival photographs and former excavation records were compared with recent imagery to assess change and deterioration. The lack of ancient parallels led to a comparison with modern hydraulic structures, revealing similarities to hydraulic flumes used to measure water flow. This supports an interpretation of the monument not only as a bridge foundation but also as a sophisticated hydraulic installation. This is further discussed in the context of the city's abandonment around 1750 BC due to drought. The study also mapped material decay and structural vulnerabilities, informing a programme of conservation completed in 2026. In parallel, the site was prepared for public access in collaboration with the Iraqi State Board of Antiquities and Heritage, tourism partners, and the local community. Nine bilingual interpretation panels now present the history of Girsu and the multiple functions of its bridge.

1486. When Water Becomes a Barrier: Least-Cost Path Modeling of Accessibility in Early Dynastic Southern Mesopotamia

Authors: Fatemeh Javanmardi – Tadeáš Červík (Universität Bern)
Format: Oral

The alluvial landscapes of southern Mesopotamia during the Early Dynastic period (c. 2900–2350 BCE) were structured by dense networks of rivers, canals, and wetlands that shaped both irrigation practices and patterns of mobility. While ancient waterways are often modeled as conduits of movement and exchange, they also constituted significant barriers to overland accessibility, particularly within low-relief floodplain environments. This paper presents a GIS-based least-cost path (LCP) approach to modeling accessibility between three Early Dynastic sites—Umma, Zabalam, and Tell Shimd—using slope-derived friction surfaces based on a 5 m DEM, combined with hypothetical reconstructions of irrigation canals and river courses. Multiple hydrological scenarios are tested, including topographically plausible water networks derived from DEM-based flow accumulation and alternative canal configurations modeled under slope constraints and archaeological plausible traces on the field. These waterways are incorporated into cost surfaces primarily as high-friction or impassable features, with controlled crossing points used to simulate fords or bridges. The resulting models demonstrate how different reconstructions of irrigation and drainage systems significantly alter accessibility patterns between settlements, even within a landscape characterized by minimal topographic variation. By foregrounding uncertainty and explicitly modeling waterways as barriers as well as components of irrigation infrastructure, this study offers a reproducible framework for integrating hydrological features into mobility modeling and highlights how irrigation systems structured both agricultural production and spatial interaction in Early Dynastic southern Mesopotamia.

11. The springs of the Iraqi western desert lasted for millennia and vanished within years

Authors: Jaafar Jotheri (University of Al-Qadisiyah | Durham University)
Format: Oral

The springs and oases associated with the Abu Jir lineament hold geological, cultural, and historical significance, situated at the intersection of the Arabian Desert and the Mesopotamian floodplain. A linear series of sites linked to the springs dates back to the Sasanian, Islamic, and Ottoman periods. They have served various purposes, including as defensive fortresses, residences, castles, and places of worship. The springs also supported agriculture through networks of canals and farms. Remote-sensing technology has been utilised to map water springs, fortresses, and various archaeological features, including settlements, roads, irrigation systems, and farms. Field trips are conducted for ground verification and site documentation, as well as interviews with residents, particularly older people, to gain insights into the community's recent history and changes over time. The results show that the strategic location of these springs has facilitated the emergence of communities that integrate and adapt to the diverse cultures of the desert Bedouins and the urban population. The Springs community is diverse in terms of tribal, professional, religious, and traditional aspects, enabling it to sustain harmonious relations with both distinct regions—the desert and the floodplain. Several notable landscape features associated with these springs have been documented, including fortresses built around them. Communities often connected springs to increase water availability for irrigation. When establishing connections between springs was not feasible, qanat-style irrigation systems were constructed. Secondary or tertiary canals branching from farms frequently form comb-like,

parallel patterns, while long canals from springs to farms create broom-shaped layouts. Springs could support either single or multiple farms, depending on capacity. Following 2003, poor groundwater management and severe climate conditions led to the drying up of most springs and oases. As a result, farms were deserted, populations relocated, and the ancient irrigation systems that had been used for thousands of years were left behind

10. New insights into ancient waterways and irrigation systems from the Ishan Hâfudh survey region of Southern Iraq

Authors: Bernhard Schneider (University of Wroclaw) – Jaafar Jotheri – Ali Al-Gburi (University of Al-Qadisiyah)
Format: Oral

Recent results from the Ishan Hâfudh fieldwork (project RuBab Rural Babylonia), situated within the "heartland of cities" coined by Robert McC. Adams (1981) in Southern Iraq, will be presented. First, the current situation of ancient waterways and irrigation systems in such a multilayered landscape will be outlined. The focus will lie the Ishan Hâfudh survey region in Southern Iraq (ca. 170 km to southeast of Baghdad). New insights are gained through remote sensing (modern and historical satellite imagery) and ground truthing (canal sections, sampling). Most of the current Geo-archaeological research in Mesopotamia is based heavily on 14C dating. This in turn may be influenced to an unknown degree by a hard-water effect (freshwater reservoir effect). Therefore, the presentation will also include the most recent results gained from OSL (Optically Stimulated Luminescence) dating of soil samples. Through this, in combination with archaeological and historical data from the region, a more nuanced picture of the situation within different periods of history can be gained.

1068. Water management in southern Mesopotamia: Zabalam waterways as a case study

Authors: Muntadher Aloda (University of Bern) – Jaafar Jotheri (University of Al-Qadisiyah) – Mirko Novak (University of Bern) – Tibor Lieskovský (Slovak University of Technology in Bratislava Faculty of Civil Engineering)
Format: Oral

In southern Mesopotamia's floodplains, rivers provided the primary water source since rainfall was scarce and there were neither springs nor accessible groundwater. As a result, effective river management became crucial for irrigation, transportation, daily needs, and the rise and fall of cities and communities. At Zabalam region we have identified ancient rivers, canals, and farmland using satellite images and on-the-ground research. We have also excavated several trenches along certain stretches of these waterways for OSL dating. Early findings show two main rivers running parallel to the site—one north, one south—linked by a connector through the middle, though the upstream and downstream sections are hidden by later sediments. The region features an elaborate canal system that doesn't connect directly to either major river. Instead, the canals create a hierarchy, sharing channels with another irrigation network northeast of the site, which links to additional archaeological sites upstream. In summary, Zabalam's agricultural and irrigation system consists of various water channels and distributaries that draw from a branch connected to the main canal. This paper examines the methods and treaties used to manage and allocate water resources among cities, districts, farmland, and landowners. Additionally, it addresses challenges related to organising labour for the excavation, maintenance, and construction of canals and dams.

2069. Tracing the flow in the Lower Diyala Region (Iraq) : Reconstructing the archeological landscape through remote sensing

Authors: Valentin Koszarek (Université Paris 1 Panthéon Sorbonne | Universita di Bologna | UMR 7041 ArScAn – VEPMO MSH Mondes)
Format: Oral

The Lower Diyala region has played a central role in discussions on the relationship between complex societies and large-scale irrigation systems in Mesopotamia. Since Robert McC. Adams' surveys in the 1950s, his reconstruction of irrigation networks has remained the main point of reference for the region and a staple of our discipline. This study revisits Adams' original survey data within the framework of the Floodplain Project (University of Bologna, dir. N. Marchetti). By combining his field observations with declassified CORONA imagery and multi-temporal satellite data, we corrected several spatial distortions in the original maps. This work identified a number of previously undocumented archaeological sites and hydraulic features. This revised spatial framework allows a closer alignment between irrigation layouts and local topography, offering a more robust basis for chronological interpretation. Adopting a longue durée perspective, the paper reassesses patterns of water management from the early historical periods to the Islamic era. The results highlight both long-term continuities and significant reorganizations of irrigation systems in response to changing political contexts and environmental conditions. More broadly, this contribution illustrates the value of reprocessing legacy datasets using methodological innovation to refine our understanding of ancient hydraulic landscapes in Mesopotamia.

1057. Water Management in a Changing Landscape: Reconstructing Hydrological Networks in the Kurdistan Highlands

Authors: Tomáš Náhlík (University of West Bohemia in Pilsen) – Lenka Starková – Karel Nováček (Palacký University in Olomouc)
Format: Poster

The detection, reconstruction, and evolution of historical hydrological systems is a topic currently gaining importance in connection with the availability of multitemporal remote sensing data. The current landscape of Iraqi Kurdistan is characterized by high geomorphological and climatic heterogeneity, where a major transformation of the settlement structure and the gradual disappearance of traditional rural settlements has occurred and continues to occur over the last decades. At the same time, in this predominantly deforested mountain environment, standard analyses of soil and crop marks or terrain remains—commonly used in more open lowland agrarian landscapes—cannot be fully utilized. This is due to the significantly fragmented terrain morphology, strong erosion processes, and difficult accessibility of the terrain. The mountainous areas of Northern Kurdistan represent a specific cultural-landscape type, in which the settlement structure is closely tied to mountain massifs functioning as a source of protection and key natural resources, especially water. The methods of its acquisition, accumulation, distribution, and transport to agriculturally used valley areas therefore show a high degree of technological and spatial variability. This research focuses in detail on capturing hydrological systems, their connection to various forms of settlement (sedentary vs. semi-nomadic), water acquisition strategies (gravity-fed irrigation, spring capture), and the density, hierarchy, and typology of water networks within the Siktan–Gomaspan Archaeological Project (SGAP) area in the mountain micro-region north of Koya (Iraqi Kurdistan). This contribution presents methodological possibilities for recognizing historical hydrological structures in a mountain environment by integrating remote sensing methods, GIS analyses, predictive modeling, and field verification. Multitemporal analysis of historical and current satellite data, Digital Elevation Models (DEM), and their derivatives (slope, aspect, curvature, hydrological flow accumulation, Topographic Wetness Index – TWI) are utilized. The identification of potential hydrological relics is further supported by visual interpretation methods and watershed analysis.

94 LAND-USE CHANGE (LUC) AND ARCHAEOLOGICAL HERITAGE: KEY CONCEPTS AND CONSIDERATIONS; WORKING TOWARDS GUIDELINES FOR BEST PRACTICE

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Emmet Byrnes (Forest Service; Department of Agriculture, Food and the Marine) – Karl Cordemans (Flemish Land Agency) – José Schreurs (Cultural Heritage Agency of the Netherlands)
Keywords: Landuse, Rewilding, Restoration, Rewetting, Conversion, Woodland
Format: Discussion session
Affiliation: EAA and EAC Working Group on Farming Forestry and Rural Land Management

SESSION ABSTRACT

In recent years, the EAA/EAC Working Group on Farming, Forestry and Rural Land Management has organised several successful sessions on the impact of different land use changes on archaeological heritage. Various issues and possible mitigation strategies have been identified, as well as numerous good practices. This did not escape the attention of the European Archaeological Council (EAC), which unites all national organisations charged by law with the management of archaeological heritage. This has led to the idea of creating guidance on Land-use Change (LUC)*, similar to previously published guidelines on development-led archaeology, use of LIDAR etc. The guidelines could start with a more general knowledge base, raising awareness of the impact of LUC, possible partners involved in LUC, tools and methods. The Working Group is especially interested in examples of impacts from LUC and good and bad practice in relation to the archaeological heritage from projects involving the conversion of farmland to low intensity production, change in forest management practice, conversion of forests to other habitats like heathland, re-wilding, natural woodland creation, peatland or wetland rewetting or restoration, or the use of land for renewable energy production infrastructure. We also plan to allow ample time to discuss what should be included in the guidelines and how they should be structured. For the purpose of reporting on the exchange of greenhouse gases LUC is technically defined as the change in the carbon stock of different carbon pools. More practically, LUC means any conversion of a piece of land's use from one purpose to another. For example, grassland to cropland; natural or semi-natural land to intensive uses; rewilded (changed to a more natural uncultivated state by reintroducing species of plants or animals); peatland or wetland rewetted or restored (by reversing drainage and raising water tables or encouraging recolonisation by particular species).

CONTRIBUTION ABSTRACTS

1028. Predictions for the future of archaeological monuments

Authors: Marie-José Schreurs (Cultural Heritage Agency of The Netherlands)
Format: Oral

Several years ago, the Cultural Heritage Agency of the Netherlands conducted research into the condition of archaeological national monuments, looking ahead to around 2030. The question was what the future prospects for archaeological national monuments

would be in the event of autonomous development. In this presentation, I will discuss the predicted spatial developments and some important policy tasks and risks that were outlined at the time, which are still relevant today and often apply to other countries as well. These include climate change, demographic developments and their spatial consequences, and developments in construction, the agricultural sector, nature and recreation. What are the threats and risks to archaeological heritage, and where are the opportunities? Certain interventions, such as reducing CO2 emissions, have an impact in multiple domains. Developments in policy are closely interrelated and lead to spatial challenges that have consequences for other sectors. For example, climate adaptation and developments in nature policy and the agricultural sector cannot be viewed in isolation from each other. It is concluded that changes in land use in particular pose risks to the preservation of heritage as a result of these challenges.

510. Land use changes and monument losses in the Free State of Saxony since the 19th century

Authors: Michael Strobel (Landesamt für Archäologie Sachsen)
Format: Oral

Archaeological monuments are central elements of the cultural landscape. Changes in land use have always been a major factor in the transformation of the cultural landscape. The extent of land use changes in the Free State of Saxony, especially in agricultural landscapes, has increased significantly since the 19th century. In particular, the conversion of forest into arable land is a widespread phenomenon and has led to considerable losses, especially among archaeological monuments that are still visible above ground and which – insofar as they have been recorded in cartographic memory – can also be reconstructed and accounted for. Conversely, changes in land use in the agricultural landscape offer opportunities not to reverse these losses, but at least to use them selectively for the preservation of monuments. The aim of this article is to illustrate the extent of the losses using striking examples and at the same time to point out prospects for protection through changes in land use.

356. Nature and cultural heritage - A clash of interests and how we can turn it into a win-win situation

Authors: Bjørnar Måge – Daniel Groß (Museum Lolland-Falster)
Format: Oral

In recent years, there has been an increased focus on establishing large solar parks in Denmark due to the goal of making the country CO2-neutral by 2035. Additionally, an agreement between the Danish government and agricultural- and nature organizations, the so-called green tripartite, sets out to make significant changes to the landscape by rewetting low-lying cultivated fields to restore bogs and small lakes. In this talk we will present the experiences we had in connection with archaeological investigations prior to the construction of solar parks. Projects that have proven to contain many opportunities but likewise many challenges. Furthermore, we will discuss the major challenges we as archaeologists and cultural heritage advocates are going to be faced with in the coming years: potential disagreements with authorities and decision-makers by pointing out to authorities and decision-makers that achieving a better balance in nature often has a due to the very destructive effects their actions can encompass for the rich cultural heritage found in wetlands. In connection with large rewetting projects, we will discuss which methods we consider recommendable regarding monitoring implemented earthworks activities, consequential discoveries, or monitoring of the area after renaturation activities has changed the conditions, but also the challenges we faced in contact with the responsible authorities.

1711. Archaeological heritage managment inmidst of the spruce dying in North Rhine-Westphalia, Germany

Authors: Eva Cott-Everding (LVR-State Service for Archaeological Heritage)
Format: Oral

From 2018 onwards, large parts of Central Europe experienced several summers of drought. As a result, spruce trees began to die at a rapid rate, leading to the complete disappearance of this tree species in many regions. This natural disaster caused a sharp increase in forestry activities in these calamity areas with deadwood clearance and reforestation measures. These activities, which were associated with considerable time and economic pressure, led to damage to archaeological sites in many places. In the German state of North Rhine-Westphalia, whose low mountain ranges are severely affected by spruce dying, this crisis situation was addressed on three levels: Firstly, damage was quantified and recorded using remote sensing methods. Secondly, emphasis was placed on providing information and training at various levels of the forestry authority and in municipal and private forests. In addition, active consultations were held on site where archaeological monuments had been affected by forestry activities. Individual concepts for the management of calamity areas that were both economically viable and protective of archaeological monuments were agreed with those involved in forestry work. This crisis has resulted in stronger cooperation between archaeological heritage conservation and the various stakeholders in forestry.

2370. Infrastructure for renewable energy and climate adaptation in England's archaeological landscapes and marine

Authors: Tim Allen (Historic England)
Format: Oral

Historic England is a state heritage service, we develop and deliver advice and guidance with government, industry and the

archaeological profession, and work hand in hand with our natural environment colleagues. We are engaged closely in nationally significant infrastructure projects and planning for developments affecting nationally important heritage assets. On key projects we provide strategic input on how these schemes can minimise their impacts on the historic environment whilst delivering the rapid change that is required to adapt and thrive in a changing environment. This presentation will update the group and wider audiences on latest developments in archaeological assessment and adaptive design in England and we hope provide positive input into the development of future EAC Land Use Change guidance. We are particularly keen to explore how a landscape archaeological approach can support a targeted process of assessment; proportionate in terms of time and cost. Well designed staged processes of investigation can deliver the effective management of archaeological impacts through design and field mitigation with sufficient levels of confidence for both developers and curators.

95 LATEST NEWS FROM THE LOWER DANUBE LIMES: NEW INTERPRETATIONS AND IDEAS IN THE LIGHT OF CURRENT RESEARCH

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Zdravko Dimitrov (National Archaeological Institute and Museum) – Ioan Opriș (University of Bucharest) – Mariya Avramova (Antiquity of Southeastern Europe Research Centre, University of Wasraw) – Alexandru Rațiu (Museum of Romanian National History in Bucharest)
Keywords: Roman Limes, Frontier Studies, new methodologies, UNESCO heritage sites, interdisciplinary collaborations
Format: Regular session
Affiliation: Archaeological Prospection Community

SESSION ABSTRACT

The study of the Lower Danube limes has captivated researchers for over a century due to its rich archaeological and historical significance. The area covering territories in modern Bulgaria and Romania is a beehive of research, yielding new finds with each archaeological season. The current preparations for an UNESCO (extension) file – Frontiers of the Roman Empire, Danube Limes Eastern Section, by four countries (Croatia, Serbia, Romania and Bulgaria) – have given a fresh impetus to a wide range of investigations in the area. New archaeological excavations, archival work, reassessment of old digs, field surveys, geophysics, aerial photography, and LiDAR mapping significantly enhanced the broader understanding of this Roman frontier, which lasted for over six centuries. The themes we would like to explore include, but are not limited to: · - Exploring recent research on the Lower Danube limes. · - New insights into the architectural development of the Lower Danube limes, including the construction of fortifications. · - Emphasising new insights into Roman defence and commerce and exploring the influence of the Roman army on local communities. · - Analysing novel methodologies, as remote sensing and geospatial analysis, to enhance our understanding of archaeological evidence. · - New interpretations of literary and epigraphic sources in the historical context of the Lower Danube limes. Our main goal is to encourage interdisciplinary collaborations among historians, archaeologists, and other scholars to deepen our understanding of the dynamics at play along the limes. This session is open to archaeologists, historians, and scholars of ancient studies, as well as to graduate students and researchers interested in the Roman Empire's Lower Danube frontier. By promoting an inclusive dialogue, we aspire to cultivate an environment conducive to the emergence of innovative ideas and the advancement of collaborative research.

CONTRIBUTION ABSTRACTS

2759. A Decade of Intensive Groundwork on the Romanian Lower Danube Limes (2016-2025). A Review and Update of Most Significant Assets

Authors: Ioan Carol Opris (University of Bucharest)
Format: Oral

A transnational project – Frontiers of the Roman Empire – Danube Limes Eastern Section (FRE–DLES) – is currently being carried out by Bulgaria, Romania, Serbia, and Croatia. The ongoing preparation of the technical documentation aims at including the Roman fortifications along the Danube frontier on the World Heritage List. It also provided an excellent opportunity to update existing information and publish the remarkable technical data now available, with aerial photographs, LiDAR surveys, magnetometric investigations, bathymetric measurements of the Danube riverbed, etc. Within the Limes Programme of the Romanian Ministry of Culture, significant progress has been achieved in documenting both well-known sites and previously uncharted or unexplored locations, as well as the still-preserved pillars of the two famous Roman bridges across the Danube. Field research has resulted in a more nuanced understanding of linear fortifications and bridgeheads on the left bank, known or presumed landing installations, river fords, customs stations, and emporia connected to the barbaricum. The study of late 19th- and 20th-century maps, compared with recent aerial imagery, has supported our comprehensive efforts to reconstruct the military geography through the analysis of topographic features: vantage points, issues of (co-)visibility, naturally defensible positions, suitable harbour conditions, effective communication routes and accessibility, and natural buffers (marshes, floodplains, lakes, and minor arms of the river, etc.). An updated, richly illustrated catalogue of the main military sites is available online (Ioan Carol Opriș, Florian Matei-Popescu, Ovidiu Țentea eds., Danube Limes in Romania, Mega Publishing House, Cluj-Napoca, 2025, 519 p.).

992. Excavation in the Northern Part of the Settlement of the Albertfalva Fort and along the Limes Road, 2024–2026

Authors: Csaba Szénásy (Hungarian National Museum, National Archaeological Institute)
Format: Oral

The National Archaeological Institute carried out a full-scale excavation in the northern part of the vicus of the auxiliary fort at Albertfalva. The excavation was carried out prior to the development of a 600-apartment residential complex. Two trenches, covering roughly 1.5 hectares, revealed several phases of the Roman settlement and a more than 100-metre-long stretch of the limes road. Settlement began during the Flavian dynasty; we excavated pit houses (sunken-floored dwellings), storage pits, post-frame buildings, and wells. The paved limes road was constructed at the beginning of the 2nd century. From the decades following the Marcomannic-Sarmatian Wars, a central-corridor stone building was uncovered. The road was paved with local limestone in some places, the worn limestone blocks were covered with gravel, and the wheel ruts remain clearly visible. The vicus ceased to exist in the 3rd century; during the Late Roman period, this specific section of the road was likely no longer in use, coinciding with the abandonment of the fort. The recovered material is diverse: alongside local pottery, a significant number of terra sigillata as well as Italian and Gaulish types, were found. The wells were lined with wooden barrels. Finds include, among others, harness pendants and strap distributors (a cavalry unit was stationed in the fort), enamelled brooches, coins (the earliest being a legionary denarius of Mark Antony, the latest an issue of Probus), various brooches including winged fibulae, a small bronze statuette of Victoria, a Luna-Diana antefix, altar fragments, and a votive altar dedicated by a beneficiarius soldier.

1303. Early Roman Bononia – First Data from Regular Excavations

Authors: Zdravko Dimitrov (National Archaeological Institute and Museum)
Format: Oral

Over the past twelve years (2014-2025), annual, regular and planned archaeological excavations have begun at the Roman city of Bononia. This is one of the most important centers of the Roman Empire on the Lower Danube, today under the center of Vidin. Fifty years ago, excavations were only rescue and sporadic. They unearthed parts of the city fortification walls and several towers. Now a small archaeological team has studied about 100 meters of the western fortress wall, two of its towers, buildings and streets in the fortified area. The chronology of the complexes is from the 1st to the 21st century, without interruption. Thebiggestproblem is that the earliest stage of the Bononia history is not clear at all. The layers of the Principate are on the depth of 6-7 meters. It is assumed that there was a road station on the Danube road, a military camp of a cohort (Cohors I Cisipadensia) and even a small town. But archaeological data with reliable documentation was absent. In recent years, we have discovered three buildings (with stone, brick and wood constructions, as well as their tegulae coverings), which are the first archaeological data providing field data for Bononia from the 1st-2nd century. From these buildings come excellent ceramic forms, fibulae, other household items and even a huge gold ring weighing 24 grams. The aim of the presentation is to present for the first time archaeological data from the earliest buildings of Bononia, dated in the period of establishment and early development of the Lower Danube Limes.

247. Salsovia, a lesser-known fortress on the Roman limes of the Lower Danube

Authors: Danut Aparaschivei (Institute of Archaeology in Iași - Romanian Academy-Branch Iași) – Andrei Baltag (Institute of Archaeology in Iași)
Format: Oral

The elements related to the historical background of the Salsovia fortress (Moesia Inferior province and, then, Scythia province), the results of archaeological research carried out in the early 2000s, but especially after the last three systematic archaeological campaigns, convinced us that we were dealing with a fortification that played a constantly important role in the gearing of the Roman limes from the Lower Danube, both in the early Roman period, but also later. As a military, administrative and religious center starting from the 1st century and up to, at least, the 6th century AD, Salsovia has not benefited, yet, of consistent research. Against this background, beginning with 2024 we started a systematic archaeological research that has already produced interesting results especially for the evolution of the site in the late Roman period, respectively from the 4th-6th centuries. In our paper we will refer precisely to aspects related to the last stages of the functioning of the Salsovia fortress, using the results of archaeological research, but also the analysis of other sources of the time. In addition to a brief presentation of the results of the last three archaeological campaigns, focusing on the stratigraphy of the site and the artifacts discovered so far, we will try to highlight the role of this fortress in the mechanism that supported the Roman border on the Lower Danube.

1055. The Late Roman Fort at Ulmetum and the integration of foederati in the province of Scythia

Authors: Constantin Bajenaru (Muzeul de Istorie Națională și Arheologie Constanța)
Format: Oral

The site of Ulmetum constitutes a nodal point of communication between the Danube Limes and the urban centers located on the Western Black Sea coast, being located at the crossroads of important roads in the province of Scythia. Archaeological research

carried out in the last 20 years has led to the establishment of the chronology of the stages of habitation and the identification of some elements of material culture that provide important data on the character of the settlements that succeeded each other over time in this place. This has led to the establishment of a model of evolution of a Roman vicus-type settlement (2nd-3rd centuries) and of a road station with an important military component (3rd-4th centuries) towards a fortified settlement, built during the last quarter of the 4th century. Archaeological data indicate the presence in the fortification of a large community of North-Danubian or North-Pontic barbarians who entered the province after 376 and were stabilized as foederati by the imperial authority. The barbarian component remains equally important throughout the 5th century, providing a suggestive picture of the integration of newcomers into the military and administrative system of the province of Scythia. Along with other fortifications located on the second line of defense of the Danube limes, Ulmetum becomes an important strategic point in the late Roman period, constantly maintained through the involvement of the imperial authority.

1322. Aegyssus – an outpost on the Danube during Roman Times

Authors: Marian Mocanu (ICEM Tulcea Romania)
Format: Oral

During Roman times, Aegyssus was an outpost situated on the last stretch before the Danube meets the Black Sea. The old indigenous settlement mentioned by the Roman poet Ovid at the beginning of the 1st century AD was transformed by the early 2nd century into a Roman settlement inhabited by colonists from the Mediterranean, most of them with an oriental cultural background. With the development of the Limes, especially from the late 3rd century, Aegyssus plays an important role not only in guarding the frontier but also as a trading post for the entire region. A large number of huge storage pots (dolia) unearthed during archaeological excavation stand as proof for an important role played by Aegyssus in the annona system. This paper will present some of the most relevant information obtained during the latest excavation seasons undertaken in the southern corner of the late Roman fortress, starting in 2016.

97. Medical infrastructure, mines, and veterans: A quantitative analysis of predictors of the worship of Asclepius in Roman Dacia

Authors: Tomas Glomb – Sebastian Kheml (Masaryk University)
Format: Oral

The Danubian provinces of the Roman Empire have proven to be a fertile ground for current research employing spatial modeling approaches, owing to the abundance of epigraphic and archaeological evidence for different aspects of Roman society. An example of this trend is a recent study, The Spread of the Cult of Asclepius in the Context of the Roman Army: A Spatial Proximity Analysis (Glomb 2021), which demonstrated that epigraphic evidence mentioning Roman physicians spatially positively correlates with material evidence for the healing cult of Asclepius in the Danubian region. However, the province of Dacia stood out as an outlier in this analysis, revealing a high concentration of Latin inscriptions mentioning Asclepius but very little epigraphic evidence for the presence of physicians. Therefore, in this paper, we revisit the "Dacia" research problem, testing whether the spatial distribution of inscriptions dedicated to Asclepius was potentially impacted by factors such as the presence of veterans, attested mining and medical infrastructure, or their combination. The rationale behind the selection of these factors is that 1) veterans in Dacia were potentially in need of medical and spa treatments due to their long service in the Roman army, 2) mining posed significant health risks for miners, and 3) medical infrastructure was directly associated with healing, which all could have led to increased worship of healing deities. With regard to data, the presence of veterans and the cult of Asclepius is approximated from inscriptions in the Epigraphic Database Heidelberg; mining activity in the region is digitally documented in the OXREP database, proxies for medical activity in Dacia include archaeological evidence of specialists (e.g., eye doctors), finds of medical tools, and geocoded spa facilities. These data have a detailed set of attributes, allowing for the conduct of a spatial proximity analysis in a GIS.

2760. Late Roman Military Headquarters on the Lower Danube: Rethinking the Role of the Principia in Frontier Forts

Authors: Alexandru Ratiu (National Museum of Romanian History, Bucharest) – Ioan Carol Opriș (University of Bucharest)
Format: Oral

The principia represent one of the most emblematic building types of Roman military architecture, traditionally interpreted as the administrative and ceremonial headquarters of a fortress. While its layout and functions are relatively well understood for the Early and Middle Imperial periods, the role of principia in Late Roman frontier forts remains insufficiently explored, particularly along the Lower Danube limes. This paper reconsiders the architectural development and functional significance of Late Roman principia through the case study of Capidava (Constanța county, Romania), where the headquarters building has been exhaustively excavated and documented. Recent archaeological research at Capidava has revealed a complex and prolonged use of the principia area, marked by significant architectural transformations, spatial reorganization, and changing patterns of use during Late Antiquity. By integrating stratigraphic evidence, architectural analysis, and contextual reinterpretation, this study challenges traditional models that view Late Roman principia as merely residual or symbolic structures. Placed within a wider comparative framework of the Lower Danube frontier, the evidence from Capidava highlights the continued centrality of military headquarters in the organization of Late Roman forts and contributes to current debates on frontier management and command dynamics along the Danube limes.

1676. Roman coinage in the former province of Dacia; Economic relations between Barbaricum and the Roman Empire in late antiquity

Authors: Radu Florescu ("Lucian Blaga" University of Sibiu)
Format: Oral

The Roman society in the province of Dacia disintegrated after its abandonment by the administration, authorities, and the imperial army, inevitably leading to a regression, at least quantitatively, particularly perceptible in terms of material culture. Thus, the society of the former Roman province from the late 3rd century to the late 4th A.D. century must have been a ruralized world composed of small, impoverished communities that gradually became isolated. During the 4th century, the region saw significant movements of the Goths and in the 5th century from the Huns resulting in a tumultuous period for the people living in the newly abandoned roman province. In this context, Roman coin finds in the former province during 4th and 5th centuries A.D. offer important insights into the nature of interaction between the Roman Empire and the communities inhabiting this area. The present study aims to correlate the newest archaeological finds to the older ones and to analyze isolated coin finds as well as coin hoards thus painting a more accurate picture of economic, military and political ties with the Roman Empire.

556. Interpreting the Reka Devnia Hoard through a Partial Coin Assemblage

Authors: Vanessa Kornhäuserová (Trnava University)
Format: Oral

This paper focuses on the Roman coin hoard from Reka Devnia (ancient Marcianopolis, province of Moesia Inferior) in relation to the Gothic raids of the mid-third century AD and focusing on methodological issues arising from the analysis of a secondarily separated assemblage. The original hoard contained around 81 000 coins, but only 2005 coins are currently preserved and available for study in the Czech Republic. This means that the analysed material represents only a small and incomplete part of the original deposit. The contribution discusses what kind of interpretations are still possible when working with such a limited assemblage. The fragmentary assemblage cannot support detailed quantitative or compositional analyses, but it can still provide meaningful insights into the chronological structure of the original deposit. However, the preserved coins can still be used to observe the general chronological range and the latest issues present in the hoard. These data are consistent with a deposition horizon with the events of 249–251 AD. Three main interpretative scenarios are discussed: an institutional deposit connected with Roman administration or the army, a private accumulation belonging to the urban elite of Marcianopolis, and a deposit linked to Gothic plunder after military conflict, including the Battle of Abritus. The paper demonstrates how even a partial assemblage, if treated carefully, can contribute to the discussion of crisis, mobility and hoarding behaviour in Roman frontier provinces.

262. Old documentation living a new life - Showcase Roman Campsa

Authors: Milica Tapavicki-Ilic (Institute of Archaeology)
Format: Oral

In the late 1960ties and early 1970ties, during the construction work for the Đerdap hydro-power plant, a large-scale rescue excavation took place. Many Roman forts on the Danube were excavated and after the Đerdap lake was formed, they remained sunken beneath the water surface. One of the forts that shared this destiny is Campsa. It was fully examined, but besides short annual reports, it was never fully published. This fort was established at the end of the 2nd or at the beginning of the 3rd century and over the next four centuries, it underwent several changes. It belonged to the bigger forts on this part of the Danube limes. Although the volume of the fort remained more or less unchanged, the shape of its towers was changed, but also of its gates. The documentation from Campsa was made in the 1960ties and 1970ties fashion: all of the plans and small finds were drawn by hand and the field diary was also hand-written, only partially re-typed in the later period. All of the photographs of the site and the small finds are black and white. In this paper, the attempt will be made to show all of the obstacles that needed to be overcome in order to establish the typology of oil-lamps. Oil-lamps were chosen since they represent rather numerous finds, at the same time chronologically very sensitive and indicative. Since Campsa is not the only one from the Iron Gates that was not published, this process can be applied to oil-lamps from other sites. Further on, the algorithm of the process can be applied to other types of small finds both from Campsa and other related sites. This might be a good way to save archaeological finds and cultural heritage from the Iron Gates sites from oblivion.

831. From Inventory to Infrastructure: Integrating the Danubian Limes into the Romanian National Archaeological Record (RAN)

Authors: Marius Streinu – Bogdan Șandric – Oana Borlean – Bogdan Tudor (National Institute of Heritage)
Format: Oral

Recent developments related to the UNESCO nomination of the Danubian sector of the Roman Limes (Frontiers of the Roman Empire – Dacia) have highlighted the need for a coherent, standardized, and spatially explicit integration of archaeological data into national heritage infrastructures. Over the past two years, a comprehensive geospatial workflow has been developed to support the implementation of the national Limes programme through the systematic updating and enrichment of the Romanian National Archaeological Record (RAN). This contribution presents the creation of a relational geodatabase that integrates archaeological sites associated with the Danubian Limes in Romania, including both nominated World Heritage properties and sites on the UNESCO Tentative List. The database structure is based on multiple feature classes—sites, buffer zones, and protected areas—each described through a standardized set of archaeological, environmental, administrative, risk-related, and bibliographic attributes. All spatial data were validated, normalized, and harmonized within a unified geodetic framework. The project further involved integrating authoritative geospatial resources (national cadastre, hydrology, transportation networks, land use, geomorphology, natural and anthropogenic risks) derived exclusively from verifiable institutional sources. These datasets were reprojected into the national Stereographic 1970 system, queried, and spatially linked to individual Limes sites to support both analytical assessment and heritage management requirements. The resulting geodatabase was published as a thematic GIS service via ArcGIS Server and made accessible through interactive WebGIS platforms, Map server for cultural heritage and a dedicated Leaflet-based web application. This approach enables dynamic visualization, spatial querying, and direct access to site metadata, while providing a scalable framework for future research and management needs. By integrating the Danubian Limes into RAN as a structured geospatial dataset, this work demonstrates how national archaeological inventories can evolve from static registers into interoperable research and decision-support infrastructures, directly supporting UNESCO nomination processes and long-term heritage management along the Lower Danube frontier.

354. The economic potential of Ibida (Moesia Inferior) during the Early Roman Empire

Authors: Lucretiu Birliba – Ana Odochiciuc (Universitatea Alexandru Ioan Cuza din Iasi)
Format: Poster

The new epigraphic and archaeological finds from Ibida, datable in the Early Roman Empire, reveal a rural settlement occupied by Roman citizens, peregrini and veterans. The stratigraphy is most from the Late Amntiquity, but the findd from the time of Principate should not be neglected. Our analysis focuses on the economic potential of the area in this period, studying some essential parameters: soil quality, proximity to fresh water sources, proximity to roads, proximity to military units. A central issue of our investigation is represented by a horreum partially excavated, which was covered by the foundation of the Late Roman precinct wall. The archaeological material dates the horreum from the 2nd c. AD. In the corner of the horreum, a fragment of a military diploma was found. We shall calculate the storage capacity of the granary and the possibility of cereal surpluses. Gathering all these information, we shall estimate the economic potential of Ibida and we shall try to connect the economic activities with the social distribution of the area.

517. Sucidava - a fortified North-Danubian commercial checkpoint

Authors: Mircea Negru (University of Craiova | Spiru Haret University Bucharest)
Format: Poster

In the 2nd-3rd centuries AD, Sucidava was a fortified rural settlement with a trapezoidal enclosure, which, according to the current stage of research, is unique in the province of Dacia Inferior (Malvensis). This fortification indicates a vulnerability of the settlement, situated only 25 km from the border of the Roman Empire, near the limes alutanus, but not part of it. By the mid-3rd century AD, the area of the fortification had been reduced by about half through the construction of a middle wall running east-west. During the reigns of Gallienus and Aurelian, in the context of the disturbances in Dacia and its abandonment, a Late Roman fortress was built and completed in the southeast corner of the former early Roman fortification, which was rebuilt and later used during the early Byzantine Period. After the Aurelian withdrawal, it remained a bridgehead north of the Lower Danube, becoming part of the defensive system of the province of Moesia Secunda. However, the new fortification seems more like a checkpoint for a trade route, which continued to operate between the Late Roman then Byzantine Empire and Barbaricum, serving at most as an observation outpost, without significant military relevance. The results of the archaeological research indicate an evolution of military architecture, including materials and construction techniques, which changed in the late 3rd century, as also evidenced by the latest physico-chemical investigations. Sucidava is a typical example where an important commercial hub between neighbouring Roman provinces is protected, inside Roman borders, later becoming a trade junction between the Late Roman, respectively Early Byzantine Empire, and Barbaricum.

2556. Unearthing the Subterranean Treasures: New Insights from the Thermae of Ratiaria (2025-2026)

Authors: Mariya Avramova (Antiquity of Southeastern Europe Research Centre, University of Warsaw) – Zdravko Dimitrov (National Archaeological Institute and Museum)
Format: Poster

The thermae of Ratiaria were initially identified through aerial photographs captured by Italian archaeologists in 1976. These images revealed an imperial-style bathing complex spanning more than 1 hectare. Archaeological investigations at this site commenced in 2020 and remain ongoing. As of 2024, excavations focused primarily on the architectural features and above-ground strata. However, in 2025, the research team redirected some of its efforts to explore the underground facilities associated with the thermae. This complex subterranean infrastructure has exhibited remarkable preservation. It comprises an intricate network of underground vaulted galleries situated directly beneath the thermae's walls. These galleries incorporate vertical ceramic pipes embedded within the load-bearing walls of the vaulted roof, with the openings of these pipes visible on the gallery walls. Similar systems have been documented in modern-day Bulgaria, particularly within the thermae of Odessos and Nicopolis ad Istrum. Nonetheless, the galleries

at Ratiaria exhibit significant distinctions in terms of dimensions, proportions, and overall construction. This poster presents the latest findings of the archaeological survey carried out in 2025 and 2026 while exploring potential future research directions.

96 IS IT IN THE RIGHT SPOT? NATURAL AND HUMAN-SHAPED LANDSCAPES FOR HUNTING ANIMALS

Theme: 7. Interaction, connectivity and mobility
Organisers: Marcel Bradtmöller (University of Rostock) – Ashley Lemke (University of Wisconsin) – Christophe Delaere (University of Brussels) – Harald Lübke (LEIZA)
Keywords: Kill sites, Hunting architecture, Mobility, Bottleneck topographies, Landscape
Format: Regular session
Affiliation: Palaeolithic and Mesolithic Community - PaM

SESSION ABSTRACT

The purpose of this session is to gather work on kill-sites from across the globe and throughout history, which encompass the utilization of both natural and human-made bottleneck topographies for the purpose of hunting. In this regard, we are seeking contributions in the form of case studies from sites such as the Ahrensburger Tunnel Valley in Germany, which show a suitable natural topography for herd hunting. On the other hand, we want to combine these with case studies dealing with hunting architecture, such as drive lanes and corrals, which artificially modify the landscape for hunting activities. Furthermore, we are seeking theoretical papers dealing with topics such as modelling approaches from large-scale survey projects, or the implications of these sites for the socio-economic strategies, systems of interaction and mobility of related societies. In doing so, the objective of this session is to search for patterns within and between these locations and related human activities, which can be, at best, linked to a best-practice for documentation, investigation and preservation.

CONTRIBUTION ABSTRACTS

1957. Introduction to the session topic: Is it in the right spot? Natural and human-shaped landscapes for hunting animals

Authors: Harald Lübke (Leibniz-Zentrum für Archäologie, Schleswig location) – Marcel Bradtmöller (University of Rostock) – Ashley Lemke (University of Wisconsin-Milwaukee) – Christophe Delaere (Free University of Brussels)
Format: Oral

The aim of our session 96, "Is it in the right spot?" is to compile a collection of work on hunting grounds from different eras around the world that make use of natural and artificial bottlenecks for hunting purposes. We will examine case studies of areas with suitable natural topography for herd hunting, such as the Ahrensburg Tunnel Valley in Germany. We will also consider case studies of hunting architecture, such as drive lanes and pens, which alter the landscape for this purpose. Additionally, we welcome theoretical contributions on modelling approaches from large-scale surveying projects. These could cover the extent to which early hunter-gatherer cultures created human landscapes and how these landscapes impacted the societies' socio-economic strategies, interaction systems, and mobility. Finally, the session will seek to identify patterns within and between these places and their associated human activities that should ideally be incorporated into best practices for documenting, investigating, and preserving such structures.

906. Long-term Coexistence of Herding and Hunting Camelids in the Andean Highlands: Evidence from Holocene Hunting Traps at Lake Titicaca, Bolivia

Authors: Christophe Delaere (Université libre de Bruxelles) – Romuald Housse (IFEA) – Sergio Durán Chacón (UMSA)
Format: Oral

This communication aims to explore the nature, chronology, and role of monumental bottleneck hunting structures with kite-like morphologies, also known as chacu or chaku, identified since 2024 on high-altitude plateaus (> 4,000 m asl) on the eastern slopes of the Lake Titicaca basin (Perú, Bolivia). While the earliest evidence for camelid domestication in the Lake Titicaca region dates to the Middle Holocene (ca. 4,400 BP), and recent models based on archaeozoological data (e.g., osteometry, age profiles) suggest a gradual transition from specialized hunting to herding beginning around 3,500 BP, shortly before the permanent sedentarization of lacustrine populations (e.g. Formative period), several lines of evidence call for a reassessment of this processual model. Ethnohistorical sources, chronologically heterogeneous archaeological material collected from surface contexts, and the analysis of this newly identified hunting structures indicate that the use of these monumental bottleneck traps and camelid hunting may have persisted and coexisted with pastoralism until the Early Colonial period (ca 450-350 BP) in the Lake Titicaca region. In particular, preliminary results suggest that the projectile points associated with these structures, dated between 7,000 and 1,500 BP, reflect the antiquity and long-term use of these hunting structures. Additionally, ceramic fragments recovered from these hunting sites—spatially isolated from any habitation areas—and dated from the Tiwanaku period (1,350-900 BP) to the Early Colonial period (450-350 BP), together with the remarkable state of preservation of the structures, suggest regular maintenance and continuity of use up to the Spanish

conquest. The role and chronology of these structures remain uncertain, as their function may have potentially shifted from kill-sites to camelid capture facilities used for wool shearing, raising several questions that this investigation aims to address.

1900. Submerged Hunting Architecture: how to study the potential for Late Glacial/ Early Holocene drive lanes in the Baltic Sea

Authors: Afke Van Zijverden – Marcel Bradtmöller (Universität Rostock) – Jacob Geersen (Leibniz Institute for Baltic Sea Research) – Jens Auer (Landesamt für Kultur und Denkmalpflege Mecklenburg-Vorpommern) – Harald Lübke (Leibniz-Zentrum für Archäologie)
Format: Oral

The study of newly discovered underwater structures of larger scale in the Baltic Sea offers a unique possibility to better understand, subsistence strategies, mobility patterns, hunting strategies and territorial developments of the first hunter- gatherers to follow the retreating ice sheets in northern Europe. However, due to its depth, size and lack of comparable studies in the Baltic Sea, archaeological field work is challenging and interpretation up to now uncertain. In order to better understand how to assess the origin (natural vs. anthropogenic) of these and to interpret the possible function comparable features from prehistoric and sub-recent times are to be evaluated and comparatively analysed using quantitative as well as qualitative data sets. In doing so, this review of existing structures and the conducted archaeological research there is a prerequisite for a solid scientific interpretation of the Blinkerwall and comparable structures which might exist elsewhere in the western Baltic Sea. This paper will present first comparative examples that are used to establish a new workflow. This workflow lays at the basis for why we currently consider a prehistoric "drive lane" to be the most likely explanatory model for the large structure on the Baltic Sea floor.

2737. When does the right spot stay the right spot? The hunting architecture to herding architecture hypothesis

Authors: Ashley Lemke (University of Wisconsin-Milwaukee)
Format: Oral

Hunting architecture in the from of drive lanes, hunting blinds, and other features, is ubiquitous across time, space, and cultures. Built structures channel prey animals into targeted areas, increasing the likelihood of hunting success and predictably of animal movements. While these structures can be difficult to identify – there had been a range of archaeological investigations both terrestrially and underwater on such features. The oldest structures dating thus far (n=3) are all within 9,000-10,000-year-old – and represent a change in subsistence strategies independently in different parts of the globe, including the Near East, Baltic, and Great Lakes. Such features continued to be used throughout the Holocene and share similarities with corrals and other herding features. This paper will present the hunting architecture to herding architecture hypothesis, positing that herding behaviours evolved from changes in hunting techniques that revolutionized social and economic behaviours of hunting and gathering populations and in some places lead to a direct route to herding of domesticated animals.

1656. Submerged Stone Structures in the Western Baltic Sea: Evaluating Natural and Anthropogenic Origins through Integrated Geoarchaeological Methods

Authors: Jacob Geersen – Warren Kwok – Peter Feldens (Leibniz Institute for Baltic Sea Research) – Marcel Bradtmöller – Afke Van Zijverden (University of Rostock)
Format: Oral

The Baltic Sea region has undergone multiple environmental phases since the end of the last glaciation (~15 ka), characterised by repeated sea-level fluctuations of up to 30 m. These phases have left distinct imprints on the landscape. While terrestrial landscapes are well studied, they have also been extensively modified by human activity. In contrast, submerged landscapes remain less investigated, disturbed, and understood, offering a unique opportunity to reconstruct the past. Advances in marine mapping have led to the identification of submerged stone structures, some of which may be anthropogenic in origin. The most prominent example is the Blinkerwall, a 971 m-long linear stone structure that may represent one of the oldest and largest megalithic constructions in Europe. Following this discovery, other anomalous stone features identified in earlier Baltic Sea surveys have been re-evaluated. The site selected for this study is located offshore from Heiligenhafen in the Fehmarnsund, the narrow strait separating mainland Germany from the island of Fehmarn. The anomaly was first reported by Franz Tauber in 2007, who identified the presence of rough linear and circular stone structures. These features have been noted to resemble certain architectural elements associated with desert kite trapping structures. However, before anthropogenic interpretations can be substantiated, it is essential to assess whether natural processes could account for their formation. This study therefore examines a range of potential geological mechanisms, including glacial till deposits (moraines), glaciofluvial formations (eskers), subglacial meltwater erosion (tunnel valleys and potholes), and ice stagnation and melt-out features such as kettle holes. By cross-examining regional examples of these processes against the characteristics of the Heiligenhafen site, this research aims to clarify its origin and seeks to contribute a methodological framework for distinguishing natural from anthropogenic submerged stone structures, which are likely to be identified increasingly as marine survey technologies continue to advance.

1000. The Andean Chacu: Intersection of ritual, dance, and hunting architecture

Authors: Adrián Oyaneder (Archaeology and History Department, University of Exeter | Departamento de Antropología, Universidad de Tarapacá)
Format: Oral

Collective ungulate capture using V- or funnel-shaped traps is well documented across many continents (e.g., desert kites) but has been sparsely studied in the South-Central Andes. Locally known as chacu, or "royal hunts", this cultural practice offers more than has previously been recognised. Known to have been employed by the Inka to capture ungulates, with the vicuña (Vicugna vicugna) as a specific target. Colonial records refer to a specialised group of vicuña hunters called the Choquela in the circum-Titicaca region, while in the lake's southwest, the Aymara Choquela ritual dance re-enacts chacu hunts. Among the Uru Chipaya people of Bolivia's Salar de Coipasa, myths recount a wind-borne vicuña hunt following a path from northern Chile's Pacific coast into the western Bolivian highlands. This path traces toponyms linked to nearly 300 traps distributed between 2800 and 4300 meters above sea level, an altitudinal range where chacu sites generally overlap with the habitats of the vicuña and Andean deer. Drawing on archival, ethnographic, rock-art, and remotely sensed evidence, this research broadens the understanding of these V-shaped traps in the South-Central Andes. It suggests that while this cultural practice has deep historical roots across the region, northern Chile concentrates by far the largest number of traps in the Andes, coincidentally the region that nowadays holds the lowest vicuña population.

2689. Step by step: Preliminary results from the archaeological fieldwork on submerged stone structures in the Baltic Sea

Authors: Marcel Bradtmöller (University of Rostock) – Harald Lübke (Leibniz-Zentrum für Archäologie, Schleswig location) – Afke Van Zijverden (University of Rostock) – Jacob Geersen (Leibniz Institute for Baltic Sea Research) – Jens Auer (Landesamt für Kultur und Denkmalpflege Mecklenburg-Vorpommern)
Format: Poster

Following the announcement of the discovery of the 'Blinkerwall' site off the Mecklenburg coast in the Baltic Sea in early 2024 — interpreted as the remains of an artificial drive lane used to hunt reindeer herds — indications of comparable-sized large-scale stone structures emerged in the Western Baltic Sea. To date, more than half a dozen such megastructures have been reliably identified along the coast of the German Baltic Sea, stretching from the Flensburg Fjord in the northwest to the island of Rügen in the east. Similar structures have also been reported in Danish waters. Most of these findings have not yet been investigated in depth by means of underwater archaeology and high-resolution marine geophysical data. However, from such legacy data, there is evidence that many of these structures share different morphological characteristics. This paper aims to present the current state of archaeological research into these newly or sometimes rediscovered stone structures on the seabed of the Western Baltic Sea. In doing so, we will discuss the recent challenges encountered during our fieldwork on these large-scale structures that are often located in water depths beyond 20 m.

97 ETHICAL STEWARDSHIP OF HUMAN REMAINS IN MUSEUMS, UNIVERSITIES, COMMERCIAL ARCHAEOLOGY FIRM COLLECTIONS, AND MEDICOLEGAL CONTEXTS

Theme: 3. Museums and cultural heritage in the era of 'permacrisis'
Organisers: Megan Fry (University of Cincinnati) – Alexandra Johnson (Forensic Access) – Samantha Mccrane (University of West Florida | District 1 Office of the Medical Examiner)
Keywords: Osteology, Forensic, Human Remains, Ethics, Stewardship, Museum
Format: Discussion session

SESSION ABSTRACT

This session explores the role of museums, educational institutions, archaeological firms, and medicolegal entities as stewards of humanity's past and present. Human remains maintain an important role in informing interpretations of peoples' stories, as well as educating future practitioners. However, clear guidelines on ethical care, use, and/or return of skeletal remains do not exist in many contexts. Oftentimes, human skeletal remains fall into legal and ethical gray areas, allowing subjective and inconsistent interpretations of stewardship and/or disposition requirements. Simply put, there is inadequate or ineffective legal framework in many localities to handle the complexities of engaging with human remains for education and scientific study. The recent changes to the Native American Graves Protection and Repatriation Act (NAGPRA) in the United States has seen an increased public support for the repatriation of Ancestors, but where does that leave those who continue to be held in the public trust such historic, non-Indigenous, or unidentified individuals? We encourage submissions that address the legal loopholes that govern the "ownership" and "sale or transfer" of human remains and how legilsation varies globally. What are some of the pros and cons of legislation in different countries and should we work toward constructing a global framework? How can osteological practitioners work collaboratively to ensure consistent and ethical treatment and use of human remains? How can descendant communities' wishes be incorporated into law to ensure culturally sensitive care? What alternatives are there to studying human remains from historically marginalized groups which were collected without consent? How have various fields (e.g., forensic anthropology, medical schools) worked to combat this issue? We especially encourage submissions with ongoing or successfully completed projects that are actively combatting these issues. We hope this session facilitates a lively discussion bridging the gap between laws, ethics, and science, while centering community knowledge and ethical stewardship.

CONTRIBUTION ABSTRACTS

2331. Jurisdictional Grey Zones: Ethical and Legal Challenges in the Disposition of Skeletonised Human Remains

Authors: Samantha Mccrane (University of West Florida Anthropology Department | District 1 Medical Examiner's Office) – Megan Fry (University of Cincinnati Anthropology Department) – Deanna Oleske (District 1 Medical Examiner's Office) – Heather Walsh-Haney (Florida Gulf Coast University Justice Studies Department) – Kathryn Miyar (Division of Historical Resources Florida Department of State)
Format: Oral

Recently, there has been an increased interest in transparency regarding retention of human remains, including their timely and ethical disposition. However, there is often little to no standardised guidance on best practices, and even fewer codified or legal specifications pertaining to skeletonised human remains without provenance. Within a medicolegal context, human remains with a deemed 'modern' or 'forensically relevant', trophy skulls, or relinquished anatomical specimens, often fall into a grey area, not within the defined purview of the medical examiner's office. They are also not old enough to definitively fall under the jurisdiction of the State Archaeologist. In these instances, disposition of remains is especially tricky because without clear legal jurisdiction, it becomes unclear who has the authority to dispose of the remains, in what manner that should occur, or to order further testing to establish provenance and/or postmortem interval. Likewise, there are complications when one attempts to determine if they are potentially NAGPRA eligible. Recent updates (88 FR 86452) to the regulations, established Duty of Care requirements (43 CFR 10.1(d)), which necessitates that Tribes must be consulted prior to any analyses. However, without some analysis (e.g., osteological ancestry/ population affinity estimation, analysis of associated artefacts), it is not possible to establish provenance to know which Tribes should be contacted or if the remains are in fact of Native American ancestry. This is especially true for remains which have been used in medical or teaching collections and no provenance information is available. Additional complications arise when legal regulations vary by state, providing protections for some individuals and not others. The legal grey area of jurisdiction of human skeletal remains leaves many individuals in legal limbo, forcing many to remain in storage within institutions who do not have a clear path for disposition.

2112. Return of the Resurrection Men: How Legal Loopholes Enable Grave Robbing and Illicit Trafficking of Human Remains

Authors: Megan Fry (University of Cincinnati) – Samantha Mccrane (University of West Florida)
Format: Oral

Across many national and international contexts, the ownership, sale/transfer, and/or disposition of human remains is governed by fragmented, outdated, or absent legal frameworks. This lack of comprehensive oversight has created regulatory gaps that facilitate the illicit trafficking of human remains through both formal and informal markets. Although laws addressing burial disturbance, forensic investigation, and Indigenous ancestral remains exist in some jurisdictions, these statutes frequently fail to account for skeletonised, disarticulated, or decontextualised remains that fall outside clearly defined medicolegal or archaeological categories. As a result, such remains often exist in a legal vacuum in which responsibility, authority, and accountability are unclear. Inconsistent legislation and limited enforcement mechanisms directly contribute to the growth of human remains trafficking. Drawing on case studies from academic collections, online marketplaces, and private dealers, this paper demonstrates how ambiguity surrounding provenance, jurisdiction, and ownership enables the commodification and circulation of human remains. These are compounded by narrow legal definitions of what constitutes "human remains," wherein some biospecimens - often including osseous specimens- are frequently excluded from meaningful regulation. This allows human remains to circulate with minimal scrutiny, often stripped of contextual information and severed from the individuals and communities they once belonged. This has contributed to the growth of illicit markets, particularly through online and social media platforms that are difficult to regulate. Procurement pathways—including grave robbing and unethical or illegal disposal by medical suppliers and mortuary practitioners—are similarly enabled by insufficient legal oversight. We argue that current regulatory approaches prioritise reactive enforcement over preventative governance, leaving institutions, practitioners, and descendant communities without clear guidance. We emphasise the need for cohesive legal standards that centre transparency, accountability, and respect for human dignity in order to disrupt trafficking networks and establish ethical pathways for the care and disposition of human remains.

2422. Tracing Origins and Confronting Legacies: Provenance Research at the Museum of the University

of Tübingen MUT

Authors: Anne Kremmer – Annika Vosseler (Museum of the University of Tübingen MUT)
Format: Oral

The Museum of the University of Tübingen MUT serves as an umbrella organisation for about eighty collections across all faculties of the University of Tübingen. These collections encompass a diverse range of holdings, and ancestral human remains, and reflect centuries of academic research, collecting practices, and scientific exchange. As custodians of these collections, the MUT is confronted with the ethical and practical challenges of caring for ancestral human remains in a context where binding legal frameworks remain limited or absent. In response, the MUT has established a sustained institutional commitment to provenance research and targeted projects focusing on ancestral human remains from colonial contexts. This work is guided by non-binding frameworks, particularly the Joint Guidelines (2025) and the Eckpunkte-Papier (2019), which the MUT uses as key points of orientation in the absence of comprehensive legislation. Within this framework, ancestral human remains are prioritised, with an emphasis on dignity, transparency, and cooperative decision-making wherever possible. Central to this approach is the re-humanisation of individuals who were removed from their original contexts under structural violence and unequal power relations. To support this work, the MUT follows a dual strategy combining a permanent institutional position dedicated to provenance research across the university's collections, with project-based research focusing specifically on ancestral human remains from colonial contexts. These initiatives seek to address the scientific legacies that objectify human bodies, encouraging and establishing a more sensitive and respectful approach in handling the individuals. By embedding provenance research as a sustained institutional commitment, the MUT critically engages with questions of ownership, ethical responsibility, and historical accountability. Its work also underscores the limitations of relying on guidelines in the absence of legal frameworks, while contributing to broader discussions on ethical care, restitution, and repatriation within university collections and providing an example for how universities can navigate these challenges.

787. Naming the Nameless: How the 'Liquidation Fallacy' Erases African History

Authors: Íosác Davidson (University of Cape Town)
Format: Oral

In the wake of South Africa's colonial and Apartheid history, thousands of human remains exist in a legal and ethical deadlock. This paper explores the "permacrisis" facing South African bioarchaeology: a conflict between modern European protocols of informed consent and the urgent moral mandate to restore identity to those buried without a name. We identify a growing danger termed the "Liquidation Fallacy"—the belief that if historical remains lack modern provenance, the most "ethical" path is to rebury them and delete their associated scientific data. We argue that this approach actually completes the work of the colonizer by erasing the last physical evidence of marginalized people, committing a "Double Erasure" of their existence. To find a way forward, we look to the "Golden Mean" (the Shvil ha-Zahav) of the 12th-century physician-scholar Maimonides. This framework of pre-colonial Afro-Mediterranean rationalism suggests that virtue lies in an ethical equilibrium—avoiding both the extreme of data destruction and the extreme of exploitative research. We demonstrate how modern science acts as a "biological fingerprint" that can return a name and a lineage to an ancestor. Ultimately, we argue that protecting the scientific pipeline is not just an academic goal; it is a human rights requirement. By refusing to let these individuals be "liquidated" into silence, we ensure that the dead are finally given their names back.

391. The Curation of Archaeological Human Remains in Türkiye: Comments on Legislation and Practice in the Case of the Juliopolis Research

Authors: Ali Büyükkarakaya (Hacettepe University)
Format: Poster

Archaeological research experience in Türkiye, dating back to before the founding of the Republic, has increased rapidly, especially since the 1930s. Although archaeological human remains unearthed from various contexts have been included in this general research from the outset, the fact that the relevant legislation has mostly focused on archaeological artifacts has led to ambiguities regarding the curation and research of human remains continuing to the present day. In the country, archaeological human remains are kept for preservation in the storage facilities of museums and are also stored in university anthropology laboratories for preservation, research, and educational purposes. While it is noted that the number and quality of anthropological studies at universities are increasing day by day, it is evident that the academic debate on the managing and exhibition of these remains is insufficient. Over 800 graves have been excavated in the cemetery areas of the ancient city of Juliopolis, located within the borders of Ankara, the capital of Türkiye. Most of the excavations were carried out by experts from the Museum of Anatolian Civilizations. The human remains excavated from these tombs were initially kept in the museum's storage facility, but since 2018, with the support of Koç University Vehbi Koç Ankara Research Center (KU VEKAM), they have been transferred to Human Behavioral Ecology and Archaeometry Laboratory (IDEA lab) at Hacettepe University. Since then, these remains have been preserved at the IDEA lab, used for educational purposes, studied bioarcheologically, and utilized in various ways in public archaeology events and exhibitions. The objectives of this study include sharing general information about archaeological human remains in Türkiye, evaluating the relevant national legislation and practices through the process carried out during the Juliopolis Anthropological Research, and

assessing the problems encountered and the solutions produced in terms of ethics and other social issues.

727. Teaching Collections as Dynamic Assemblages: Ethical Challenges of Storage, Handling, and Fragmentation in University Osteological Collections

Authors: Myrsini Voulgari – Jayneth Ordonez – Kimberly Grande Tepoz (Kean University)
Format: Poster

University osteological collections play a significant role in anatomical and bioarchaeological education. Nevertheless, long-term possession of the skeletal remains is shaped by legacy storage practices, repeated student handling, and limited resources for curation. This poster examines how these factors contribute to the fragmentation, commingling, data loss and poor storage of the teaching collections, framing student synergy as a way of post-collection alteration with ethical implications. Based on ongoing work with Kean University's skeletal collection used for anatomy instruction, this study documents patterns of intermixing, fragmentation and loss associated with overextended periods of use and storage conditions. The study focuses on the ethical tension between the accessibility for teaching and the responsibility to store and preserve the human skeletal remains with care, respect and scientific integrity. This poster shows the attempts to improve documentation, handling protocols and storage strategies while acknowledging the fact that teaching collections are dynamic assemblages. The goal of this study was to highlight the role and endeavors of the universities as long-term custodians of human skeletal remains and propose ways for balancing pedagogy with preservation.

995. Ethical Stewardship in Practice: Human Remains from Colonial Contexts in a German Regional Collection

Authors: Michaela Harbeck – Andrea Grigat – Albert Zink (SNSB, State Collection for Anthropology Munich)
Format: Poster

Museums, research institutions, and educational collections play a central role as stewards of human remains, balancing scientific inquiry, ethical responsibility, and legal regulation. While in Germany archaeological human remains recovered within national contexts are often governed by well-established legal frameworks, human remains from colonial contexts frequently occupy ethical and legal gray areas. Recent political and ethical developments have sought to address these complexities through coordinated national frameworks, culminating in the Joint Guidelines on Dealing with Cultural Property and Human Remains from Colonial Contexts (2025). These guidelines emphasize provenance research, transparency, dialogue with countries and descendant communities of origin, and case-by-case decision-making. However, their practical implementation remains uneven. This poster presents the results of an initial provenance assessment conducted at the Bavarian State Collection for Anthropology (SAM), a regionally focused archaeological collection with a limited number of non-European human remains. Based on surviving inventories, archival sources, and scholarly literature—and shaped by substantial documentation losses due to wartime destruction—the assessment identified several case clusters with potential colonial relevance. Rather than resolving provenance questions conclusively, the initial assessment functioned as a screening tool to determine where deeper investigation is ethically and historically required. While Germany now has developed a comparatively robust ethical framework, the SAM case demonstrates how legislative and policy advances alone are insufficient without sustained funding, specialized expertise, and international collaboration. By situating a concrete, ongoing project within broader debates on stewardship, legislation, and ethical practice, this contribution aims to foster comparative discussion on how institutions can bridge the gap between law, ethics, and the responsible care of human remains.

1844. Ethical Challenges in the Long-Term Storage of Unidentified Human Remains in Medicolegal Institutions

Authors: Niharika Niharika – Jagmahender Sehrawat (Department of Anthropology, Panjab University)
Format: Poster

Human remains lie at the heart of forensic research and medicolegal investigations, yet the ethical frameworks guiding their use remain uneven and fragmented. Deceased bodies, bones, tissues and biological samples form the foundation of forensic practice but there are no universally recognised ethical standards that govern their long term management, especially in cases where unidentified individuals are involved. Although forensic research differs fundamentally from clinical research on living subjects, it still has its own set of moral responsibilities. Ethical principles like Declaration of Helsinki serves as guiding values in this context that can be meaningfully adapted to the forensic setting. The main purpose of medico-legal investigation is the identification of the deceased to support criminal investigation, legal accountability and delivery of justice. Apart from its legal function, identification establishes a fundamental human right i.e. recognition as an individual and acknowledgement of identity after death. Long term unidentified human remains occupy a particularly vulnerable position within forensic systems. These individuals are gradually reduced to research or teaching material due to ethical neglect and limited identification efforts. Academic institutions and forensic laboratories should not be exempted from these concerns and carry a humanitarian responsibility towards the dead. Practical aspects of dead body management are adequately addressed within global health literature but the ethical and sociocultural dimensions to handle human remains are insufficiently examined. Lack of engagement with these issues leads to consequences felt by families, communities and cultural groups to whom the dead holds social and emotional significance. Framing stewardship as both an ethical and professional responsibility opens space for more transparent, equitable, and humane approaches to the long-term management and identification of human remains in medicolegal settings.

102 INACCESSIBLE ARCHAEOLOGIES: INTERDISCIPLINARY PATHWAYS IN MEDITERRANEAN AND NORTH AFRICAN ARCHAEOLOGY

Theme: 8. Beyond the Middle Sea: rethinking the Mediterranean in motion
Organisers: Lorena Lombardi (University of Pisa | CNR-ISPC Rome) – Alessia Brucato (Independent Researcher) – Giulia Muti – Rafael Laoutari (University of Cambridge | McDonald Institute for Archaeological Research)
Keywords: Inaccessible Archaeology, Methodology, Mediterranean, North Africa, Southwest Asia
Format: Regular session

SESSION ABSTRACT

From northern Africa to the Aegean, and from the Strait of Gibraltar to the Lebanese coast, the Mediterranean and its surrounding regions (including deserts) comprise vast archaeological landscapes often untouched by traditional research. Yet these challenging areas are crucial for redressing long-standing imbalances in the study of the Mediterranean from prehistory to the present, shaped by historical, political, and environmental asymmetries that have favoured certain regions and periods over others. This unevenness has been recently exacerbated by additional pressures, such as urban expansion, uncontrolled tourism, political instability and conflict, and natural resource exploitation. These factors have been compounded by climate-driven processes—including extreme weather events, desertification, and landscape erosion—that accelerate the loss of archaeological records. As a result, it is becoming increasingly difficult, and in some cases impossible, for archaeologists to access and excavate sites. Investigating these inaccessible archaeologies is therefore not only a matter of expanding datasets, but also a timely methodological and ethical necessity. Today, archaeologists must rethink how knowledge is produced when fieldwork is not feasible, devising new interdisciplinary, collaborative, and inclusive strategies for studying the Mediterranean and North Africa. This session aims to explore methodologies that can be universally applied to analyse physically inaccessible, unreachable, lesser-known, or vanishing archaeological contexts, moving beyond regional and chronological boundaries. By bringing together diverse case studies and methodological approaches, the session seeks to stimulate critical reflection on how to investigate contexts characterised by the impossibility or limitations of field research. It invites contributions that address these challenges and propose innovative approaches to the study of inaccessible archaeologies, particularly through: • museum collections and archival documentation; • innovative methodological frameworks for artefacts; • remote and proximal sensing, GIS, and digital modelling; • the application of computational archaeology, databases, and open-source tools; • ethical and deontological considerations in the investigation of inaccessible archaeologies.

CONTRIBUTION ABSTRACTS

1638. Legacy Data, Inherited Narratives: the Site of Philia/Vasiliko-Laksia tou Kasinou in Occupied Cyprus at the Dawn of the Bronze Age

Authors: Rafael Laoutari (McDonald Institute for Archaeological Research)
Format: Oral

The origins of the Bronze Age in Cyprus have fascinated scholars since Cypriot archaeology emerged as a discipline. From early culture-historical narratives, through processual and post-processual approaches, to recent studies emphasising the materiality of the record, interpretations remain divided. The ongoing debate centres on contrasting models: one prioritising migration, the other advocating for indigenous processes stimulated by foreign contact. A key factor sustaining this controversy is the limited material available, due in part to the enduring 'Cypriot Problem', which has constituted the northern, illegally occupied part of Cyprus inaccessible to fieldwork since the military invasion of 1974. The transitional phase marking the beginning of the Cypriot Bronze Age is known as the 'Philia Culture/Facies' (c.2500-2200BCE). The term derives from the cemetery at Philia/Vasiliko-Laksia tou Kasinou, the first site to yield associated material and now located in occupied Cyprus. Excavated in the 1940s-1950s, the multi-burial assemblages from its five tombs have never been systematically studied or fully published, despite a preliminary publication (1962) and the site's continued presence in the literature. The recent reassessment of the material from Philia/Vasiliko—stored in the Cyprus Museum since its excavation—offers new insights into the social processes that led to the beginning of the Cypriot Bronze Age. This presentation discusses the results of the systematic re-examination of this material (including ceramics, metal and other small finds) and contextualises them within social dynamics expressed through mortuary practices, both locally and across the island. It highlights continuities from the earlier Late Chalcolithic period, experimentation with newly introduced features, and the regional nature of the 'Philia Culture/Facies' phenomenon. Ultimately, this study contributes to a refined social narrative of the beginning of the Cypriot Bronze Age, demonstrating the importance of revisiting legacy museum collections and addressing interpretative biases created by archaeological inaccessibility caused by war and conflict.

345. Reassessing Egyptian Dynastic Lithic Production through Museum Collections: Methodological and Techno-Typological Approaches from Wadi el-Sheikh

Authors: Lorena Lombardi (University of Pisa | CNR-ISPC Rome)
Format: Oral

Between the late 19th and early 20th centuries, numerous museums worldwide acquired large quantities of artefacts from Egypt, including substantial lithic assemblages. Due to the paucity of contextual information and chrono-cultural diagnostic features, these collections have rarely been subjected to systematic investigation. This is the case for the artefacts collected by H. W. Seton-Karr in 1896 and 1897 at the Wadi el-Sheikh flint quarries in Middle Egypt, an area exploited from the Protodynastic period through to the Middle Kingdom. Following this initial phase, the region was only sporadically visited, initially due to the limited scholarly interest in dynastic lithic production and, more recently, as a consequence of the increasing constraints associated with conducting research in desert areas. Although later studies have clarified aspects of quarry organisation and extraction strategies, lithic technology remains poorly explored. This presentation aims to outline a suitable methodology and provide a reliable dataset related to dynastic production from a techno-economic perspective, starting from the Seton-Karr collection. For a long time, research on museum collections has primarily focused on collection histories rather than on the artefacts themselves or the societies that produced them. Despite the challenges posed by the dispersion of the artefacts and the selection made by Seton-Karr, a comprehensive analysis has been undertaken by integrating multiple collections held in Italy and the United Kingdom with a wide range of data sources, including archival documentation, historical maps, and detailed techno-typological analyses. By reassessing a long-neglected, poorly documented and inaccessible context, through the establishment of connections between these fragmented datasets and comparison with more recently excavated contexts from the Nile Delta and Eastern Desert, this study identifies long-term technical traditions dating back to the Predynastic period, as well as differing levels of craft specialisation and shifts in production organisation over time.

732. Beyond the Excavation: Reconstructing Labor and Lifeways from the Submerged Nubian Site of Sayala Using Bioarchaeological Legacy Collections

Authors: Joanna Ciesielska (Institute for Advanced Studies, University of Warsaw)
Format: Oral

Large areas of the Nile Valley have become archaeologically inaccessible due to dam construction, landscape transformation, and contemporary socio-political instability. The medieval Nubian site of Sayala in Lower Nubia exemplifies this challenge. Excavated during the UNESCO salvage campaign of the 1960s prior to the creation of Lake Nasser, much of the settlement and its surrounding landscape can no longer be investigated through traditional fieldwork. More recently, the outbreak of war in Sudan in 2023 has further disrupted archaeological research across the region, reinforcing the urgency of developing sustainable, non-invasive approaches to investigating the past through existing collections and archival data. This study investigates patterns of physical activity and biomechanical stress in the medieval Christian community of Sayala, located in southern Egypt. Analyzing human skeletal remains from Cemeteries I, J, and K (8th–10th centuries AD), the research integrates entheseal changes (ECs) and osteoarthritis (OA) to reconstruct the habitual labor and mobility of 72 adult individuals. Entheseal changes and osteoarthritis are widely used in bioarchaeology to reconstruct habitual activity, yet their multifactorial etiologies complicate interpretation. Results indicate a musculoskeletal profile characterized by mild, broadly distributed stress. Notably, the population displayed minimal directional asymmetry, suggesting that daily tasks involved bilateral, balanced mechanical demands rather than specialized, unilateral craft production. Statistical modeling revealed that age remains the primary predictor of musculoskeletal variation. Overall, the results suggest a pattern of moderate, repetitive, but non-intensive labor consistent with everyday domestic, agricultural, and mobility-related activities in a small Nile Valley settlement. The absence of pronounced hip and knee degeneration contrasts with expectations for intensive farming populations, suggesting diversified and seasonally variable activity rather than lifelong heavy labor. This study highlights the methodological and ethical value of museum-based research for reconstructing social and economic lifeways in archaeological landscapes that are physically inaccessible, permanently transformed, or endangered.

860. Submerged worlds and their recovery: the case of the Lower Nubia seen through the eyes of Ugo Monneret de Villard

Authors: Greta Rocchino (PIAC)
Format: Oral

The project focuses on the region of Lower Nubia, a territory profoundly altered by the construction of the Aswan Dam, which led to the permanent submergence of extensive areas along the Nile. As a result, numerous archaeological sites and cultural landscapes were lost, and their reconstruction now depends almost exclusively on documentation produced prior to the flooding. This study addresses the methodological challenge of reconstructing a vanished landscape through the critical use of archival sources. The primary sources consist of diaries, excavation notebooks, correspondence, photographs, drawings, and sketches produced during early twentieth-century archaeological missions in Lower Nubia. Photographs and drawings are examined to extract architectural, topographical, and contextual information. Particular attention is paid to the interaction between text and image, assessing how different media contribute to the construction of archaeological knowledge and how omissions, emphases, or inconsistencies emerge across sources. A central case study within this framework is the manuscript and photographic archive of Ugo Monneret de Villard, preserved in Rome. This archive represents a substantial and largely underexploited dataset for the study of Lower Nubia. Monneret de Villard, an Italian archaeologist active in the early twentieth century, was commissioned to document sites already perceived as endangered and destined to disappear beneath the waters of the Nile. His documentation is analyzed not only for the information it provides on specific sites, but also as evidence of contemporary recording practices, research priorities, and institutional constraints. Archival data are cross-referenced with modern sources to locate lost sites, reconstruct their original setting, and evaluate landscape change over time. By integrating archival classification, source criticism, visual analysis, and spatial comparison, the project proposes a replicable methodological model for reconstructing submerged or destroyed archaeological landscapes and demonstrates the analytical potential of archival sources when approached as structured datasets rather than isolated testimonies.

2299. Christian topography of Mauretania Sitifensis – challenges of research in Algeria

Authors: Michal Kuzminski (Pontifical Institute of Christian Archaeology)
Format: Oral

North Africa is renowned for its dense network of Roman-era archaeological sites, yet accessibility varies significantly across the region. In Algeria, a vast archaeological heritage extensively documented during the French colonial period saw a sharp decline in international scientific exchange, excavations, and surveys following independence. This paper addresses the challenges and methodologies of conducting research on Christian topography between the 4th and 7th centuries AD in Mauretania Sitifensis (modern-day eastern Algeria). The study utilizes archaeological data from 19th and early 20th-century excavations as a primary point of departure. These records have been integrated into a georeferenced database and reassessed using satellite imagery to determine their current condition and accessibility, particularly in the face of modern urban expansion. This data serves as the foundation for a predictive model employing the Weight of Evidence (WoE) method. By analyzing the environmental and spatial characteristics of known locations, the model identifies high-probability areas for undiscovered sites. The results can further be validated through remote sensing and, where feasible, targeted archaeological surveys, offering a possibility to continue the research, even despite the limited accessibility to the sites.

103 NON-TRADITIONAL ISOTOPES IN ARCHAEOLOGICAL RESEARCH

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Jessica Cardoso (Austrian Academy of Sciences) – Danaé Guiserix (Vrije Universiteit Brussels) – Klervia Jaouen (Géosciences Environnement Toulouse)
Keywords: Isotopes, Non-traditional isotopes, Diet, Provenance, Paleoenvironment, Technology
Format: Regular session

SESSION ABSTRACT

Isotopic analysis has long contributed to archaeological research by complementing evidence derived from material culture, human, faunal and botanical remains, and paleoenvironmental studies. While carbon, nitrogen, and strontium isotope systems have been foundational for reconstructing aspects of diet, mobility, and landscape use, recent developments in non-traditional isotope applications (including zinc, copper, calcium, iron, magnesium, and lead) have expanded the range of questions that can be addressed. These advances reflect broader interdisciplinary engagement within archaeology, where collaborations among geoarchaeologists, bioarchaeologists, zooarchaeologists, archaeobotanists, and specialists in ancient technologies allow for more nuanced and contextually grounded interpretations of past societies. This session aims to highlight not only methodological innovation but, above all, how emerging isotopic approaches contribute to archaeological interpretation. We welcome papers that employ non-traditional isotopes or unconventional applications of traditional systems. Possible topics include dietary reconstructions using zinc, calcium, or stable strontium isotopes; provenance studies of metals, pigments, or ceramics through lead, copper, or iron isotopes; investigations of physiological processes and mobility patterns with magnesium or Sr–Ca ratios; CSIA of amino acids or other biomolecules; and unconventional applications of traditional isotope systems, such as nitrogen isotope analyses in dental enamel or micro-scale isotopic mapping. We particularly encourage studies that integrate isotopic results with other archaeological datasets, such as material culture, bioarchaeology, and spatial or stratigraphic information, to address key research questions across different periods and contexts. By highlighting the combination of isotopic and archaeological evidence, this session aims to show how innovative isotopic tools can enhance understanding of past societies, foster interdisciplinary collaboration within archaeology, and open new pathways for future research. Contributions led by early-career researchers and case studies grounded in archaeological questions are especially welcome.

CONTRIBUTION ABSTRACTS

452. Reconstructing Diet in a Brazilian Shellmound (Piaçaguera site) through Compound-Specific Isotopic Analysis of Amino Acids

Authors: Marina Di Giusto (Géosciences Environnement Toulouse) – Veronica Wesolowski (University of São Paulo) – Klervia Jaouen (Géosciences Environnement Toulouse)
Format: Oral

Bulk collagen carbon and nitrogen isotope analyses (δ13C and δ15N) have become frequent in studies of human groups buried in Brazilian shellmounds (sambaquis), expanding our understanding of their dietary practices. More recently, compound-specific isotopic analysis of amino acids (CSIA-AA) has emerged as a method providing more detailed dietary information. Previous bulk δ13C and δ15N analysis of human remains recovered from the Piaçaguera shellmound (southeastern coast of Brazil; 7,163 – 5,703 years BP) suggested a mixed marine and terrestrial diet, with no sex-based differences, but with different degrees of terrestrial resource intake between two contemporaneous burial groups. The present study aims to further investigate this intra-group dietary variability at Piaçaguera through δ13C analyses of individual amino acids in bone collagen from 19 individuals. By applying this approach, we test the hypothesis that dietary practices within sambaqui-associated populations were not necessarily homogeneous, and that differential access to marine and terrestrial resources may have existed within the group.

1799. Investigating milk consumption using a novel calcium isotope proxy

Authors: Pierre-Jean Dodat (Organic Geochemistry Unit, University of Bristol | Bristol Isotope Group, University of Bristol) – Tim Elliott – Jamie Lewis (Bristol Isotope Group, University of Bristol) – Theo Tacail (The Isotoparium, California Institute of Technology) – Melanie Roffet-Salque (Organic Geochemistry Unit, University of Bristol)
Format: Oral

The onset of the Neolithic is characterised by the introduction of new foodstuffs into the human diet. Of these introductions, the consumption of milk and dairy products by adults represents one of the most significant changes in the human diet. However, assessing and quantifying milk consumption at the individual level in human populations remains challenging. The NeoCalcium project intends to use bone calcium isotope composition (δ44/42Ca) to obtain direct quantitative information on dairy product consumption in human populations. Previous studies (Tacail et al. 2021) proposed a correlation between Ca isotopic value and time (between 10 kyr and the present) based on the global increase of dairy products in diet since the Neolithic. However, this trend may not be accurate for regional and cultural variations. In this study, we compare a dairy consumption proxy (the δ44/42Ca values of bones) to a dairy production and transformation one (proportion of potsherds containing dairy lipids) in order to calibrate a model to quantify dairy consumption. New and published calcium isotopic data allow us to establish a correlation between δ44/42Ca bone values and the fraction of dairy residues in sherds from sites where both are available. This correlation matches the model of calcium isotope distributions in bones based on the Ca budget in diet estimated for Neolithic populations established by Tacail et al. 2021. This study paves the way to study dairy consumption at an individual level and explore dairy consumption during periods or in areas where populations did not use pottery.

1927. Multi-isotope dietary reconstruction of Modern and Beringian Gray Wolves

Authors: Eve Lindroos (Université de Toulouse | Géosciences Environnement Toulouse) – Auguste Hassler (University of Aberdeen | University of Ottawa) – Zoe Landry (University of Ottawa | Canadian Museum of Nature) – Danielle Fraser – Scott Rufolo – Gregory Rand (Canadian Museum of Nature) – Clement Bataille (Purdue University | University of Ottawa)
Format: Oral

Traditional isotopes such as carbon [$\delta^{13}C$] and nitrogen [$\delta^{15}N$] are widely applied as dietary proxies but are vulnerable to organic degradation and sensitive to environmental baseline shifts. Non-traditional isotopes (i.e., calcium [$\delta^{44/42}Ca$]) have been proposed as complementary and potentially more robust dietary proxies. Calcium isotopes are ideal for dietary reconstructions as they are diet-derived and exhibit predictable trophic-level fractionation. Additionally, calcium isotopes are well preserved in tooth enamel which is resistant to diagenesis and not susceptible to organic degradation. Beringia, the landmass that connected Alaska and Yukon to eastern Siberia for extended intervals throughout the Cenozoic, experienced significant climate warming during the terminal Pleistocene (~16,000–11,700 BP) and increasing human presence (~24,000–12,000 BP), coinciding with widespread North American megafaunal extinctions. Despite these ecological pressures, gray wolves (Canis lupus) survived, potentially due to dietary flexibility. We further tested this hypothesis by incorporating non-traditional isotopes ($\delta^{44/42}Ca$) alongside traditional isotopes ($\delta^{13}C$ and $\delta^{15}N$) as dietary proxies to reconstruct the dietary habits of gray wolves in Beringia over the last 50,000 years. Bayesian stable isotope mixing models (BSIMMs) based on $\delta^{13}C$ and $\delta^{15}N$ indicate that Pleistocene wolves primarily consumed large ungulates, specializing on horses. Whereas modern wolves exhibit a generalist diet. Incorporating $\delta^{44/42}Ca$ as a third dimension revealed a more pronounced shift, where Pleistocene wolf diets were comprised almost exclusively of horses, whereas modern wolves consumed a broader range of smaller prey, including smaller-bodied mammals. This dietary shift likely reflects the extinction and reduced abundance of large ungulates during the Late Pleistocene and supports the hypothesis that dietary flexibility was key to gray wolf survival. Our findings suggest that integrating traditional ($\delta^{13}C$ and $\delta^{15}N$) and non-traditional ($\delta^{44/42}Ca$) isotopes to investigate ancient diets and ecological structures presents an exciting development for numerous fields, including and not limited to, palaeoecology, palaeobiology, bioarchaeology, and zooarchaeology.

2351. Assessing the effects of food processing on $\delta^{88}Sr$ values in food resources

Authors: Hannah James – Christophe Snoeck (Archaeology, Environmental Changes & Geo-Chemistry, Vrije Universiteit Brussel)
Format: Oral

Stable strontium (δ88Sr) is an emerging proxy that is being increasing applied in archaeological and palaeoecological studies to reconstruct diet, environment, and trophic level relationships. However, the factors driving variation in δ88Sr in human tissues are likely complex and at this stage require further investigation. This study looks at one aspect introducing variation into human diet, the potential alteration of δ88Sr in food resources through processing. Strontium incorporated into human tissues reflects an average of strontium from all dietary components, but it is often dominated by high concentration resources. While the selection of particular food resources influences this strontium signal, but humans also do not just eat raw unprocessed food, we alter it

using processing, cooking, and preservation techniques. This study experimentally investigates the influence of boiling, roasting, and fermentation on the δ88Sr of both meat and plant food resources. These results are assessed alongside conventional 87Sr/86Sr and strontium concentrations ([Sr]) to assess the overall impact. Fractionation in δ88Sr is visible in temperatures less than 100oC, which lead to increased δ88Sr values, and compositional differences in tissue types lead to variable 87Sr/86Sr, δ88Sr, and [Sr] results. The implications of this human-induced variation in 87Sr/86Sr, δ88Sr, and [Sr] on dietary reconstruction and its potential to influence mobility estimations in archaeological studies will also be discussed.

565. New insights into Trans-Saharan gold trade in the Islamic Middle Ages revealed from gold coins multi-isotopic (Pb-Fe-Cu) and elemental characterization

Authors: Louise De Palaminy (TRACES, Toulouse | GET, Toulouse) – Baron Sandrine (TRACES, Toulouse) – Franck Poitrasson (GET, Toulouse) – Robert Kool (IAA, Jerusalem) – Maryse Blet-Lemarquand (IRAMAT-CEB, Orléans) – François-Xavier Fauvelle (Collège de France, Paris | CRJF, Jerusalem)
Format: Oral

The use of West African gold in medieval times is thought to have enabled the first globalised trade in history: the Trans-Saharan Trade, through the minting of Islamic dinars, which functioned as the equivalent of today's dollar or euro. Yet the precise origin of this gold remains debated, as archaeological evidence for such trade is scarce. While textual sources are numerous, they provide only indirect accounts, and the large corpus of surviving dinars has so far yielded limited insight as elemental analyses are not discriminating enough to establish geological provenance. To address this, a combined approach was applied, using multi-element data obtained by LA-ICP-MS and multi-isotope (Pb, Cu, and Fe) data measured by wet chemistry and MC-ICP-MS on 11 Fatimid dinars. This revealed two distinct metal stocks, differentiated by PGE concentrations and Cu isotopes. The heavy δ65Cu and δ57Fe isotope signatures could be consistent with supergene secondary oxidised ores, typical of West African gold mineralisation. In contrast, Pb isotopes (208Pb, 207Pb, 206Pb, 204Pb) and subsequent model ages and μ and κ parameters do not match the expected West African signatures, suggesting disruptions during the chaîne opératoire. This data further raises two key historical questions: the location of gold processing, whether it occurred North or South of the Sahara, and the possible reuse of older metal stocks.

1931. Lead Isotope Baselines and Human Enamel at Teotihuacan: Evaluating Possibilities for Paleomobility Research

Authors: Gina Buckley (Universidade do Algarve - ICArEHB) – Maria Fernanda García Hurtado – Peter Schaaf – Gabriela Solís-Pichardo (Universidad Nacional Autónoma de México) – George Kamenov (University of Florida) – Virginie Renson (University of Missouri Research Reactor)
Format: Oral

Lead (Pb) isotope analysis is increasingly recognized as a valuable tool in archaeological research, expanding beyond artifact provenance to address questions of human mobility and landscape interaction. While Pb isotopes have been successfully applied in parts of Europe where preservation is favorable and modern contamination is relatively limited, comparable approaches remain underdeveloped in much of the Americas. Extensive anthropogenic lead exposure and variable skeletal preservation have hindered the establishment of robust archaeological Pb-isotope baselines and their integration into bioarchaeological mobility studies. This paper evaluates the feasibility of Pb isotope analysis for paleomobility research at Teotihuacan, one of the largest urban centers of ancient Mesoamerica (AD 1–550). We establish regional Pb-isotope baseline data for the Basin of Mexico and surrounding geological zones through the analysis of bedrock and soil samples. Particular attention is given to labile soil fractions to assess the extent to which modern contamination may obscure natural isotopic variation. Preliminary Pb isotope results from human dental enamel are also presented, offering an initial framework for distinguishing local and non-local individuals within this complex urban landscape. By combining baseline development with bioarchaeological applications, this study highlights both the potential and the methodological challenges of implementing "non-traditional" isotope systems in mobility research in heavily impacted environments.

1759. Sr – Nd isotopic composition of ancient pottery from Moravia: first data from Central Europe

Authors: Julie Erban Kočergina – Tamara Sidorinova (Czech Geological Survey) – Jaroslav Peška (ACO Archaeological Center Olomouc, U Hradiska 42/6, 779 00 Olomouc, Czechia)
Format: Oral

This study presents the first combined Sr–Nd isotopic dataset for archaeological ceramics from Central Europe spanning the Neolithic to the Early Middle Ages, based on material from the long-occupied and culturally diverse site of Přerov–Předmostí (Czech Republic). The dataset establishes a practical methodological framework for applying Sr–Nd isotope systematics to ceramic materials and evaluating their potential for provenance and technological studies. Neodymium isotopes display high internal homogeneity across ceramic samples and appear largely insensitive to post-depositional alteration. In contrast, strontium isotopes show greater variability, reflecting modification related to vessel use, burial conditions, and the presence of surface pigments. These observations emphasize the necessity of careful sampling strategies, including the systematic removal of outer and inner surface layers prior to isotopic analysis. Ceramics from Přerov–Předmostí exhibit a consistent isotopic offset relative to local reference materials, including daub and loess, suggesting the exploitation of regional rather than strictly local clay resources. Isotopic overlap with the Třebíč pluton indicates a possible contribution of this unit to the coarse detrital fraction of local loess deposits. A distinct LBK ceramic

sample is characterized by elevated CaO, Sr, P, and Ba concentrations and comparatively low 87Sr/86Sr ratios, consistent with the use of Ca-rich clays and technological modification of the ceramic paste, potentially involving carbonate material and ash addition. Overall, the results demonstrate that combined Sr–Nd isotope systematics provide a robust tool for distinguishing local and non-local ceramic production, reconstructing clay and temper provenance, identifying technological modifications during paste preparation, and tracing long-term continuity in raw material exploitation. Quantitative mixing approaches remain challenging in isotopically heterogeneous and multi-component systems, underscoring the importance of integrating isotopic data with petrographic and geochemical analyses.

648. Lead Isotope Analysis and Comparison of Artifacts from the Terrestrial and Maritime Luna Settlement Sites

Authors: Alana Davis – Dominick Skultety (University of West Florida)
Format: Poster

As part of the excavation of the Emmanuel Points I and II shipwrecks that have been associated with the ill-fated site of Santa Maria de Ochuse, a mid 16th-century Spanish settlement in what is now Pensacola, United States that was struck by a hurricane early in its founding, several pieces of lead hull-sheathing were found in association with the maritime site. Previous lead isotope analysis has traced the origin of the lead used to manufacture the sheathing to Mina La Sultana, just north of Sevilla. Since then, however, excavations at the terrestrial site of the settlement itself have produced several lead net weights that appear to be hastily made. The purpose of this project is to use lead isotope analysis to determine whether the lead weights were made from salvaged pieces of sheathing from the shipwrecks after the hurricane destroyed them. This can reveal more about the provenience of their lead material and whether the source of it matches with Mina La Sultana. The results of this testing may closely match those of the lead hull sheathing of the shipwrecks, indicating that this material was reused to craft the net weights. Alternatively, if the lead isotope analysis suggests a different provenience for the lead, new details about its procurement and uses can be discovered.

724. Mercury isotopes as bioarchaeological markers: contributions and limitations for reconstructing past lifeways

Authors: Claire-Etoile Allexant (LAMPEA UMR-7269, Université d'Aix-Marseille, CNRS) – Klervia Jaouen – Jeroen E. Sonke (GET UMR-5563, Université de Toulouse, CNRS) – Guy Andre (LAMPEA UMR-7269, Université d'Aix-Marseille, CNRS) – Marina Di Giusto (GET UMR-5563, Université de Toulouse, CNRS) – Estelle Herrscher (LAMPEA UMR-7269, Université d'Aix-Marseille, CNRS)
Format: Poster

Since the 1970s, analytical advances have led to a rapid expansion of isotopic studies involving a wide range of elements. However, some elements remain largely unexplored, and their potential has yet to be fully assessed, including mercury (Hg) isotopes. Due to its dual isotopic fractionation and strong affinity for proteins, the analysis of mercury in bone and dentine collagen represents a promising approach for enhancing our understanding of the lifeways of prehistoric and historic populations. Even-mass number Hg isotopes (δ202Hg) only fractionate as a function of the trophic level of individuals, whereas odd-mass Hg isotopes (Δ199Hg) undergo mass-independent fractionation related to aqueous photochemical reactions. In this context, the combined use of Hg isotope ratios offers the opportunity to investigate both human activities and dietary practices, insofar as higher Δ199Hg values (≥0.3‰) would indicate shellfish or fish consumption, while lower values (~0‰) would be associated with activities related to metallurgy, tanning, and dyeing. To fully exploit this proxy, it is nevertheless necessary to quantitatively extract the mercury contained in collagen. However, collagen extraction protocols commonly used in bioarchaeology all involve a solubilisation step that may lead to partial mercury loss, given the volatile nature of this element. Different extraction protocols were therefore tested and compared to assess their impact on mercury preservation. Preliminary results indicate that some of the analysed samples, notably from the Neolithic site of Mentesh Tepe (South Caucasus) and the historic site of Saint-Laurent de Grenoble (France), contain mercury concentrations that are sufficient to allow isotopic measurements. The use of mercury isotope ratios thus appears to be a promising tool for reconstructing the lifeways of ancient populations.

1257. Evolution of anthropogenic pollution: novel sulfur isotope analysis of the Tyneside region of England from medieval period to modern day

Authors: Noel Hincha – Janet Montgomery – Ellen Kendall – Rebecca Gowland – Darren Grocke (Durham University)
Format: Poster

Bioarchaeologists traditionally use sulfur isotopes to reconstruct paleoenvironments for mobility and dietary studies; however, this study applies a non-traditional approach in bioarchaeological research, uniquely using sulfur isotopes to investigate the potential impact of anthropogenic sulfurous pollution on biogenic sulfur isotopes in the industrial past. To explore the probable role and legacy of the coal mining industry in northeastern England on human sulfur isotope values, this innovative study compares three distinct assemblages of human and faunal skeletal remains: the medieval Black Gate cemetery, Newcastle (n = 59); the post-medieval Coach Lane burial ground, North Shields (n = 66); and the post-medieval St. Hilda's cemetery of Coronation Street, South Shields (n = 59). Modern sulfur isotope values from the British Geological Survey open access dataset complement these bioarchaeological assemblages, enabling a comparative analysis that bridges socio-environmental impacts in the past with those in the present. The

findings show shifting temporal trends in the sulfur isotope values, with higher values in the medieval period than the Industrial Era and modern day—possibly reflecting a less polluted pre-industrial environment, among other socio-environmental factors. The results highlight the novel utility of sulfur isotopes as a proxy following the evolution of dynamic human-environment interactions at industrial sites, supplementing traditional industrial bioarchaeological methods such as osteological profiles and historical archives. Thus, this advancement in sulfur isotope analysis expands its application in bioarchaeology, providing an unconventional yet critical tool to better understand industrialization and its significance to past and present communities.

106 TO WHOM IT BELONGS – FINDS IN THE LIGHT OF DIVERSE BURIAL CONTEXTS IN THE NEOLITHIC PERIOD

Theme: 1. Widening perspectives in material culture studies
Organisers: Anja Behrens (Lower Saxony Inst. of Historical Coastal Research, Wilhelmshaven) – Daan Raemaekers (University of Groningen) – Moritz Mennenga (Lower Saxony Inst. of Historical Coastal Research, Wilhelmshaven)
Keywords: Neolithic Europe, Burial tradition, Grave goods, Social concepts
Format: Discussion session

SESSION ABSTRACT

Finds from burial contexts have traditionally led to the assumption that they were intentionally deposited as accompaniments to the deceased. However, in recent decades, investigations have increasingly adopted a broader interpretative view. At megalithic sites, for instance, artefacts are not only recovered from within grave chambers but also from passages and surrounding areas—such as atop or below mounds, adjacent to boulders, or within pits near the monument. Both the features themselves and, in particular, the material remains, point to different activities that once took place at these sites and further, raises questions about the complexity of practices associated with these locations. To what extent can deposits in burial context actually be linked to funerary rites, or do they reflect other ritual or social activities? This session seeks to examine whether different traditions and intentions are discernible in the artefact assemblages associated with burials—paralleling the diversity observed in complex grave architecture. We are especially interested in contexts where burial-related finds occur in association with varied architectural or spatial features. Are there identifiable patterns in the spatial distribution or composition of these assemblages? Furthermore, how should depositions located outside burial chambers or grave pits be interpreted in terms of their significance and function? Given that such aspects have often been overlooked in previous research, we particularly welcome contributions presenting new findings, contexts, or interpretative approaches. To enable cross-cultural comparison, the session focuses on the Neolithic period in Northern and Central Europe.

CONTRIBUTION ABSTRACTS

848. Hammar - an Early-Middle Neolithic (3700-3200 BC cal) multi-functional central gathering place in Scania, Southern Sweden

Authors: Magnus Artursson (Swedish Historical Museums)
Format: Oral

At Hammar in northeastern Scania, southern Sweden, a multi-functional central place including a sacrificial bog with depositions of ceramic vessels, flint and stone tools, fragments of human skulls and remains from butchering and processing of meat, bones and antlers from cattle, sheep, goats and pigs have been excavated during two field seasons 2024-2025. Also, waste in the form of ceramics and from the production of the stone and flint implements have been found, implying a close connection between everyday work and ritual activities. Close by the bog, ritual pits placed in a U-formed formation, combined with remains of free-standing wooden poles and façades, a small cult building and an inhumation burial have been identified. The site has been interpreted as a specialized gathering place for a local group of the Early Neolithic Funnel Beaker Culture (FBC). The combination of a sacrificial bog with ritual deposits and waste, an inhumation burial and features and constructions with ritual functions, implies a complex combination of activities at the site. Specialised ritual activities, butchering and feasting, burials and depositions of fragmented human skulls have been combined with everyday activities in the same space over hundreds of years, showing a diversified attitude towards different aspects of life and death. Interestingly, the Hammar site is situated just a few kilometers from a number of more or less contemporary passage graves at Fjälkinge with communal burials and large deposits of ceramics with great similarities with some of the vessels from Hammar. This implies some kind of division and versatility of attitudes concerning the processing and handling of ritual aspects and the dead. By comparing these different sites, questions how sacrificial depositions in bogs, butchering, feasting and other ritual activities can be linked to funerary rites can be discussed.

393. Pottery everywhere – diverse deposition traditions at megalithic graves in Wanna, dist. Cuxhaven, Germany

Authors: Anja Behrens (Lower Saxony Inst. of Historical Coastal Research, Wilhelmshaven) – Moritz Mennenga (Lower Saxony Inst. for Historical Coastal Research, Wilhelmshaven)
Format: Oral

Since 2019, a group of exceptionally well-preserved megalithic graves of the Funnel Beaker Culture has been the focus of research. The sites are located in the extensive bog area of Ahlen-Falkenberg (Wanna, district Cuxhaven) at the southern North Sea Coast in Northwest Germany . Due to the bog cover they have been significantly protected over thousands of years since their construction. Within a few excavation campaigns on three megalithic passage graves, complex architecture could be documented, and diverse find material retrieved from the structural elements, but also the surroundings of the sites. Finds in the chambers indicate active burial practices, while shattered pottery in the entrances suggests repeated use. Furthermore, scattered pottery and flint fragments around the monument emphasize activities occurring outside the chambers. Most recently, in 2025, the site of Wanna 1591 was further investigated. Particularly the protective outer construction of the monument—a complex composition of stone, sand, and gravel—revealed additional insights. Within the lower sand layers, covered by a massive stone packing, several vessel depositions were uncovered. Currently, it appears that only parts of pottery vessels were deposited, for example, half a Funnel Beaker or a quarter of a richly decorated bowl. Since these depositions are associated with the outer construction, their placement during the grave-building process can be assumed. How can these finds be interpreted in relation to the chamber depositions? Do we observe different activities and meanings in the use of objects? What does this tell us about Funnel Beaker society? With our contribution, we would like to present our results with focus on these questions.

2360. Non-burial ritual and mundane activities at the megalithic tombs in the Netherlands: patterns and interpretations

Authors: Daan Raemaekers (University of Groningen)
Format: Oral

The megalithic tombs in the Netherlands, a group of 88 tombs of which 54 are still present, have been researched quite intensively in the 20th century. As a result, we are relatively well informed about about tomb typology and ceramic chronology. So far, less attention was given to the use of these locations beyond their use as tomb. What evidence is there for ritual and mundane activities below, in or beyond the mounds? And to which periods do these archaeological remains date? Recent test trenches in two of the tombs yielded new information about activities that were carried out before, during and after the construction of the mounds. In the presentation, I will connect these new finds to the publications. This allows me to identify patterns and to see singular activities. The presentation will also focus on the continued but different use of these tomb locations by later groups, especially Corded Ware groups.

948. Funerary practices in the Mesolithic–Neolithic transition: evidence from the Cueva de los Murciélagos of Albuñol (Granada, Spain)

Authors: Pedro Henríquez-Valido (Área de Prehistoria - Universidad de Alcalá) – Jonathan Santana (Universidad de Las Palmas de Gran Canaria) – Rafael M. Martínez-Sánchez (Universidad de Córdoba) – Miriam Cubas (Área de Prehistoria - Universidad de Alcalá) – Maria Herrero-Otal (Universidad de La Laguna) – Blas Ramos-Rodríguez (Universidad de Granada) – Francisco Martínez-Sevilla (Área de Prehistoria - Universidad de Alcalá)
Format: Oral

Insects has become increasingly important for reconstructing human–environment interactions and funerary practices in archaeological sites, yet its application remains uneven across European prehistoric sites. This contribution presents new archaeoentomological evidence from the Cueva de Los Murciélagos of Albuñol (Granada, Spain), a karstic cave located approximately at 7 km inland from current southeastern Iberian coastline. It showa an exceptional preservation of organic materials by desiccation, dated from the Mesolithic to the Bronze age. Our analysis focuses on insect remains recovered from a systematic sediment sampling in the cave, identifying Diptera puparia and Coleoptera exoskeleton fragments associated primarily with cadaveric decomposition processes. The ecological preferences of these species and the climatic conditions inside the cave provide insights into the timing of corpse deposition and funerary practices from the Mesolithic to the Neolithic. In particular, the predominance of early-colonising Diptera and the absence of late-colonising Coleoptera suggests rapid access of insects to the bodies after death, pointing to primary deposition rather than prolonged pre-burial manipulation or outdoor desiccation. In addition, secondary insect taxa linked to food storage pest have been interpreted as accidental introductions related to the funerary behaviour alongside vegetal grave goods (e.g. baskets). Radiocarbon dating of selected insect remains situates part of the assemblage from the 5th millenium cal BC, while other remains extend back to the 10th millennium cal BC. This remarkably deep and continuous insect record reframes the cave as a long-term funerary space. Our results reflect that Archaeoentomology can offers an interpretative perspective for examining the biography and transformation of ritual spaces within archaeologically complex contexts.

989. Intentional Offering or Accidental Intrusion: A Flint Blade in the Burial of a Child

Authors: Tomasz Oberc (Institute of Archaeology and Ethnology, Polish Academy of Sciences)
Format: Poster

A Neolithic grave of 9–10-year-old child was discovered in 1967 at the Dziekanowice site in Lesser Poland (Kruk 1969). The skeleton's position and associated pottery are closely linked to the local variant of the Neolithic Lengyel Culture (Pleszów-Modlnica Group). However, a macrolithic flint blade was also found in the grave, and its attribution to this cultural group is uncertain. While

production and use of such blades are known from other sites of this culture, their presence - especially specimens made from non-local flint - is rare for this period. These unusual features, alongside the common association of similar tools with later contexts in nearby sites, raises questions about rare finds in burial settings. In this case, earlier archaeological observations reported that the skeleton was disturbed in the area where the flint tool was found. Additionally, the site had been disrupted, with more recent materials recovered from the topsoil, though not directly adjacent to the grave. This poster will examine various layers of interpretation of the artifact - as imported material, technological product, used tool, and grave good for a child - to argue for or against its intentional deposition and to illustrate the complexities of Neolithic burial practices. Kruk J. 1969, Sondażowe badania wykopaliskowe w rejonie wideł Nidzicy i Sancygniówki, Sprawozdania Archeologiczne 21, 57-65.

1488. New funeral monuments of the late Eneolithic in Central Bohemia

Authors: Milan Kucharik (Labrys o.p.s.) – Aleš Káčerik (ARCHEO Sever o. p. s.) – Josef Mašek (Labrys o.p.s.)
Format: Poster

Current rescue research in 2024 – 2025 on the construction of the D7 motorway (Kladno district, CZ) between towns Slaný and Panenský Týnec brings new findings of little-known or completely new types of burial monuments from the Late Eneolithic period, the Corded Ware culture and the Bell Beaker culture. In addition to the usual groups of flat skeletal graves, we uncovered two mounds of the Corded Ware culture with chamber graves and a variable wooden structure with interesting wooden details in the area of village Třebíz and two other mounds of the Bell-shaped Cup culture and probably a cult area next to them. In the area of village Hořešovičky we discovered two unusual cremation graves of the Bell Beaker culture with a burnt wooden structure – a palisade covered by a doubt, which were located within a larger area with a ditch enclosure in a dominant position. Next to them, there are a number of other graves of the culture with corded pottery, among them one with rich equipment with shell decorations. The discovered sites clearly indicate the placement of funerary monument complexes on flat elevations with a good view of the landscape. These monuments are directly connected to other burial grounds from the Early Bronze Age, the La Tène period and the Early Middle Ages.

107 BEYOND MONUMENTALITY: REFRAMING LARGE-SCALE ARCHITECTURAL FEATURES THROUGH MATERIALITY, MEMORY AND LANDSCAPE

Theme: 1. Widening perspectives in material culture studies
Organisers: Elise Luneau (CNRS, UMR 8215) – Regina Uhl (—)
Keywords: Eurasia, Monumentality, Large-scale architecture, Communal practice, Memory, Landscape
Format: Regular session

SESSION ABSTRACT

Large-scale architectural features - ranging from earthen burial mounds and long barrows to cairns, orthostats and other monumental constructions - represent some of the most visible and enduring outcomes of collective human activity. While such phenomena are attested globally, Europe and Central Asia provide particularly rich contexts for examining diverse traditions of large-scale architecture and their social, ritual, and mnemonic dimensions. This session approaches these features as dynamic, hybrid phenomena emerging at the intersection of materiality, social practice and landscape. Burial mounds and related constructions, whether lithic or earthen, become sites of collective memory and social significance through repeated engagement over time - deposition, ritual performance, and long-term interaction with communities. As enduring points of reference within the landscape, they structure social identities, genealogical memory and mythopoetic narratives, illustrating how cooperative agency and multi-generational use transform physical structures into lasting markers of communal practice and remembrance. By integrating "hardware" (architectural form and construction) with "software" (depositions, human remains, grave goods) and ritual or performative dimensions, the session encourages a critical reassessment of established interpretative frameworks. Theoretical perspectives such as hybridity, memoryscapes and collective agency offer tools for evaluating which aspects of past models remain productive, which may need reconsideration, and how methodological approaches can better account for the material, social and cognitive processes embedded in these constructions. We welcome contributions that provide new theoretical, methodological or regional insights, particularly from Europe and Central Asia, but with relevance for comparative studies elsewhere. By situating large-scale architectural features within long-term social practices and contemporary interpretation, the session aims to advance understanding of monumentality, memory and the enduring impact of collective architectural achievement.

CONTRIBUTION ABSTRACTS

1848. Upright Stones from the Nuratau Mountains (Uzbekistan): Monumentality, Memory, and Pastoral Landscapes in Central Eurasia

Authors: Elise Luneau (Centre national de la recherche scientifique, Trajectoires) – Nona Avanesova (Samarkand State University)
Format: Oral

Upright stones constitute one of the most enduring forms of monumental architecture across Eurasia. Their durability and visibility have allowed them to structure landscapes over long timescales, embedding social memory, ritual practice, and collective identities within specific places. This paper presents the first documentation of fourteen previously unrecorded upright stones from the Nuratau Mountains in central Uzbekistan. Based on archaeological survey, targeted test excavation, and GIS-based spatial analyses, the study examines their material characteristics, spatial distribution, and associations with funerary structures, water sources, grazing areas, and other archaeological features. Although absolute dating is currently unavailable, comparative analysis situates these monuments within a broad chronological framework spanning the Neolithic to the Bronze Age. Approached as hybrid monuments combining architectural "hardware" (monolithic stones, pavements, associated cairns and enclosures) with "software" (funerary contexts and repeated engagement), the Nuratau upright stones are interpreted as active elements in pastoral landscapes. Their placement suggests roles in marking resources, routes, and territories, while their frequent proximity to burial features points to their participation in mortuary practices and ancestral memory. Rather than functioning as isolated markers, these stones appear to have structured localized memoryscapes through cumulative, multi-generational use. Drawing on concepts of hybridity, collective agency, and long-term monument biographies, this paper advances debates on monumentality and memory, demonstrating how modest yet persistent architectural forms contributed to the long-term construction of social identities in Central Asian pastoral societies.

114. The last monument? segmentary and summative Silbury Hill (Wiltshire, UK)

Authors: Gerald Wait (Independent researcher)
Format: Oral

Silbury Hill is a 40-metre (130 ft) high Late Neolithic conical mound situated by the headwaters of the River Kennett, a major tributary of the River Thames in southern England. It is said to be Europe's largest prehistoric earthen 'round mound.' The interpretive thrust of recent work emphasised the stages in the growth of the monument from a small mound, rather than its final form. This paper reports upon the results of a field-based re-study of the mound by the presenter and colleagues between 2019 and 2023, and a first full aerial photogrammetric survey. New close observations of the external surfaces of the mound underline a view that interpretation needs to focus not only upon the successive early versions of the Silbury mound, or upon possible much later alterations, but rather upon aspects of its final form that have not hitherto received the attention they merit. These include observations that indicate the way in which the culminative phase of the mound was constructed: in design, building and 'affects' terms. Moreover, attention can also be drawn to possible cultural explanations for that final version of the mound as a deliberately facetted, nine-sided structure. In conclusion, the author argues for a segmentary as well as a summative 'reading' of the significance of this final form.

545. Constructing Monumentality and Memory: The Social Life of Early Neolithic Ditch Enclosures

Authors: Nikolina Nikolova (National Archaeological Institute & Museum - Bulgarian Academy of Sciences)
Format: Oral

Ditch enclosures are a widespread feature of European prehistory and appear in Southeast Europe with, or shortly after, the neolithisation of the region. Recent geophysical surveys have shown that many of the earliest Neolithic settlements in the Balkans were enclosed by single or multiple ditches, often arranged in complex systems. While monumentality is usually associated with tombs, buildings, walls, or megalithic constructions, it is essential to reconsider what Neolithic communities themselves perceived as worthy of sustained investment. Large-scale undertakings such as ditch construction required considerable time, labour, and coordination and were unlikely to be trivial or purely functional. Particular importance seems to have been attached to the places selected for settlement and enclosure. Through continued engagement, these locations acquired memorial qualities, transferred to the features and associated practices. This presentation focuses on ditch-digging practices documented at several Early Neolithic sites in Bulgarian Thrace. Archaeological evidence indicates that these ditches remained in use over long periods and were subject to regular maintenance. Episodes of digging, re-filling, and re-cutting suggest intentional and well-organized communal efforts to maintain social coherence and shared identities across generations. As enduring features within the landscape, ditches functioned as stable points of reference, structuring spatial organisation and collective memory. Clear patterns in depositional practices recur throughout different phases of ditch use, within individual sites, and across the region. Whole or deliberately broken pots were frequently placed at ditch bottoms, while linear deposits of burnt daub were arranged longitudinally, forming successive layers. The repetition of materials and arrangements points to shared traditions and ritualized practices embedded in the life histories of these features. Taken together, these observations highlight ditch enclosures as dynamic large-scale constructions whose significance lay not only in their physical form, but in the long-term practices through which they became central elements of Early Neolithic memoryscapes.

1245. Affordances of Monumentality: XR Approaches to Movement, Light, and Attention in Neolithic Megalithic Passage Graves

Authors: Noah Steuri (McDonald Institute for Archaeological Research, University of Cambridge)
Format: Oral

Passage graves are among the most enduring architectural markers of Neolithic collective building practices in Northwestern Europe. Functionally, their interior arguably served mainly as repositories for ancestral remains, and access was likely restricted to specific moments concerned with the deposition, reordering, or veneration of the dead. Their architecture reveals deliberate

intentions to shape experience: movement through the monument is physically constrained, requiring visitors to bend, squeeze, and proceed slowly through a sequence of thresholds, sometimes marked by carved motifs. Architecture, "rock art", and bodily movement thus work together to guide perception, making entry into the monument a highly choreographed experience. A key challenge for researching their experiential affordances is that these monuments rarely preserve their original sensory and spatial conditions. Modern intrusions and electric lighting fundamentally alter visibility, atmosphere, and movement. To address this, I present the Immersive Sensory Spatial Archaeology (ISSA) framework, integrating phenomenology and sensory archaeology with theories of architectural affordances and intentionality, operationalised through immersive Extended Reality (XR). ISSA does not claim access to the inner thoughts or culturally specific meanings of Neolithic individuals. Instead, it generates reproducible experiential data on how architectural form structured movement, illumination, and visual attention. XR enables the controlled restoration of sensory conditions (e.g. darkness and dynamic firelight) with high levels of immersion. Integrated eye-tracking and motion capture allow measurement of gaze, fixation, head movement, and posture across multiple participants, producing comparable response patterns rather than single, subjective impressions. The framework is demonstrated at the passage grave of Gavrinis (Brittany, France), showing how XR can advance the study of monumentality by better accounting for the spatial and experiential intentions embedded in large-scale prehistoric architecture.

468. Marks of Devotion: Pilgrims, Graffiti, and the Memoryscapes of Rome's Christian Catacombs

Authors: Christina Videbech (University of Bergen and Aarhus University)
Format: Oral

Monumental architectural features such as burial chambers and monuments are often understood as enduring markers of collective activity and memory formation. The same goes for the vaste network of Christian catacombs below Rome. Yet, smaller-scale human interventions within these spaces - particularly inscriptions, graffiti, and devotional markings - offer a complementary lens on social practice, memory, and identity. This paper examines late antique and early medieval Christian graffiti in the catacombs of Rome, focusing on how pilgrims and visitors both responded to and actively shaped these subterranean sacred spaces. By incising names, prayers, drawings, and other personal marks, individuals inscribed their presence into the fabric of the catacombs, embedding personal devotion, social affiliation, and mnemonic engagement within the enduring structures. Thus, these layered "memory scapes" illuminate the dynamic interaction between architecture, ritual performance, and collective identity. Approaching graffiti as both material inscription and performative act, the study highlights how these markings contributed to the social life of the catacombs, mediating between individual agency and communal memory. Furthermore, by integrating the epigraphic evidence with the archaeological and ritual contexts, the paper demonstrates that the catacombs were not merely static containers for burial but active sites of religious negotiation and long-term memory-making.

455. Persistent Landscapes: Reassessing the Bronze Age Burial Mounds of NE Romania through Geospatial Big Data and Collective Memory

Authors: Casandra Brasoveanu – Andrei Asandulesei – Radu-Alexandru Brunchi (Alexandru Ioan Cuza University of Iasi)
Format: Oral

The landscape of Northeastern Romania is defined by an exceptional density of burial mounds. Recent high-resolution remote sensing (LiDAR) and multi-temporal cartographic analyses have identified nearly 1,800 such sites, the majority of which were erected during the Early Bronze Age by the Yamnaya communities and re-utilized up until medieval times. This study moves beyond the "hardware" of these monuments—their morphology and spatial distribution—to explore their role as enduring anchors of social and mnemonic significance within a long-term perspective. By integrating "big data" geospatial analysis with toponymic studies and local oral traditions, we argue that these features represent a dynamic, hybrid phenomenon. While geophysical surveys and archaeological data confirm the physical reuse and re-adaptation of these mounds from the Bronze Age through the Early Medieval period, their significance extends into the modern era. We explore how these monuments have persisted in the collective memorial through specific toponymy and local narratives, illustrating how physical structures are transformed into lasting markers of communal practice and mythopoetic identity. The research highlights a remarkable continuity; despite the temporal distance, the local communities have maintained a cognitive connection to these landmarks, integrating them into the contemporary cultural landscape. By reframing these 1,800 burial mounds as a "memoryscape" rather than static funerary sites, this paper advocates for an interpretative framework that accounts for both the material "software" of past rituals and the enduring social impact of collective architectural achievement. This approach is particularly urgent as these vulnerable heritage assets face increasing threats from intensive modern agriculture.

1910. Iron Age Barrows in Estonia — Collective, Up to a Point

Authors: Pikne Kama (University of Tartu)
Format: Oral

Barrows in Estonia are circular or elongated sandy mounds surrounded by a shallow ditch, typically found in dry pine forests near water bodies. Barrows began to appear in eastern Estonia around 400 AD. A typical barrow contains the cremated remains of multiple individuals, and barrows most often occur in clusters. Consequently, both single barrows and barrow cemeteries functioned as collective burial sites. Prior to recent fieldwork, more than 1000 barrows were documented across 141 sites in Estonia. New fieldwork

conducted by the author in 2025, based on lidar-derived terrain models, has yielded an additional 117 barrows and 43 new sites. This represents an increase of approximately 12% in the total number of barrows and over 30% in the number of known sites. The results indicate that small-scale sites – often comprising only one or a few barrows – are more common than previously assumed. Several newly identified locations consist of a single barrow. This raises important questions. Do the isolated barrows express individuality in society and individuality in death? Alternatively, could a single barrow have served an entire community, reducing the need to construct additional barrows nearby? It is difficult to assess when a barrow was considered "full" or why a new barrow or an entirely new barrow cemetery was established in the vicinity. Current evidence from studied sites suggests that barrows in clusters were used for approximately 150 years. Although barrow cemeteries eventually ceased to serve as burial grounds for cremation burials, the memory of them and their significance persisted long after their primary use. In several cases, later inhumation burials dating to the Middle Ages (13th–16th centuries) have been discovered within earlier barrows. The presentation will explore how newly identified barrows and their spatial patterns contribute to interpretations of individuality and collectivity within the society of barrow users.

433. Blood on the Stones: Weaving Memory, Ritual, and Identity in a Transhistorical Sacred Landscape of the South Caucasus

Authors: Przemyslaw Polakiewicz (Tetritskaro Local Archaeologiacal Project and Iniciative) – David Gagoshidze (The University of Georgia)
Format: Oral

The presented project outlines an archaeological research programme conducted in the territory of the Tetritskaro Municipality in Kvemo Kartli, Sakartvelo (Georgia).Within the framework of the Tetritskaro Local Archaeological Project and Initiative (T.L.A.P.I.),several significant discoveries have been made.The research aims to analyse a cultural landscape shaped by millennia of human activity in a region situated at the interface of civilizational influences from the Middle East and the Eurasian Steppe. This territory maintained long-distance connections via important communication routes, at times associated with the Silk Roads. Previously unknown megalithic forms within the Caucasus region (e.g. propped stones),unrecorded stelae,possible sacrificial tables,and a rich assemblage of artefacts (pottery, obsidian,lithics, glass, and bone) were documented during archaeological reconnaissance.The preliminary construction of a new chronology for selected locations,including the Birtvisi Canyon,represents the outcome of the initial phase of the research.The study has fulfilled its primary objective of creating a coherent catalogue of monuments intended to support the management and protection of endangered heritage.Particular attention is given to the so-called "landscape of memory", comprising unstudied rock art (engravings, cup marks), local toponyms, and oral traditions related to historical events, which form an integral part of the analysis and enrich the presented survey.Based on the collected data, and prior to more intrusive fieldwork, several unexpected yet well-documented observations were formulated. Notably, some stone features, such as menhirs and offering stones located near churches, remain in active use, with ritual practices, including animal sacrifice, still taking place today.These observations allow the project to address the long-term weaving of memory, ritual, and identity within a sacred landscape whose meanings have been continuously renegotiated rather than interrupted.The survey methodology follows established international standards and includes the recording of GPS coordinates, spatial data analysis,photogrammetric documentation, and the use of a unified recording system.A digital database of documented artefacts and features has also been created

2673. Beyond Burial: The Reuse of Prehistoric Mounds in the Serbian Banat

Authors: Dragan Jovanovic (City museum Vršac)
Format: Oral

The landscape of today's Banat has undergone significant physical changes in the past 150 years. Despite this, prehistoric earthen mounds, which occur in large numbers, still represent significant geographical markers in the modern landscape. Their arrangement and position to a significant extent reflect the former morphology of the plain landscape with endless lakes and swamps, which is mainly how we interpret the unusual physical connection with the later archaeological contents. Firstly, we refer to the connection between prehistoric mounds and the so-called Megaforts of the Late Bronze Age, which can be interpreted in terms of similar motives regarding the choice of location. On this occasion, we will show examples of the contemporary use of these monumental monuments, reexamine the motives and attitude of the local population, where strongly expressed religious taboos can still be observed. Several large waves of migration, which have occurred over the last hundred years, have completely transformed the demographic landscape, offering an interesting perspective on the social interactions of certain groups with diverse ethnic and geographical origins.

1351. Barrows of Southern Ukraine: The Lost Heritage

Authors: Denys Sikoza (Kherson Regional Inspectorate for the Protection of Sites) – Oleksandr Symonenko – Olena Dzneladze (Institute of Archaeology of NAS of Ukraine)
Format: Oral

Steppe of the Kherson region is the area of most famous archaeological sites of ancient Ukraine – the barrows, tombs of ancient nomads. That is the place where two unique archaeological and ecological sites are located: Dolyna Kurhaniv (Barrow Valley) and Lysiachi Mohyly (Foxy Barrows). Both have the state rank "site of national importance". Dolyna Kurhaniv is located on the coast

of the Black Sea, on a steppe plain with salt marsh lakes. A total of more than 300 barrows from 7 to 0.5 meters high have been recorded here. The barrows are ranging along the coast of Yahorlyk Bay and stand in two groups along the bank of the desiccated Dnieper tributary. Lysiachi Mohyly are located on a small plateau, bounded from the west by the Tendra Bay of the Black Sea and surrounded by three salt lakes, within the protected zone of the Black Sea Biosphere Reserve. The site consists of 60 barrows along the seashore. Around of two highest mounds of 4.4 and 2.2 m high 58 smaller stand. The mounds were not plowing and are covered with intact steppe vegetation, valuable for scientific study. In addition, the endemic plants representing flora of the steppe, which has disappeared almost everywhere due to the anthropogenic factor, survived on the unplowed mounds. Now both sites have lost their pristine appearance. Russian occupiers dug many kilometers of trenches along the seashore between the mounds. Many of them are damaged by dugouts; the vulnerable vegetation of the steppe was torn by tank tracks and flooded with a fuel. What artifacts were unearthed during the spontaneous digging of the barrows and where they gone – no one can say now but it is clear that all of them are forever lost to science and culture.

212. Persistent Monuments: A Case Study in Reuse of Prehistoric Mounds in Southern Dalmatia

Authors: Filomena Sirovica (Archaeological Museum in Zagreb) – Dinko Tresić Pavičić (Kaducej Ltd.)
Format: Poster

Burials beneath mounds constructed of stones and sometimes earth constitute a distinct and persistent funerary phenomenon specific to the entire eastern Adriatic. This practice emerged at the onset of the third millennium BCE and continued throughout the Bronze and Iron Ages. The function of these mounds was not limited to their initial construction, and in southern Dalmatia, they exhibit a pronounced pattern of funerary reuse in all subsequent periods. Available data show that later burials in the stone mantle of the mound are recorded on a large number of Bronze Age mounds, with interments starting already in the Bronze Age. They persisted during all subsequent periods, with a particular frequency in the late medieval and early modern periods, which attests to a remarkably long-term continuity of this specific practice. In light of this regional framework, an analysis was conducted of a stone burial mound excavated at the Obličevac site. The excavation identified a primary burial of an adult male within a stone cist, dated to the Late Bronze Age (13th–12th centuries BCE). This phase was established via radiocarbon analysis and is further supported by the characteristics of the associated finds. The funerary reuse, with three graves secondary buried into the mantle of the mound, was dated in the late medieval and early modern periods (14th–17th centuries CE), as confirmed by additional radiocarbon dates. Given that these features align with the widespread regional phenomenon of reusing prehistoric mounds, the authors will examine both the methods and motivations behind prehistoric mound construction and their subsequent funerary reuse, and demonstrate broader considerations of this phenomenon in the late medieval and early modern period, which can be associated with contemporaneous cemeteries and graves with tombstones of “stećak” type.

386. Interdisciplinary investigation of ancient mounds with medieval churches in Szentes, Hungary

Authors: Ádám Bede (HUN-REN Centre for Ecological Research) – Máté Stibrányi – Gábor Mesterházy (Hungarian National Museum) – Balázs Deák (HUN-REN Centre for Ecological Research)
Format: Poster

Across the Great Hungarian Plain, churches from the Middle Ages (Árpád Era) were often built on prehistoric burial mounds (kurgans). In the study area, within the administrative boundaries of Szentes – a typical agricultural town – we surveyed six ancient kurgans that conceal medieval church foundation and a cemetery established around the churches. The mounds are Besenyő-halom, Kajáni-Temető-halom, Láp-halom, Szentlászló halma (destroyed), Tere-halom, and the Church Ruin of Ecser). These earth monuments are all Yamnaya kurgans dating to the Late Copper Age, and have several historical memories from the past five thousand years. The diverse history of the mounds is reflected for example in their multiple names. Within an interdisciplinary project, we conducted geophysical (non-invasive magnetometer survey), geomorphological, landscape historical and botanical investigations on the kurgans. For the landscape historical analyses, we collected and evaluated available the historical maps, aerial photos, local and archaeological literature. The mounds are not only significant from a heritage protection perspective, but also have outstanding nature conservation values, as their surfaces often preserved disturbed, yet still valuable loess vegetation, hosting typical dry grassland species and rare weeds. Since this is a relatively common phenomenon in the Great Hungarian Plain, it can be assumed that the sacrality of kurgans and churches was interconnected in the landscape perception (location choice) and traditions (living customs) of medieval communities. The concentrated presence of burial mounds in this otherwise flat landscape –similarity to sacred hills and their protected position (geomorphology, strategic/orientation functions) – may have reinforced this perception. From a heritage conservation perspective, these complex archaeological features play an outstanding role, therefore, their protection (for example through, declaring them as archaeological sites with special status) is particularly justified.

1537. Phrygian Tumuli in a Multi-Layered City: Monumentality, Memory, and Landscape in Ankara

Authors: Ela Alanyali Aral (METU) – Yiğit Erbil (Hacettepe University) – Buket Ergun Kocaili – Gizem Deniz Güneri (METU)
Format: Poster

The tumuli located in the city center of Ankara represent the mortuary tradition of the Phrygians, who entered Anatolia through Thrace in the early first millennium BCE. Rather than simple burial mounds, these monuments materialized social memory and

authority within the landscape. Through their scale, visibility, and deliberate placement, Phrygian tumuli transformed natural topography into a cultural and symbolic environment. The Phrygian cultural region, extending from the Phrygian highlands to central Anatolia, positioned Ankara alongside major centers such as Gordion within a network of political and ritual landscapes. Early records and excavations identified a limited number of tumuli, but recent research using historical aerial imagery and mapping demonstrates that the funerary landscape around Ankara exceeds one hundred mounds. Today, modern urbanization has incorporated many of these monuments into the fabric of a multi-layered city, where ancient funerary markers coexist with contemporary settlement. The spatial distribution of the tumuli reflects intentional monumentality. Their locations correspond closely with ridgelines, slopes, water courses, routes, and visibility corridors, as well as nearby settlements and cult areas. These mounds were not isolated graves but territorial and mnemonic markers that structured movement across the landscape. By controlling sightlines and approach paths, the tumuli directed how individuals encountered the land, producing a ritualized experience of space. This paper analyzes the locational principles of the Ankara tumuli through multi-layered spatial mapping. The study argues that the tumuli functioned as material anchors of collective memory and as symbolic statements of authority. Within the long-term development of Ankara, they demonstrate how monumental architecture can organize landscape perception and embed political meaning into everyday space.

1794. Cultural Interaction at the Western Edge of the Trzciniec Cultural Circle. Evidence from a Barrow Burial at Ostrowąsy, Poland

Authors: Mateusz Matula (Institute of Archaeology, University of Wrocław) – Agata Hałuszko (Institute of Archaeology, Maria Curie-Skłodowska University in Lublin | Archeolodzy.org Foundation) – Radosław Jarysz (Archaeological Museum in Wroclaw) – Wojciech Bronowicki (Institute of Archaeology, University of Wrocław) – Krzysztof Dołbizno (ASAP Akademickie Stowarzyszenie Archeologii Podwodnej)
Format: Poster

The Trzciniec Cultural Circle constituted one of the most extensive social formations of the Early and Middle Bronze Age in the second millennium BC, extending from central Poland to the eastern margins of present-day Ukraine. Within this cultural horizon, western and eastern zones can be distinguished. The present study focuses on the western zone, located at the interface with other cultural groups of Central Europe. In 2023, excavations were carried out at the eastern barrow at Ostrowąsy, site 15, situated on the borderland between Lower Silesia and Greater Poland, with the aim of determining the chronology and anthropogenic character of two mounds identified in the field and through LiDAR imagery. A trench opened in the southern part of the barrow revealed a stratigraphic sequence related to its construction, while a stone core recorded in the central part lacked additional architectural elements. Several stratigraphic levels within the core yielded numerous ceramic fragments, most belonging to a single vessel, a brownish grey vase decorated with horizontal incised lines. The stylistic features of the pottery indicate its affiliation with the Trzciniec horizon, whereas technological traits, including the presence of mica temper, point to influences from the Únětice culture dominant in Lower Silesia at the time. Charcoal samples from the lowest layer of the core were submitted for radiocarbon dating, and a bone fragment from the same level was selected for bioarchaeological analysis carried out within a project funded by the National Science Centre, Poland (grant no. 2023/48/C/HS3/00020). The results confirm the anthropogenic character of the eastern barrow and its dating to the Early Bronze Age. The monument represents one of the westernmost barrow graves associated with the Trzciniec horizon and one of its earliest examples, contributing to a better understanding of regional variability in funerary practices and sepulchral architecture.

2527. Large-scale water infrastructures in drylands as durable anchors of mobile lifeways: A case study from Sudan

Authors: Cornelia Kleinitz (Humboldt-Universität zu Berlin, Institute of Archaeology, AKNOA) – Alfatih Mohamed Ali Saeed (University of Khartoum) – Hassan Ebeid-Allah (Musawwarat Community Council)
Format: Poster

Large-scale water infrastructures are known from various parts of Africa, particularly from drylands. Hundreds of so-called Hafirs, circular monumental artificial water reservoirs with earthen walls, were dug to harvest water from temporary river beds in (ancient) Sudan. These water reservoirs were able to store large amounts of water for months, forming the basis of sustained use of the land by mobile, pastoralist populations long after the end of the rainy season. Their functioning relied on precise knowledge of seasonal weather phenomena and drainage patterns in the landscape. Their construction will have been a collective endeavour and they seem to have been maintained and (seasonally) used for long periods of time. Some appear to have been co-opted by the Kushite state from the mid-first millennium BCE onwards, when temples were constructed in their immediate vicinity and cults possibly alluded to the (royal and/or divine) control of water as a prerequisite for life and fecundity. The state may have contributed to their construction or extension, such as in the case of the Great Hafir at the ancient ceremonial centre of Musawwarat es-Sufra, which measured nearly 250m in diameter and 15m in depth. While their structural characteristics and economic role(s) in pastoralist societies have been studied before, this contribution examines such structures in respect to their role(s) as ‘sites of collective memory and social significance through repeated engagement over time’, from the day-to-day to seasonal and symbolic engagement to multi-generational use. Recent studies in collaboration with local communities at and around the archaeological site of Musawwarat es-Sufra have shown how water infrastructures – in this case mechanical wells constructed and used during the past two centuries – can be understood as ‘lasting markers of communal practice’ that act as mnemonic devices due to their centrality to pastoralist lifeways.

108 BEYOND THE HEDGES: ARCHAEOLOGICAL APPROACHES TO HISTORICAL GARDENS AND DESIGNED LANDSCAPES

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Emilia Jastrzebska (Royal Lazienki Museum in Warsaw | Polish Academy of Sciences) – Miroslav Dejmal – Michal Vágner (Masaryk University)
Keywords: Historical Gardens, Landscape Archaeology, Historical Archaeology, Cultural Heritage, Designed Landscapes, Environmental Archaeology
Format: Regular session
Affiliation: Archaeological Prospection Community

SESSION ABSTRACT

Historical gardens and designed landscapes—ranging from formal estates and pleasure grounds to colonial botanic gardens and early public parks—represent complex intersections of social status, leisure, scientific endeavor, and ecological manipulation. Yet, our understanding of these spaces is often dominated by historical records and aesthetic restoration efforts. This session seeks to move "beyond the hedges" by highlighting the vital role of archaeological investigation in revealing the hidden structures, social histories, and environmental processes embedded within these sites. We invite papers that explore diverse methodologies and theoretical frameworks applied to historical designed landscapes (circa 16th to 20th centuries). Contributions may focus on, but are not limited to: 1. Methodological Innovation: The integration of non-invasive methods (geophysical prospection, LiDAR) with invasive test-pitting and trenching to accurately define original planting schemes, path alignments, and structural foundations (e.g., fountains, statuary bases). 2. Environmental Archaeology: Utilizing archaeobotany, palynology, phytolith analysis, and soil chemistry to reconstruct specific plant communities, cultivation techniques, and changing ecological conditions. 3. Social and Cultural Interpretation: Gardens as expressions of power, identity, and exchange, including studies of colonial plant transfer, gendered spaces, and the material culture associated with gardening and leisure activities. 4. Conservation and Management: Case studies demonstrating how archaeological data informs authentic conservation and interpretation, particularly when the historical record is incomplete or misleading. This session will encourage interdisciplinary discussion, fostering a dialogue between historical archaeologists, landscape architects, environmental scientists, and conservators. The goal is to establish garden archaeology not merely as a technique for restoration, but as a critical tool for deeper cultural interpretation of human-nature relationships in the historical period.

CONTRIBUTION ABSTRACTS

2065. Urban Gardens as Cultural Practice: Perspectives from Medieval and Early Modern Sweden

Authors: Annika Nordström (National Historical Museums, Sweden | Uppsala University) – Ann-Mari Hållans Stenholm – Karin Lindeblad (National Historical Museums, Sweden)
Format: Oral

Over the past twenty years, we have examined a previously understudied yet often well-preserved and diverse archaeological record: historical gardens from urban and semi-urban contexts. The results show that gardens constituted an important part of past societies and reflected cultural practices, social organisation, and everyday life. Our research demonstrates that garden archaeology addresses questions not only related to horticulture, design and aesthetics, but also to self-sufficiency, economy, division of labour and gender relations. In this sense, garden archaeology encompasses several key dimensions of past societies. A multidisciplinary approach is essential for obtaining robust and reliable research results. In this paper, we focus on the development of urban gardens in medieval and early modern Sweden from a long-term perspective, integrating spatial design, cultivation techniques and plant use, as well as the material culture associated with gardening practices and domestic activities. The study is based on examples from large-scale contract archaeological excavations in Sweden.

224. From the Benedictine monastery garden to the English landscape park: Continuity and Change

Authors: Aja Guldåker (Kulturen)
Format: Oral

A Benedictine monastery was founded on a hill in eastern Denmark in the 1080s. This location offered fertile soil, access to water, building materials and a south-facing slope that was ideal for cultivation. A large brick monastery was constructed just north of the growing town of Lund, adjacent to important road networks. Although very little is known about the monastery gardens, archaeological and historical sources reveal the presence of waterworks to the east and southeast, a cemetery and buildings to the north, as well as some smaller structures in the surrounding area. Despite 450 years of activity, written records are sparse. During the Reformation in 1536, the monastery was burdened with taxes, but unlike many others it was not immediately dissolved. It continued to operate until 1552, after which it was granted to the king's chamberlain and left to fall into disrepair. From 1619, the district judge took over the site and carried out some repairs. Erik Dahlberg's depictions of the 1676 battles between Denmark and Sweden feature the impressive monastery ruins. Around 1700, Swedish troops blew up the remaining buildings and the ruins were used as a quarry for Lund. Although the structures disappeared, the hill became a popular walking destination. In the early 19th century, the bishop planted trees between the ponds and on the hill where the monastery walls may once have stood. Plans for fruit and kitchen gardens were abandoned due to the soil being filled with rubble. Instead, an English landscape park was established. Given the difficult subsoil, it is likely that tree planting targeted areas less burdened by debris. This landscape park raises questions about continuity: Do its paths or planted areas reflect earlier monastic layouts, preserving traces of medieval garden structures in a new form?

981. Integrated Geophysical and Archaeological Research of Historic Gardens and Landscapes in the Czech Republic

Authors: Michal Vágner (Department of Archaeology and Museology, Masaryk University) – Miroslav Dejmal (Department of Archaeology and Museology, Masaryk University | Archaia Brno z.ú., Brno) – Anna Rekemová – Jan Havelka – Peter Milo (Department of Archaeology and Museology, Masaryk University) – Michal Zezula (National Heritage Institute, Ostrava Regional Office) – František Zelinka (Regional Museum in Mikulov) – Jiří Havlice (National Heritage Institute, České Budějovice Regional Office) – Václav Kolařík (National Heritage Institute, Brno Regional Office) – Jiří Chleviš̌an (The Museum of the Bohemian Forest in Tachov)
Format: Oral

This paper presents selected applications of geophysical prospection in the investigation and restoration of historical gardens and landscaped heritage sites in the Czech Republic. It focuses on integrating non-destructive geophysical methods — primarily ground-penetrating radar, complemented in some cases by magnetometry — into the planning of archaeological research and the revitalisation of protected cultural monuments. The contribution discusses several case studies from castle and chateau parks and gardens, in which a geophysical survey served as a key step between archival study and targeted archaeological excavation. The results demonstrate that non-invasive prospection can successfully identify buried garden layouts, former communication networks, water-management features, demolished garden structures, and later disturbances. Special attention is paid to situations in which geophysical results directly informed excavation strategies and restoration decisions, reducing destructive interventions and improving the precision of heritage management measures. The presented examples illustrate that the close integration of geophysical survey and archaeological verification represents an efficient and sensitive approach to the exploration and renewal of historic gardens and monument sites.

267. Bathtubs and Pyramids in Royal Łazienki in Warsaw. Localization research of non-existent structures and objects in an eighteenth-century landscape residence

Authors: Arkadiusz Cegliński (Faculty of Archaeology, University of Warsaw) – Wiesław Małkowski (Independent researcher)
Format: Oral

This paper is devoted to research into the history of the Royal Łazienki Park in Warsaw, a classicist residence founded by King of Poland Stanisław II Augustus. This 18th-century palace and garden complex is one of the richest in this part of Europe in terms of ancient motifs, which are incorporated into the architecture and decoration of the palaces and garden pavilions. The paper will present the results of research into the history and location of no longer existing structures and objects located in the 18th century on the grounds of the Warsaw residence. This includes the Pyramidal Guardhouse, a guardhouse which form was inspired by ancient tombs, and the bathtubs located in the Palace on the Isle (the main palace in Łazienki), built in the 17th century as part of the furnishings of the baroque bath pavilion, which references the mythical Hippocrene spring. Furthermore, the research methods used will be discussed, including: historical research using archival materials (inventories, correspondence, plans and maps), georeferencing using GIS tools, and geophysical prospecting (electrical resistivity survey, magnetic survey, and electromagnetic survey using ground-penetrating radar). The use of all these methods allowed us to locate the remains of royal structures that had been gone for over two hundred years and obtain new data that will form the basis for possible future excavations.

1979. Forgotten Foundations: Strategies for the Sustainable Management of Archaeological Relics in Living Heritage Gardens

Authors: Emilia Jastrzebska (The Royal Łazienki Museum in Warsaw)
Format: Oral

Historical gardens are complex palimpsests where living botanical collections often obscure significant subsurface archaeological relics. The presentation will examine the multifaceted challenges of heritage management within these dynamic environments, focusing on the tension between preserving "in situ" archaeological remains and maintaining the aesthetic and functional integrity of a historical garden. Through a case study analysis of the Royal Łazienki Museum in Warsaw, the research identifies common risks, including root-related damage, environmental degradation, and the pressures of modern tourism. The study evaluates existing conservation policies and proposes an integrated management model that prioritizes non-invasive monitoring, sensitive landscaping, and public engagement. We will discuss approaches that integrate archaeological preservation with horticultural practices, focusing on minimizing disturbance while maximizing the educational and aesthetic value of both components. By treating archaeological relics not as isolated anomalies but as integral parts of the garden's historical narrative, we argue for a holistic approach that safeguards "hidden" heritage while enhancing the visitor experience. The presentation will draw on case studies to illustrate the challenges and opportunities and to highlight potential pitfalls, ultimately offering a framework for future discussion about best practices in managing a harmonious coexistence between archaeological heritage and historical landscapes.

1237. The garden of the "Pavilion frais" of Trianon: an interdisciplinary example of a garden's investigation

Authors: Annick Heitzmann (Centre de recherche du château de Versailles)
Format: Poster

In 1749 and 1750, King Louis XV and Madame de Pompadour laid out a garden near the Grand Trianon in Versailles, which is now known as the "Jardin français". To the south of this garden, a strip of land divided into several plots was added in 1751. In one of these plots, a garden was laid out surrounding a small building called the "Pavillon frais". This symmetrical garden was framed by a portico and consisted of two basins, each flanked by a flowerbed and lawn. The pavilion and its garden were destroyed between 1810 and 1840. The pavilion was rebuilt in 1980, but it was not until 25 years later that efforts were made to restore its landscaped setting. A documentary study was first carried out in the archives of the "Maison du Roi", which are well stocked with drawings and estimates, but in which most of the reports on the work actually carried out are missing. Then, prior to the archaeological excavations, a geophysical survey was carried out to obtain an overview of the foundations remaining underground. Field operations included an investigative phase in plan involving excavation of the basins and half of the portico foundations, which were symmetrical, and a stratigraphic analysis phase using trenches. These excavations were supplemented by scientific expertises (palynology, dendrochronology, etc.). Each sediment layer was interpreted using archives, and the field investigations confirmed, corrected, and supplemented the paper data, providing an almost exhaustive knowledge of this garden prior to its restoration.

111 RETHINKING MEDITERRANEAN ISLANDS: MOVEMENT, MATERIALITY, AND INTERCONNECTION ACROSS THE MIDDLE SEA AND BEYOND

Theme: 8. Beyond the Middle Sea: rethinking the Mediterranean in motion
Organisers: Maja Miše (UCL Institute of Archaeology) – Igor Borzić (University of Zadar, Department of Archaeology)
Keywords: island connectivity, archaeomaterials, bioarchaeology, geoarchaeology, maritime networks, environmental interaction
Format: Session with keynote presentation

SESSION ABSTRACT

This session reimagines Mediterranean islands as dynamic arenas of interaction—spaces where people, materials, and ideas moved across shifting maritime, cultural, and environmental networks. Moving beyond a view of the Mediterranean as a bounded or isolated world, we approach it as a living system of interlinked places whose insular, coastal, and peninsular communities shaped and reflected broader patterns of connectivity, adaptation, and innovation across the longue durée. We invite contributions from all archaeological periods that explore insularity, mobility, and exchange through diverse disciplinary and methodological lenses. Papers may address themes such as sustainability and resilience in coastal and island settings, migration and colonisation, or the relationships between inland and maritime zones. Comparative studies connecting the Mediterranean to other maritime regions worldwide are also welcome, as are reflections on the resonance of the Mediterranean beyond its shores. We particularly encourage interdisciplinary work that integrates archaeological science and theory. Bioarchaeological and geoarchaeological studies may reveal how populations interacted with their environments, while isotopic and material analyses can shed light on subsistence, identity, and health. Archaeomaterials research is invited to explore technological creativity, adaptability, and exchange, while underwater archaeology provides vital insights into harbours, shipwrecks, and maritime mobility. Contributions focusing on the reconstruction of past Mediterranean landscapes and seascapes are equally encouraged, offering perspectives on how environmental and social processes intertwined to shape insular lifeways. Studies examining sustainability and resilience strategies, interactions between coastal and inland areas, and the role of "continental islands" in regional connectivity are particularly relevant. By bringing together diverse perspectives, this session aims to move "beyond the middle sea," fostering an inclusive dialogue that situates the Mediterranean within global contexts of movement, interaction, and innovation—past and present.

CONTRIBUTION ABSTRACTS

1559. Pleistocene Stelida in the Mega-Cyclades: Bioenvironmental Contexts of Insularity, Connectivity, and Technological Adaptation

Authors: Danica Mihailovic (Institute of Archaeology, Belgrade) – Tristan Carter (McMaster University) – Daniel Contreras (University of Florida) – Justin Holcomb (The University of Kansas) – Christelle Lahaye (Université Bordeaux Montaigne) – Demetris Athanasoulis (Hellenic Ministry of Culture)
Format: Oral

The Pleistocene site of Stelida (Naxos), provides a deep-time perspective on Mediterranean islands as dynamic arenas of interaction rather than isolated spaces. During the Middle and Late Pleistocene, recurrent sea-level changes transformed the Cyclades into shifting configurations of islands, coastlines, and emergent land bridges - commonly described as the Mega-Cyclades, reshaping pathways of movement, connectivity, and resource access and blurring distinctions between insular, coastal, and inland zones.

Bioenvironmental data for the central Aegean remain limited due to poor organic preservation and the uneven history of palaeoecological research. Rather than introducing new environmental proxies, this paper synthesizes existing local and regional datasets derived from palaeogeography, geomorphology, botanical and faunal records, and insular biogeography, integrating them with site-specific archaeological and lithic evidence from Stelida. This integrative approach allows the site to be contextualized within broader landscape- and seascape-scale processes despite fragmentary environmental records. Within this framework, environmental instability, habitat restructuring, and faunal impoverishment likely structured mobility strategies and technological adaptation. Stelida's extensive chert sources and topographic prominence suggest its role as a persistent node within wider interaction networks linking inland, coastal, and maritime spaces. The study highlights the value of synthetic frameworks for exploring resilience and connectivity in Mediterranean island worlds and underscores the need for future interdisciplinary research to refine bioenvironmental baselines in the Cycladia.

165. The Impact of Changing Political Landscape of Anatolia on Cilicia's Maritime Connectivity during the Middle to Late Bronze Periods

Authors: Elif Ünlü (Boğaziçi University) – Ekin Kozal (Çanakkale Onsekiz Mart University)
Format: Oral

Cilicia is located on the southeastern coast of Anatolia encompassing fertile plains separated by river systems enclosed by the extensive Taurus Mountain Range in the north. While these natural boundaries could be traversed via mountain passes and river valleys, coastal harbors provided vital access to overseas regions. Within the northeastern Mediterranean, an increasingly dense network of maritime and overland connections developed throughout the Bronze Age, linking Cilicia with Cyprus and the Levant. These connections first emerged in the Early Bronze Age through the establishment of close ties that utilized both land and maritime routes and continued through the Middle and Late Bronze Ages, albeit with fluctuating intensity. During the Middle Bronze Age, political organization in the region was characterized predominantly by city-states, which functioned as key nodes within these interaction networks, mediating both regional and long-distance exchange. The beginning of the Late Bronze Age marks a significant shift in the political orientation of the region, driven by the foundation of the Kingdom of Kizzuwatna and the growing power of the Hittite state in central Anatolia and its ambition to gain access to the prosperous maritime trade networks of the eastern Mediterranean. Against this background, this study investigates the impact of the Hittite state's expanding political control over Cilicia on the region's established interaction networks with Cyprus and the Levant from the Middle Bronze Age (city-states) through Late Bronze I (Kingdom of Kizzuwatna) and II (Hittite hegemony). This investigation is based on a comparative analysis of ceramic assemblages from two key settlements representing different parts of the region: Tarsus–Gözlükule in Plain Cilicia and Kilise Tepe in Rough Cilicia.

1715. Beyond the Grey Area: Lesvos and the Northeast Aegean in Late Bronze Age Maritime Networks

Authors: Nicholas Kazamias (Macquarie University)
Format: Oral

The Northeast Aegean has long been considered a 'grey area' of Late Bronze Age archaeology: under-published, under-studied, and overshadowed by research focused on the southeast Aegean islands and the Cyclades. The Greek island of Lesvos in particular exemplifies this issue despite its strategic location between Mycenaean Greece and the Anatolian mainland. The island is crucial in understanding Late Bronze Age maritime mobility and cultural interaction in the region, and more broadly the eastern Mediterranean. Focusing on Lesvos within the broader context of the northeast Aegean as a dynamic maritime network, this paper draws on ceramic evidence from across the region (Lemnos, Chios, and the Troad) alongside legacy excavation data, and textual evidence. Rather than functioning as a passive periphery, the northeast Aegean islands actively shaped regional connectivity through deliberate engagement with Mycenaean and Anatolian spheres of influence whilst maintaining distinctive local traditions. Ceramic assemblages reveal hybridisation whereby the adoption of Mycenaean and Anatolian pottery forms were selectively integrated within local traditions. This demonstrates local agency in which two competing spheres of influence were being navigated. Hittite cuneiform references to Lazpa (Lesvos) and Wilusa (Troy) further corroborate the region's strategic significance within these overlapping networks. The evidence challenges passive periphery narratives and instead reveals how northeast Aegean island communities exercised cultural autonomy and choice while actively shaping Late Bronze Age connectivity.

1126. The Island that Made Sails: Landscape, Resources and Production of Maritime Textiles in Bronze and Iron Age Cyprus

Authors: Giulia Muti (Universität Bern, Institut für Archäologische Wissenschaften)
Format: Oral

This paper argues for the importance of integrating a landscape-based approach into the study of textile production on Cyprus in the Bronze and Iron Ages. As a large island characterised by pronounced environmental diversity and contrasting ecological potentials, Cyprus provides an ideal context for examining how insular landscapes structured, enabled or constrained one of the island's most pervasive and socially significant crafts. While textiles are most often discussed in relation to clothing, this paper highlights their crucial, yet largely overlooked, role in the maritime sphere. During the Bronze and Iron Ages, Cyprus was deeply embedded within networks of maritime connectivity. Textiles constituted essential components of seafaring technologies, including sails, rigging

and other elements of shipboard equipment, as well as transport containers, making textile production inseparable from practices of mobility, shipbuilding and exchange. The paper reconstructs the sourcing and organisation of textile and wooden resources for maritime uses across different regions of Cyprus, identifying potential areas of material procurement and production, and tracing patterns of circulation and consumption. In doing so, it addresses both internal interregional dynamics and external networks. Adopting a longue durée perspective, the study explores continuities and transformations in productive strategies, and the possible impacts of shifting socio-political structures and forms of control on resource management and craft organisation. Certain regions emerge as persistent or newly configured productive nodes, strategically located and resource-rich, that played leading roles in shipbuilding and textile manufacture within changing socio-political landscapes. Methodologically, the paper combines landscape capacity modelling and network analysis with spatial and contextual analysis of material evidence for textile production, integrated with written sources and ethnographic parallels. By framing textile manufacture as a territorially embedded process, this presentation conceptualises Cyprus simultaneously as a bounded productive territory and an active maritime node, offering a model for broader discussions of insular crafting lifeways.

562. Beyond the Aegean: Social Complexity, Agency, and Trade in Nuragic Sardinia

Authors: Laura Pisanu (Independent Researcher)
Format: Oral

Political and social dynamics shape global markets, influencing partnerships, import/export practices, and taxation. Similar patterns can be imagined for Bronze Age civilizations, where internal socio-political structures likely influenced choices regarding trade participation, export goods, and acquisition strategies. However, current understanding remains limited to the Aegean perspective, which portrays Aegeans as primary decision-makers and other societies as passive recipients. Nuragic Sardinia provides a valuable case study. The Nuragic civilization, known for its stone towers (nuraghi), began receiving imported products from the Aegean during the Middle Bronze Age (ca. 1600–1300 BCE) and later exported ceramics to Sicily, Crete, and Cyprus. To explain this trade, existing maximalist and minimalist models emphasize either direct long-distance contacts between Sardinia and the Aegean or indirect, multi-nodal networks with southern Italian communities acting as intermediaries. However, both theories largely neglect the role of internal Nuragic social dynamics in shaping trade decisions. By analyzing imported and exported material culture through the lens of Nuragic social complexity, this paper foregrounds local agency, decision-making, and socio-political organization and argues that exchanged goods reflect negotiated political and economic relationships. Finally, this paper adopts a decolonized perspective to highlight how Nuragic communities actively structured their participation in Mediterranean networks.

933. Recent Research on Neolithic Coastal Settlements on the Eastern Adriatic Islands

Authors: Mate Parica (University of Zadar)
Format: Oral

In recent years, research has continued on submerged Neolithic sites on the islands of the eastern Adriatic. Alongside the systematically investigated submerged settlement of Soline on the island of Korčula, new sites with similar characteristics have been discovered. Visible remains include stone and wooden architecture, dry-stone coastal walls, and fortifications. These findings demonstrate a significant departure from other forms of Neolithic architecture characteristic of the eastern Adriatic region. In addition to the distinctive architecture, the sites have yielded a rich assemblage of small archaeological finds, while the marine environment has also preserved organic remains and bioarcheological material. These findings suggest the existence of Neolithic communities that occupied the coastal zone, whose economic strength largely relied on seafaring. In this context, navigation and trade via Palagruža represent the beginnings of a strong maritime tradition in the Adriatic region. Through their control of trans-Adriatic trade, these Neolithic communities likely achieved significant economic success, reflected in the distinctive architecture of their settlements.

1349. Kopila hillfort (Korčula) – a polygon for defining relationship between Insular Indigenous and Hellenistic Communities in the Central Eastern Adriatic

Authors: Igor Borzic (University of Zadar) – Dinko Radić (Municipal Heritage Museum of Vis)
Format: Oral

Archaeological research of the Kopila hillfort (island of Korčula, Croatia), conducted since 2012 in cooperation of the Municipality of Blato, Vela Luka Cultural Centre, Department of Archaeology - University of Zadar, and Museum of Ancient Glass in Zadar has opened numerous new perspectives on the understanding of relationships between insular indigenous communities and Hellenistic colonial settlements in the central part of the eastern Adriatic. While historical sources predominantly place these groups on opposing interests' sides, the archaeological evidence points to exceptionally intensive and close interactions, primarily commercial, but potentially also the ones of other connotations. This paper will present a corpus of archaeological finds from both the settlement and the necropolis areas of the Kopila hillfort, whose provenance is primarily traced to Issaean, and subsequently Pharian workshops (ergasteria). In addition, the presentation will outline the potential of planned interdisciplinary bioarchaeological research aimed at achieving a more nuanced definition of population dynamics and, consequently, the social relationships among the communities involved.

2632. Across the Sea and Over the Mountains – Cultural Connectivity in the Iron Age Necropolis in Zakotorac (the Pelješac Peninsula)

Authors: Domagoj Perkic (Dubrovnik Museums, Archaeological Museum) – Hrvoje Potrebica (University of Zagreb, Faculty of Humanites and Social Sciensis) – Marko Dizdar (Institute of Archaeology)
Format: Oral

The research of the Iron Age necropolis Zakotorac – Gomile (the Pelješac Peninsula, Southern Croatia) has yielded a wealth of data on funerary practices and material culture that have significantly changed the current understanding of the Iron Age communities in the southern Adriatic. The funerary ritual and burial treatment show local characteristics and seem to be related to strong kinship ties, which will be explored further in future interdisciplinary research. Although, material culture also testifies of local development, large number of finds reflects large network of contacts with other communities on the eastern coast of the Adriatic, as well as with those on the other side of the Adriatic, and especially those settled in their Balkan hinterland. So far analysis of particular categories of archaeological material (female dress, ornaments, and to a lesser extent weapons) shows that dynamics of those connections changed over time. Greek pottery held an important place in everyday life, but also in the funeral ritual. It appears in Zakotorac graves from the 5th century BC and became more frequent in later phases, indicate an intensive connection with both the Greek centres in Italy as well as those which were established on the eastern coast of the Adriatic. The inventory of the Zakotorac graves reflects complex social dynamics within the community, as well as extensive cultural connectivity which was somehow important aspect of the local identity.

240. Dalmatian Islands and Adriatic Cultural Entanglement: Technological Innovation in Pottery Production

Authors: Maja Miše (UCL Institute of Archaeology)
Format: Oral

This paper explores processes of technological learning, knowledge transmission, and innovation in Dalmatian island pottery production during the first millennium BCE, using integrated archaeomaterials analysis as its primary evidential base. Drawing on new and existing geochemical datasets from workshops and consumption sites on Issa (Vis), Pharos (Hvar), and neighbouring islands, it reconstructs patterns of raw material procurement, paste preparation, and technological choice within insular craft communities. Compositional and technological groupings reveal both strong regional signatures and long-standing patterns of connectivity among Iron Age communities on both Adriatic coasts, alongside selective engagement with wider Mediterranean ceramic traditions. Rather than reflecting passive imitation following Greek expansion and settlement, these patterns point to cumulative processes of cultural and technological entanglement, rooted in earlier regional networks and intensified through later interaction with Greek and Hellenistic production systems. Local practices and external traditions became mutually constitutive through sustained contact, mobility, and material experimentation, generating distinctive Adriatic technological trajectories. By integrating scientific data with typological, contextual, and chaîne opératoire approaches, the paper demonstrates how island workshops functioned as dynamic nodes within broader networks of mobility and exchange. It highlights the role of apprenticeships, itinerant craftspeople, and material experimentation in shaping hybrid technological traditions and sustaining long-term innovation. More broadly, the study reframes the Dalmatian islands as active arenas of Adriatic cultural entanglement, where technological creativity emerged from the interaction between mobility, material resources, and local practice. In doing so, it illustrates how archaeomaterials research can contribute not only to provenance studies, but also to wider debates on insularity, agency, and cultural transmission in maritime societies.

698. Hill-fort Košljun in the Context of Settlement Patterns on the Island of Pag

Authors: Slavko Šarčević (Archaeological Museum Zadar) – Zrinka Serventi (Department of History, University of Zadar) – Igor Borzić (Department of Archaeology, University of Zadar) – Anamarija Eterović Borzić (Museum of Ancient Glass, Zadar)
Format: Oral

The island of Pag throughout history had a great strategic position in the Eastern Adriatic, connecting Southern Liburnia (especially the area of Ravni Kotari) with Northern Liburnia and its Kvarner area. Its placement on the Eastern Adriatic maritime route conditioned the development of various settlements, particularly during the Iron Age and Roman times. Unfortunately, apart from several more extensive surveys, archaeological excavations on the entire island have been scarce at best, with just a few locations drawing greater interest. Among those locations is the site of Caska bay, where on the coast a Roman period necropolis with unique burial types has been excavated, while underwater research discovered significant remains of harbour installations and sunken ships. In recent years, another Caska site has been more extensively researched, and that is the hill-fort Košljun. This settlement has a continuity of use from prehistory into early antiquity and Middle Ages, with remains of various prehistoric and Roman structures and material, as well as a Mediaeval church built on top of the hill. This all indicates a dynamic development of settlement patterns in the Caska area, the early acceptance of Roman culture and attests to the interconnectedness of this island with changes happening in the Adriatic and Mediterranean. Therefore, in this paper we shall present most recent research conducted at the site of Košljun, particularly in the context of the interdisciplinary scientific project "Transformation of South-Liburnian Territory in Early Antiquity". The site will be examined within the larger framework of Caska area and the evolution of settlement patterns in the entire island of Pag. The position of Caska bay in the context of maritime trade networks and historical change happening

during the transition from Late Iron Age into early Principate period will also be considered.

1117. Roman villas on Central Dalmatian islands: Brač and Hvar. Development and transformation of architecture and production facilities

Authors: Kristina Jelinčić Vučković (Institute of archaeology, Zagreb) – Emmanuel Botte (CNRS-Aix-Marseille-Université)
Format: Oral

Ruling rural Dalmatia's islands in Roman times can be seen through a large number of villae rusticae scattered throughout their hilly landscape and bays. Although picturesque and idyllic, such a layout requires careful planning and many factors to be considered. The complexity of deciding when, how, and by whom these island villas were built is much broader: it can be studied from different global perspectives: political and military, and through the eyes of economy and trade. Here, we present a local perspective, focusing on geography, climate, connectivity, and natural resources. Karst terrain, with modest areas of fertile soil, except for the Stari Grad plain, was wisely used to ensure the villas' self-sufficiency and longevity. These facts are more important on islands than on the mainland due to the challenges of supply and connectivity. Thus, they provided an important guideline for developing logistical and strategic plans to organize life in rural areas on islands. The first Roman arrival on the islands and the organization of the economy and rural life were carefully organized through small establishments. After a few decades of careful monitoring and experience in the area, they began building larger estates. In the 2nd century, we see well-planned, well-thought-out villas. These big villas functioned and flourished for almost two centuries. Late Antiquity brought a period of change and transformation that is evident throughout the former large villas. Their outline is not well organized as before; it looks more like an adaptation, use, and reuse of available goods. These stages are evident not only in the general floor plan but also in the organization and shape of production facilities.

1259. Scuttling ships in the bay of Caska at the island of Pag, Croatia

Authors: Irena Radic Rossi (University of Zadar) – Giulia Boetto (Aix-Marseillel University, CNRS, Centre Camille Jullian)
Format: Oral

A large archaeological site from the Roman era is situated in the bay of Caska on the island of Pag, in the Croatian province of northern Dalmatia. This economic complex, built during the late 1st century BC or the beginning of the 1st century AD, was probably in the possession of the Roman senatorial family Calpurnii Pisones. The complex includes a number of coastal structures, consisting of a large breakwater, an operational platform and smaller wooden piers, arranged along the eastern shore of the bay. During submarine archaeological research conducted between 2007 and 2024, the remains of four scuttled ships were discovered, which were used to strengthen port structures. The construction and use of ships are dated approximately by 14C to the Early Roman Imperial period, and their scuttling occurred after they ceased to serve their original purpose. All the ships were filled with rocks and then scuttled in selected places. The two smaller ships were built using the prehistoric Liburnian sewing technique, which survived into Roman times, while the other two were built using the classical Roman technique of joining planks with mortises and tenons. One smaller ship was used to create the operational platform, while the other was used to build a small wooden pier in front of a large retaining wall that supported an earthen terrace. The larger ship was scuttled on the outer side of the head of the large breakwater, to secure its most vulnerable part, while the purpose of the fourth has yet to be examined. Scuttling of the ships probably occurred within a short period of time, which testifies to the coexistence of Liburnian and Roman shipbuilding traditions on the island of Pag for more than a century after the Roman conquest.

1154. Life on an Adriatic island during Late Antiquity – Osteological indicators of health in a rural population from Unije

Authors: Barbara Kriletić (Institute for Anthropological Research, Zagreb) – Mario Novak (Institute for Anthropological Research, Zagreb | Faculty of Humanities, University of Primorska) – Matija Makarun – Uroš Bila (Arheo Kvarner, Vrbnik) – Mislav Čavka (University Hospital Centre Zagreb) – Katarzyna Talarczyk (Poznan University of Medical Sciences)
Format: Oral

The island of Unije, situated in the western part of Kvarner archipelago, had an important position alongside northern Adriatic maritime routes since prehistory. Protective archaeological excavations conducted in 2025 at the site of Vrulje in the southern part of the island uncovered a part of a Late Antique funerary complex, preliminarily dated to the late 4th and early 5th century CE. Five graves representing different burial types were documented, suggesting the area was used for funerary purposes during a longer period of time. In this study we use osteobiographic approach to reconstruct the life history of individuals buried at this site by combining direct AMS dating, conventional bioarchaeology, paleoradiology, isotopic and biomolecular approach to get a better insight into the general health, diet and genetic affinity of people inhabiting Unije during Late Antiquity. The special attention is given to Grave 1, a stone sarcophagus, containing partially preserved skeleton of a young adult female (20-25 years) showing pathological changes indicative of tuberculosis (TB) such as active new periosteal bone formation on all ribs as well as lytic lesions on the lumbar vertebrae and sacrum. Although TB has been documented in Antiquity through classical written sources and paleopathological cases have been reported throughout the Mediterranean, the individual from Unije represents the earliest case of this disease in the Adriatic region. The proposed approach will provide new important insights into the everyday life of rural populations from insular contexts during Late Antiquity but will also add to our knowledge about the occurrence and spread of TB in the Roman Empire. And lastly, the presented study represents an excellent example and highlights the importance of small island sites for studying different aspects of health and disease in Antiquity.

2520. External auditory exostoses and the evolution of aquatic activity in Cyprus from the Aceramic Neolithic to the Roman period

Authors: Bianca Casa (The Cyprus Institute)
Format: Oral

The Mediterranean Sea formed an integral component of island lifeways in Cyprus, structuring mobility and exchange. External auditory exostoses (EAEs) are bioarchaeological proxies for habitual engagement in aquatic activities. EAEs are osseous growths of the external auditory canal, with an accepted aetiology linked to chronic exposure to cold water and/or water in combination with wind, typically over prolonged periods. This study examines diachronic patterns of engagement in aquatic activities in Cyprus by assessing the frequency and palaeopathological expression of EAEs in skeletal remains dating from the Aceramic Neolithic to the Roman period. Archaeological skeletal assemblages from 67 sites were analysed, comprising 817 right and 789 left external auditory canals that were sufficiently preserved for macroscopic and microscopic assessment. EAEs were present in 3.4% of right and 2.78% of left external auditory canals. Frequencies were higher at coastal sites than at inland sites, and males exhibited a higher prevalence than females. Middle-aged adults showed higher frequencies of EAEs than young adults, while no nonadults were affected. Eleven sites presented individuals with EAEs in association with archaeological evidence of aquatic resource exploitation, and this relationship was statistically significant. Although the true extent of engagement in aquatic activities is likely underestimated, the results indicate that activities such as fishing, swimming, diving, and sailing were undertaken by a limited subset of individuals, primarily adult males from coastal communities, to an extent sufficient to promote EAE formation. When considered within their sociocultural, environmental, and temporal contexts, increases in EAE frequency correspond with periods characterised by greater archaeological evidence for maritime activities, aquatic resource procurement, purple dye production, and bathing practices. These findings contribute to interpretations of subsistence strategies, labour organisation, and long-term human-environment interactions in Cyprus.

2791. Keynote: Islands in the stream of science: new perspectives and new opportunities

Authors: Cyprian Broodbank (McDonald Institute for Archaeological Research, University of Cambridge)
Format: Oral

Scientific understanding and the analysis of island life have been creatively engaged since at least the 19th century, initially largely in relation to questions of animal and plant speciation, ecology and environmental change. The subsequent emergence of island archaeology as a more formally defined field during the 1970s and 1980s coincided with the scientific turn of the New Archaeology, which encouraged a series of analytical initiatives of lasting benefit to this day. Among these are analytical exploitation of the limited and often distinctive mineral resources of islands to fingerprint and identify distributions of their materials abroad and likewise to spot non-local imports (with insights into wider theories of trade and exchange); investigation of the anthropogenic impacts of human settlement on island environments and endemic species; and pioneering efforts at computational modelling of human dispersals in island settings. The potential of these extant avenues of enquiry continues to expand as scientific advances enable more sophisticated approaches, and as our socially oriented questions evolve, not least in the light of contemporary challenges. But equally, a series of new science-based approaches offer radically new perspectives on the long-term patterning island life. These come most obviously from the ongoing biomolecular, and in particular whole-genome, revolution, but also from different ways of thinking archaeologically with materials science. This paper offers an overview and explores Mediterranean case studies.

472. Across a Narrow Sea: Issa and Trans-Adriatic Connectivity in Diachronic Perspective

Authors: Filip Budic (Department of History, University of Zagreb)
Format: Poster

The Greek colonisation of Vis and Hvar in the fourth century BC marked a decisive turning point in the balance of power within the eastern Adriatic archipelago. In order to endure and develop into a stable and prosperous settlement, the incoming Greek population had to integrate into exchange networks, previously sustained by indigenous communities. This study focuses on Issa, the Greek settlement on the island of Vis, analysing key indicators of connectivity and highlighting its links to both the eastern and western Adriatic coasts. The discussion draws primarily on archaeological evidence for interaction, especially pottery and coinage, alongside onomastic data preserved in the epigraphic record. It also considers gaps in the material evidence, most notably the limited visibility of agricultural commodities, particularly crops. Adopting a diachronic approach, the study argues that Issaean connectivity was both continuous and structurally necessary, and it identifies comparable patterns in later periods, with particular attention to the early modern era. This approach opens space for the application of theoretical models that emphasise the interdependence of the central Dalmatian islands with the Adriatic mainland on both its eastern and western coasts. While the islands can be understood as microcosms in their own right, they were also firmly embedded in the wider communicative and economic framework of the so-called "Adriatic Bridge". This term is commonly used to describe the maritime route linking the mainland of central and southern Dalmatia with the opposite Italian coast. Within this system, Vis emerges as a nodal point of particular strategic importance.

Finally, the paper raises broader methodological questions regarding the extent to which diachronic models can be productively applied to prehistoric and ancient contexts, particularly given their shared foundation in premodern economic conditions.

775. The Roman Site on the Košljun Hill (Pag, Croatia): a Contribution to the Discussion on the Local Amphorae Production

Authors: Igor Borzic (University of Zadar) – Slavko Sarčević (Archaeological museum in Zadar)
Format: Poster

Ancient Liburnia stands out as one of the most economically dynamic and urbanistically developed regions within Roman Illyricum, later the province of Dalmatia. Despite considerable archaeological efforts, our understanding of local pottery production remains limited. Apart from the only systematically investigated workshop at Crikvenica (Ad Turres), which produced a broad range of architectural materials, transport and storage vessels, and tableware, most contributions to this topic are based on indirect archaeological indicators. These have led to the identification of several sites as potential figlinae, yet their ownership, production range, and chronological development are still insufficiently understood. One such case is the Roman agglomeration of Novalja–Caska on the western part of the island of Pag (ancient Cissa), where archaeological evidence strongly suggests a connection with the senatorial family of the Calpurnii. The presence of substantial quantities of ceramic production waste in Novalja, together with the identification of distinctive amphora forms (type Caska 1), as well as vessels produced in the tradition of Lamboglia 2 / Dressel 6A and Dressel 6B types, and locally attested tile stamps from both the harbour and settlement zones at Caska, all point to the existence of a local pottery manufacture. This production likely served the needs of an economy oriented towards agriculture and mariculture, as also confirmed by archaeological data. The present poster revisits this hypothesis and supports it with new evidence from the nearby settlement site of Košljun. The site has been investigated through a collaborative project involving the Municipality of Novalja, the Archaeological Museum Zadar, the University of Zadar, and the Museum of Ancient Glass in Zadar. The assemblage of amphorae and architectural ceramics corresponds closely to material from the previously identified locations, offering new insights into production intensity and function, patterns of distribution, and the extent to which local production followed broader trends in amphora design at the turn of the era. This poster forms part of the institutional interdisciplinary research project "Transformation of South-Liburnian Territory in Early Antiquity."

1014. "Barbaria" in the Provincia Sardinia: Beyond the "Constant of Resistance" Approach

Authors: Giuseppe Daga (University of Pisa | Scuola Normale Superiore)
Format: Poster

This paper reconsiders the traditional interpretation of the "Civitates Barbariae" in the Roman province of Sardinia, long understood as the core of a persistent and culturally homogeneous area of "resistance" opposed to Roman domination. Starting from a critical reassessment of the historiographical paradigm developed by Giovanni Lilliu and subsequently adopted by much of twentieth-century scholarship, the study questions both the analytical usefulness and the historical foundations of the Romania-Barbaria dichotomy. Through a close examination of literary, epigraphic, and archaeological evidence, the article argues that neither political resistance nor cultural isolation can be regarded as structural or constant features of the Barbagia region or of the island as a whole. Particular attention is devoted to the chronology, spatial extent, and administrative meaning of the designation "Civitates Barbariae", which emerged in the early Imperial period within a broader Roman strategy of territorial organization and control, gradually implemented through processes of mobility and settlement: the displacement of followers of Egyptian and Jewish cults in AD 19 and the encouraged settlement of a Lusitanian community at the Vicus Augusti, which contributed to introducing new religious practices to the island, and the increasing participation of local populations in military service as a pathway to Roman citizenship. Rather than representing a disconnected space, the "Civitates Barbariae" are therefore interpreted as a by-product of Roman attempts to foster imperial connectivity, shaped by administrative practices and embedded within wider Mediterranean networks. The paper also argues that this category rests upon a long-standing negative imaginary associated with Sardinia in Roman thought, reinforced by the development of the legal practice - known as "relegatio in insulam" - from the first century BC onwards.

1135. Osor (Cres Island, Croatia): Transdisciplinary Approaches to a Long-Term Investigated Site

Authors: Dušan Medin (Faculty for Culture and Tourism University of Donja Gorica | Association for Cultural Development "Bauo") – Martina Blečić Kavur – Boris Kavur (Faculty of Humanities University of Primorska)
Format: Poster

Osor, located on the low isthmus connecting the islands of Cres and Lošinj, is a site with over 3 millennia of continuous occupation and more than 150 years of archaeological research. This extensive research history has produced heterogeneous datasets, shaped by evolving research agendas, field strategies, and interpretive frameworks, which present significant challenges for data integration and reinterpretation. The international project Osor beyond the Myth addresses these challenges through a transdisciplinary framework that reassesses Osor as a historical palimpsest and a key case study in island archaeology. Rather than viewing insularity as isolation, the project conceptualises Osor as an insular space structured by connectivity, mobility, and changing maritime and terrestrial networks, critically engaging with the concept of insularity as a historically contingent condition. Methodologically, the project integrates geoarchaeology, geophysics, landscape and underwater archaeology, bioarchaeology, archaeometallurgy, and chemical and isotopic analyses (tin, lead, carbon and nitrogen, strontium, aDNA) with systematic re-analysis of legacy data and material culture. Central to this approach is the development of integrated data workflows that connect older excavation records with newly generated digital datasets, enabling multi-scalar and relational analyses across time and space. This data-driven yet interpretative framework allows for the critical reassessment of established narratives concerning settlement continuity, production, redistribution, and socio-economic networks. Osor thus exemplifies how long-term island sites can be reinterpreted through innovative data workflows and transdisciplinary collaboration, demonstrating the potential of island archaeology to move beyond static models towards dynamic interpretations of historical landscapes shaped by environment, connectivity, and human practice.

2695. Ionios — Between a Heroised Eponym and a Historical Ruler

Authors: Vinko Udiljak (Municipal Heritage Museum of Vis) – Mila Erceg (Center for Prehistoric Research)
Format: Poster

In Greek colonial narratives, it is well attested that newly founded settlements were often provided with a mythical ruler or founder, retrospectively inscribed into local tradition in order to legitimise territory and articulate identity. Such may also be the case with Ionios, a figure whose portrait and name appear on the fourth-century BCE coinage of the eastern Adriatic polis of Issa. Founded as a Syracusan colony on the island of Vis in the fourth century BCE, Issa adopted the practice of coin minting under Syracusan influence. This paper examines the so-called "Ionios-type" coinage and situates it within broader numismatic and ideological developments of the Greek world. It explores potential channels through which iconographic and conceptual models may have reached Issa—an exchange made plausible by the island's strategic position and its integration into Adriatic and wider Mediterranean trade networks. Particular attention is devoted to the poleis of Tegea, Aptera, and Metapontum, which, contemporaneously with Issa's minting activity, depicted their oikistai on coinage and rendered the founder's name in the nominative case, in contrast to the genitive form that otherwise predominated in Greek numismatic practice. In the Greek world, coinage functioned as a primary marker of civic autonomy and political self-representation. Oikistai, as mythical founders, were central not only to the colonising strategies of the Syracusan tyrants but also to the construction and maintenance of civic identity. The paper argues that Issa deliberately employed Ionios as a visual and ideological emblem of autonomy, projecting its political status and enhancing civic recognisability through a mythological figure embedded within the shared symbolic repertoire of the ancient Mediterranean. Methodologically, the study applies the model of interpretatio Graeca as an analytical framework for examining the integration, transformation, and reinterpretation of local mythical and cultic elements within the Greek cultural system.

113 UNDER PRESSURE: TRACING CHILDHOOD STRESS, GROWTH, AND HUMAN ADAPTATION IN THE PAST

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Christina Papageorgopoulou (Democritus University of Thrace) – Sofija Stefanović (University of Belgrade)
Keywords: Bioarchaeology, growth and development, childhood health, isotopic and osteological analysis, weaning
Format: Regular session

SESSION ABSTRACT

Growth and development reflect the biological and physiological changes from conception to maturity. In bioarchaeology, studying these processes reveals how environmental, cultural, and biological factors shaped the health and adaptation of past populations. A range of analytical methods are employed to investigate growth patterns, biological maturity, and physiological stress. Long bone measurements provide evidence of linear growth, while deviations from expected lengths indicate stunting or malnutrition. Epiphyseal fusion timing serves as a marker of biological maturity, with delays often reflecting chronic illness or stress. Enamel hypoplasia record episodes of physiological disruption during development, while isotopic analyses help reconstruct weaning practices and dietary quality from infancy through lifespan. Such analyses illuminate childhood health, mortality patterns, overall population well-being, and long-term trajectories of human adaptation and evolution. The overarching goal of this session is to reconstruct life histories, evaluate health and stress across populations, and elucidate the social and environmental factors such as nutrition, inequality, and climatic stressors that shape human biology. We invite contributions employing osteometric, histological, isotopic, and comparative methodologies to advance understanding of childhood health variation, social stratification, and environmental adaptation. Together, these perspectives will provide essential insights into the biological and cultural resilience of human populations through time.

CONTRIBUTION ABSTRACTS

1187. Tracing Early-Life Stress Around Birth: Histological Evidence from Deciduous Teeth

Authors: Ani Martirosyan – Patricia Nieto (Universitat Autònoma de Barcelona) – Javier Irurita (Universidad de Granada) – Cristina Santos – Assumpció Malgosa – Xavier Jordana (Universitat Autònoma de Barcelona)
Format: Oral

Childhood stress leaves lasting biological signatures, beginning with birth, a major physiological challenge reflected in the neonatal

line (NNL) of dental enamel and dentin. This study compares prenatal and perinatal stress between archaeological and modern infants to evaluate differences in early-life stress and perinatal mortality. We analyzed 35 archaeological deciduous teeth from the Iberian period (8th–1st centuries BC) and 15 modern deciduous incisors with documented age at death. Thin sections were examined under a polarized light microscope to identify the NNL and accentuated lines (ALs) marking episodes of prenatal and postnatal stress. Prenatal stress was assessed by counting ALs and measuring their spacing relative to the NNL, while postnatal ALs were used to estimate the timing of stress events during the first days of life. In addition, 9 archaeological and 6 modern samples were analyzed using synchrotron radiation micro X-ray fluorescence (SR µ-XRF). Results indicate that most archaeological individuals died around the time of birth, corresponding to the period of highest infant mortality risk, with those who survived birth having postnatal stress episodes occurring shortly before death, highlighting pronounced perinatal vulnerability. Archaeological samples showed more prenatal stress markers, with an average of three ALs (range: 1–5), compared to two ALs (range: 1–3) in modern individuals. SR µ-XRF results revealed an increase in Zn levels at the NNL related to high Zn concentrations during early lactation. These findings suggest that prenatal stress was more frequent or intense in archaeological populations, likely reflecting environmental, nutritional, and maternal health constraints. By integrating dental histology with elemental analyses and modern comparative data, this study provides new insights into early-life stress, perinatal mortality, and human adaptation in the past.

2204. Infant health histories in ancient Samnium: enamel microstructures reveal stress and growth at Alfedena (Abruzzo, Italy, 6th–4th century BCE)

Authors: Jessica Bergamini – Roberto Germano (Sapienza University of Rome) – Luca Bondioli (Institute of Geological Sciences, Polish Academy of Sciences, Krakow) – Alfredo Coppa (Sapienza University of Rome) – Paola Cerrito (University of Zurich) – Giorgio Manzi – Alessandro Vanzetti – Alessia Nava (Sapienza University of Rome)
Format: Oral

The study of dental enamel microstructures provides insights into growth rates, ontogenetic trajectories, and physiological stress patterns in humans. This study examines odontochronologies, total frequency, and monthly prevalence of enamel Accentuated Lines (Als, physiological stress markers) in 31 teeth (24 permanent M1s, 7 deciduous dm2 and dc) from 25 individuals of the Iron Age necropolis of Alfedena (Abruzzo, 6th-4th cent. BCE). The daily enamel secretion rate (DSR; 3.37±0.29 µm/day) of M1s at Alfedena is faster than in modern populations (2.85 µm/day). This accelerated growth pace results in an average crown formation time (CFT) of 2.7±0.4 years, which is at the lower end of the range (2.4-3.6 years) reported for the only Iron Age site available for comparison, Pontecagnano (Campania, Italy, 7th- 6th century BCE). The ALs prevalence by months of life at Alfedena shows an initial stress phase between the 3rd and 4th months, followed by an increase in stress levels, reaching a plateau between 9 and 18 months, with the highest level occurring at 13 months. Results by biological sex (DNA-determined) reveal different temporal distributions of stress: females exhibit early vulnerability starting from the 6th month of life, whereas males show a later increase, peaking at 18 months. When comparing with the stress prevalence series available for Pontecagnano and the Roman Imperial site of Isola Sacra (Lazio, Italy, 2nd to 4th century CE), Alfedena shows a comparable shape of prevalence profiles. The average of stress episode occurrence per individual during the same individual timeframe appears higher in the Isola Sacra sample (12 ALs ± 4,8) than in the Alfedena (7 ALs ± 5,2) and Pontecagnano (11 ALs ± 4,5) samples. Overall, when compared with penecontemporary and Roman Imperial sites, Alfedena infants show accelerated crown formation times and sex-specific stress prevalence, associated with a lower average frequency of stress episodes.

281. Infant Lives in Medieval Sweden: Bioarcheological insights into Health, Caregiving, and Burial Practices

Authors: Emelie Jonsson (Stockholm University)
Format: Oral

This PhD project presents an ongoing bioarchaeological analysis of just over 100 perinatal and infant individuals recovered from three medieval sites in Sweden: the town cemeteries of Sigtuna (10th–15th centuries), the Dominican convent of St. Olof in Skänninge (13th–16th centuries), and Helgeandsholmen a hospital/almshouse cemetery in central Stockholm (13th–16th centuries) – sites which enables an interesting comparison between urban, monastic and institutional contexts. The study aims to reconstruct prenatal and postnatal health, growth trajectories, and aspects of caregiving, as well as critically addressing the continual underrepresentation of infants in the archaeological record. Preliminary osteological analyses include age-at-death estimation, skeletal preservation, and macroscopic indicators of pathological bone change. Early results indicate generally variable preservation, growth stunting in several individuals, and a noticeable spike of mortality within the first year of life, underscoring early infancy as a particularly vulnerable life stage. To refine the osteological interpretations, the project will also integrate biochemical analyses. Planned stable isotope analyses will investigate maternal diet, breastfeeding patterns, mobility, and potential environmental stress. Histological examination of dental microstructure targets the identification of a neonatal line, marking the significant physiological stress that comes with parturition, but also indicating live birth. Since osteological sex estimation is unreliable in infant remains, peptide-based amelogenin analysis is intended to be implemented as a minimally destructive method for biological sex determination, allowing further assessment of possible sex-related differences in health and burial treatment. Some preliminary results from the ongoing biochemical analyses are expected to be available and presented at the time of the conference. By integrating osteological, biochemical, and contextual data, the project situates infant health within broader medieval social frameworks, providing insight into vulnerability, caregiving practices, and societal responses to infant life and death in medieval Sweden.

1163. Beyond Teeth – Tracing Infant Dietary Stress during 19th-century Industrialisation in London

Authors: Andrea Czermak (University of Oxford | Bavarian State Collection for Anthropology SNSB) – Rick Schulting – Emily Longden (University of Oxford)
Format: Oral

"Please, Sir, I Want Some More" (Charles Dickens, Oliver Twist) Poverty and persistent insecurity regarding basic needs like food, shelter, and healthcare were harsh realities for many families during nineteenth-century industrialisation, with children bearing the greatest burden. This study investigates early-life dietary stress among infants and children buried during the height of industrialisation at New Covent Garden Cemetery, a then-deprived area of London, with nearly 40% of individuals interred being children under the age of twelve. Osteological evidence reflects sustained physiological stress, including malnutrition, chronic illness, and physical strain experienced by both children and adults. Our ability to reconstruct the lived experiences of infants who died before dental tissues formed is limited, as they are excluded from dentine-based spatio-temporal isotope analyses. We present a novel methodological approach by sequentially sampling infantile long bones to assess early-life nutritional stress using stable carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) isotope analysis. By targeting bone still undergoing interstitial growth and sampling from the centre toward the diaphyseal end, we present the first instance of significantly distinct sequential $\delta^{13}C$ and $\delta^{15}N$ signals captured within human infant long bones. Bone-length–based age estimation contextualised isotopic variation within early development. The results demonstrate that sequential long bone sampling can capture intra-individual dietary shifts and periods of nutritional stress in infants too young for dentine analysis. This approach offers a valuable new tool for bioarchaeological investigations of early-life stress in small children where dental tissues are absent or poorly preserved. Further work is needed to validate the method and refine isotopic age-alignment. However, this study underscores the strong potential of infant long bones as an alternative archive of early-life experience, advancing our understanding of childhood in past populations.

2133. Reconstructing weaning practices and the early diet of girls and boys in the Bronze Age necropolis Mokrin (2100-1800 BC)

Authors: Jelena Markovic (Laboratory for Bioarchaeology, Faculty of Philosophy, University of Belgrade) – Elissavet Ganiatsou – Christina Papageorgopoulou (Laboratory of Biological Anthropology, Democritus University of Thrace | Institute of Applied Bioarchaeological Research, DUTH) – Sofija Stefanović (Laboratory for Bioarchaeology, Faculty of Philosophy, University of Belgrade)
Format: Oral

Early childhood diet provides a valuable lens to investigate cultural practices, social differentiation, and survival in past communities, as decisions about breastfeeding and complementary feeding were shaped at the communal level. This study aims: (1) to determine the breastfeeding duration between boys and girls; (2) to assess whether individuals of different social statuses had access to different food resources; (3) to establish whether children who lived longer were also breastfed for longer periods. To test whether biological sex or status influenced the dietary choices, we compared the duration of breastfeeding among children of different sexes and social status, as inferred from grave goods. By comparing children's diets across age groups, we gained insight into a potential relationship between childhood dietary practices and child mortality. We analyzed deciduous and permanent teeth from 27 children whose sex was determined by peptide analysis, from the Mokrin necropolis (2100-1800 BC) in Northern Banat, Serbia. Using serial dentine collagen stable isotope analysis ($\delta^{13}C$ and $\delta^{15}N$), we reconstructed weaning practices and the early diets of boys and girls, from birth to approximately six to seven years of age. The results showed there is no difference in the weaning and early diet of boys and girls, nor in the dietary patterns of children of different social statuses. However, a statistically significant difference indicated that the children who were breastfed for longer lived longer. This shows the critical role of breastfeeding in child survival and offers new insights into the relationship between early diet and mortality in Bronze Age communities.

2596. Assessing trace element composition in cremated pars petrosa of the human temporal bone through LA-ICP-MS: Implications for Childhood Life-History Reconstruction

Authors: Emma Stuart (Sapienza University of Rome) – Robert Anczkiewicz (Institute of Geological Sciences, Polish Academy of Sciences, Krakow) – Alessandro Vanzetti (Sapienza University of Rome) – Carmen Esposito (University of Bologna) – Szymon Mianowski (Sapienza University of Rome | Institute of Geological Sciences, Polish Academy of Sciences, Krakow) – Luca Bondioli (Institute of Geological Sciences, Polish Academy of Sciences, Krakow) – Alessia Nava (Sapienza University of Rome)
Format: Oral

A challenge in bioarchaeology concerns the isotopic and trace element analysis of cremated remains for life-history reconstruction. Cremation typically destroys time-resolved key archives such as dental enamel, though the pars petrosa of the temporal bone has emerged as a promising alternative, despite not being deposited in an appositional manner, due to its structural resistance to heat and resilience to diagenetic alteration. Forming within the first two years of life, the pars petrosa can chronologically substitute for dental enamel in childhood reconstructions as it does not remodel throughout an individual's life, as demonstrated in recent studies. However, the assumption that this structure is resistant to diagenesis and contamination remains undertested and may bias interpretations of mobility, diet, and nursing. This study investigates nine cremated pars petrosa samples using LA-ICP-MS to

assess variations in strontium (Sr) and other diagnostic trace elements across different regions of the pars petrosa. The primary aim is to estimate potential differences in elemental concentrations, between the dense, structurally resistant otic capsule and the more porous surrounding external bone areas. Results show that variable Sr concentrations exist within various areas of the pars petrosa and appear associated with diagenetic processes and/or contamination rather than dietary changes related to nursing. While most of the contaminants are easily eliminated in bulk analyses through leaching procedures, the use of high resolution LA based microanalysis is critical to assess time resolved trace element signals across the pars petrosa. These preliminary findings suggest that the pars petrosa may not be uniformly resistant to post-depositional alteration and that intra-bone variability requires careful consideration. Further investigation and methodological refinement are needed to improve the reliability of isotopic and trace element analyses on pars petrosa samples and enhance reconstructions of childhood stress, diet, and life histories in past populations.

358. Does early-life stress affect bone health in adulthood?

Authors: Antony Cevallos Alava – Carme Rissech (Universitat Rovira i Virgili)
Format: Oral

Bone loss is associated with several metabolic diseases characterized by reduced bone mineral density. These multifactorial conditions are shaped by genetic, environmental, and cultural influences and can be assessed using the second metacarpal cortical index (MCI). Early life stress can disrupt growth and development and exert long-term effects on health through interconnected biological and environmental pathways. Adult bone health reflects the cumulative impact of physiological, nutritional, and pathological factors across the life course. Linear enamel hypoplasia (LEH) is widely recognized as a reliable indicator of nonspecific stress experienced during early development. This study investigates whether early life stress, as indicated by LEH, is associated with cortical bone loss in adulthood, assessed through MCI. The sample comprised 153 adult individuals (83 males, 70 females) from Barcelona, Spain, dating from the 1st to the 18th centuries CE. Sex and age were estimated for all individuals,each presenting at least one well-preserved second metacarpal (antemortem trauma, postmortem breakage, or severe diagenic damage) and observable mandibular dentition (including at least one canine, one central incisor, and one lateral incisor). LEH was recorded macroscopically using a binary classification system: absence (NON-LEH) or presence (LEH) of at least one distinct defect. Cortical bone status was evaluated through traditional radiogrammetric measurement of MCI. Individuals were grouped by sex and age (21–30, 31–49, and 50+ years). Depending on data distribution, either the Student's t-test or the Mann–Whitney U test was applied. Statistically significant differences in MCI were identified in most sex and age categories. Individuals exhibiting LEH consistently showed lower MCI values than those without LEH. These findings indicate a potential association between LEH and lower MCI, suggesting that early life stress may have lasting negative effects on adult bone health. The results support the early-life programming hypothesis and provide a foundation for future paleopathological research.

1252. Dental Enamel Hypoplasia, a Marker of Early-Life Stress: Insights from a Diachronic Study on Portuguese Osteological Collections (Late Neolithic-21st century)

Authors: Liliana De Carvalho – Sofia Wasterlain (Research Centre for Anthropology and Health, University of Coimbra)
Format: Oral

Childhood health and disease represent an area of interest in bioarchaeology, since biosocial vulnerability of children makes them particularly important to the knowledge of the life conditions of past populations. The aim of this study is to investigate the frequency and patterning of dental enamel hypoplasia (DEH) in the Portuguese territory. More specifically, it is aimed to evaluate the diachronic variation in stress markers, average age of DEH formation, and differences by sex and age. The study also aims to explore the relationship between childhood stress and broader social and economic instability, age at death, and — when available— cause of death, within a DOHaD framework. The sample derives from multiple Portuguese osteoarchaeological assemblages spanning the Late Neolithic/Chalcolithic, Roman, Late Roman, and Medieval periods, as well as from contemporary identified osteological collections (Identified Osteological Collection from the University of Coimbra, the Luís Lopes Collection, and the 21st Century Identified Collection). In all, 545 adults over 20 years of age with at least one anterior tooth were analysed, in a total of 3494 teeth. A multidimensional methodology was applied, integrating documentary analysis, osteological and dental observation. The biological profile was assessed using widely accepted metric and morphological methods. DEH were recorded following Hillson (2001), and the age of defects formation was estimated using the method of Reid and Dean (2006). DEH frequencies increased from Prehistory to the Middle Ages, with the highest frequencies recorded in contemporary samples. The number of defects per individual was the most sensitive stress indicator, displaying a significant association with early mortality in several identified collections. The present study confirmed the critical impact of the first 1000 days of life on later health, consistent with DOHaD, with stress episodes between 0.9-2 years linked to earlier mortality. Childhood stress markers proved to be strong indicators of population vulnerability.

1242. Shared Skeletal Signatures of Early-Life Stress and Non-Specific Infection: An Avar-Period Necropolis from Serbia

Authors: Veda Mikasinovic (Faculty of Biology, University of Belgrade | Faculty of Medicine, University of Belgrade) – Vicky Papagianni (Department of Archaeology, University of York) – Ksenija Djukic (Faculty of Biology, University of Belgrade)
Format: Oral

Skeletal markers of early-life stress (ELS) are commonly interpreted as indicators of adverse developmental conditions, while skeletal traces of non-specific infectious disease, such as subperiosteal new bone formation (periostitis), may reflect chronic inflammatory or immune responses. However, the relationship between ELS and infection remains insufficiently explored in bioanthropology. This study examines ELS patterns and periostitis in relation to biological sex and age at death. It assesses the prevalence of periostitis among individuals with and without ELS markers, and evaluates whether individual or combined ELS indicators—cribra orbitalia (CO), porotic hyperostosis (PH), linear enamel hypoplasia (LEH), and cribra femoris (CF)—are associated with skeletal evidence of non-specific infection. Additionally, the relationship between periostitis and CO presence and severity, as well as the anatomical distribution of periostitis in relation to ELS indicators and CO severity, is explored. The analysed skeletal sample derives from Site 40 – Potes Gornje Sajlovo (Novi Sad, Serbia), dated to the Middle and Late Avar periods (7th-9th CE), and comprised 199 individuals. ELS markers were identified in 64.9% individuals, most frequently LEH and CO. Periostitis was observed in 12.2% of individuals, predominantly affecting cranial bones. In both the overall sample and among individuals with periostitis, the most common pattern was a single ELS marker. ELS indicators were significantly associated with biological sex and age at death, whereas periostitis was significantly associated only with age. No overall association was observed between ELS indicators and periostitis, except for PH, which occurred more frequently among individuals with periostitis. CO severity was significantly associated with the presence and anatomical distribution of periostitis on the right orbit only. These results suggest that ELS indicators may not necessarily be associated with non-specific infection. Instead, specific stress indicators and lesion severity may reflect distinct, non-linear aetiological pathways linking developmental stress and inflammatory skeletal responses.

1514. Childhood Stress, Disease Patterns, and Survivorship in a Saxon Cemetery Population

Authors: Ariadne Schulz (Pre-Construct Archaeology)
Format: Oral

A cemetery excavated at Land East of Sun Lane, Alresford, Hampshire, by Pre-Construct Archaeology has, at the time of writing, yielded 127 individual graves, of which 122 are identified as Saxon. Previous research has shown that rates of disease and biological stress fluctuated following the end of Roman administration, influenced by climate, settlement changes, and living conditions. This paper examines demographic structure, pathological prevalence, and biological stress indicators within the Sun Lane population, with particular emphasis on childhood stress and survivorship. Indicators of physiological stress and disease recorded in the population include cribra orbitalia, trauma, degenerative joint disease, dental pathology, and non-specific infection. Cribra orbitalia occurs at relatively high frequencies across age and sex groups, while other markers of childhood stress, such as linear enamel hypoplasia, are comparatively infrequent. Subadults are well represented within the cemetery, whereas neonates and infants are notably under-represented. Rare congenital conditions, including a probable case of Klippel–Feil syndrome and possible craniosynostosis, were also identified. This paper compares the Sun Lane assemblage with nearby and broadly contemporary cemetery populations and explores patterns of stress, disease, and survivorship observable within the current dataset. Particular attention is given to the relationship between childhood stress indicators and adult survivorship. This study evaluates interpretive frameworks for understanding anomalous stress and disease frequencies and considers the potential roles of environmental stressors, social buffering, and community care in shaping childhood health, resilience, and adaptation in early medieval Hampshire.

2270. Diet, disease, and development: growth and physiological stress in Medieval central Italy

Authors: Giulia Riccomi (University of Pisa | Max Planck Institute of Geoanthropology) – Martina Magliulo (University of Pisa) – Stefano Campana (University of Siena) – Bianca Casa (University of Pisa)
Format: Oral

Childhood in Medieval Italy was marked by high mortality and frequent physiological stress, shaped not only by disease and malnutrition but also by household, community, and societal conditions. This study investigates disease and physiological stress in relation to growth disruptions and childhood mortality in preadult skeletal remains from Medieval Italy. Previous research on the rural 10th-12th century CE cemetery of Pieve di Pava (Tuscany, Italy) indicates that inhabitants practised agriculture, livestock farming, and artisan activities. Skeletal remains of 91 preadult individuals (< 20 years) were macroscopically assessed to reconstruct their biological profiles (age at death, sex, stature) and evaluate stunted growth, physiological stress markers (cribra cranii and orbitalia, long bones subperiosteal new bone formation, enamel hypoplasia), metabolic diseases, and granular impressions as indicator of TB infection. Sex estimates include 29 males, 15 females, and 48 individuals of unknown sex. The adolescent age group (13-19 years) was most frequently represented (32.9%, 30/91). Stunted growth affected 46.9% (23/49) of preadults (38.1% moderate, 14.3% severe). Active cribra orbitalia occurred in 45% (23/51) of individuals and cribra cranii in 7.8% (4/51). Preadults exhibited active long bones subperiosteal new bone formation in 52% (26/50) and enamel hypoplasia in 60% (33/55). Scurvy occurred in 50% (21/42) of preadults and granular impressions in 47.05% (24/51). Among individuals with stunting, 65.2% (15/23) also had scurvy or granular impressions. The results position childhood in rural Medieval Italy as shaped by structural, environmental, and social constraints, leading to repeated periods of physiological stress, growth disruptions, and disease. Children's development and survival likely reflected agrarian economies, household resource allocation, and child-rearing practices, contributing to the burden of stress and disease observed in the rural skeletal assemblage from Pava. Future research will investigate weaning practices through biochemical analysis of incremental dentine.

680. Growing up in the Bronze Age: Tracing childhood stress, diet, and adaptation at Cârlomănești-Arman

Bronze Age cemetery

Authors: Mihai Constantinescu (Faculty of History, University of Bucharest | "Francisc I. Rainer" Institute of Anthropology, Bucharest)
Format: Oral

The Middle Bronze Age Monteoru Culture (2250-1550 cal BC) cemetery at Cârlomănești-Arman offers insights into population health and adaptation. Investigating childhood development is essential for tracing biological resilience, understanding early dietary practices, and evaluating how this population adapted to environmental and societal challenges. The study employes standardized bioarcheological methodologies on recovered osteological remains. Variables evaluated included bone conservation, dental pathology and physiological stress markers, while stable isotope analysis (δ13C, δ15N) was employed to reconstruct dietary transitions. The analyzed sample comprises of 241, recovered from 160 excavated graves, with inhumation being the dominant funerary rite (90.46%). The frequent practice of reinhumation severely complicated taphonomy and significantly reduced skeletal representation (causing the loss of small bones) compared to undisturbed, single primary inhumations. Inhumated subadults account for 37.89% of the total sample of inhumated individuals, totaling 86 individuals. Subadult bone surface conservation was significantly poorer than that of adults, largely due to taphonomic factors and soil conditions. Isotopic data revealed high δ15N levels in infants, indicating a reliance on maternal milk between 0-2 years of age. With the introduction of solid foods (likely lower trophic-level cereals), nitrogen and carbon values dropped to the adult community baseline by 3-4 years of age. Subadult mortality peaked during childhood (59.30% of the subadult group). While markers like LEH and Cribra orbitalia reflect acute vulnerability to physiological stress from difficult weaning or seasonal infections, the absence of chronic dental decay indicates a degree of biological resilience. These findings illustrate how early nutritional transitions and environmental pressures actively shaped childhood adaptation in the Bronze Age in communities from Eastern Carpathians.

702. Childhood growth patterns at the Middle Bronze Age necropolis in Ostojićevo (1650-1550 BCE)

Authors: Marija Marin – Marko Porčić (Faculty of Philosophy, University of Belgrade) – Bojan Petrović (Faculty of Medicine, University of Novi Sad) – Sofija Stefanović (Faculty of Philosophy, University of Belgrade)
Format: Oral

The development and physical growth of children and their respective growth trajectories offer key insights into growth disruption in past populations. Expected patterns of growth and development in boys and girls are well established in present-day populations; however, the extent to which children in prehistoric populations met these expectations remains unclear. This study examines patterns of growth and development in children from the Middle Bronze Age. The sample derives from the necropolis of Ostojićevo (1650–1550 BCE) in northern Banat, Serbia, where 103 children, aged up to seven years, were interred in ceramic vessels. We will examine whether reconstructed growth trajectories diverge from the expected sex- and age-specific developmental patterns. The stature of 40 subadult individuals from the Middle Bronze Age necropolis of Ostojićevo was reconstructed and compared with the sex- and age-specific expected growth parameters proposed by the World Health Organization (WHO 2006; 2007) for modern populations. This analysis focuses primarily on skeletal development relative to dental age. Additionally, potential correlations between growth delays and skeletal indicators of pathological conditions, including metabolic disorders, nutritional deficiencies, and infectious diseases, were examined.

2018. Tracing sex-specific childhood stress in Early Bronze Age Bavaria: Linear enamel hypoplasia, molecular sex determination, and female-associated animal tooth ornaments

Authors: Elsa Seyr – Corinna Alesi – Maren Velte – Albert Zink – Michaela Harbeck (State Collection for Anthropology Munich) – Nicolas Stewart (University of Brighton)
Format: Oral

Reconstructing sex-specific patterns of physiological stress during childhood remains a major challenge in bioarchaeology, particularly in prehistoric contexts where skeletal preservation is often poor and sex estimation is unreliable or impossible. This study addresses this limitation through amelogenin peptide–based molecular sex determination from tooth enamel, a minimally invasive and cost-efficient method that enables secure sex identification even in juvenile and fragmentary adult remains. The same proteomic approach is further extended to dog teeth used in ornamental necklaces, allowing the biological sex of the dogs to be determined through a newly developed analytical protocol. Focusing on Early Bronze Age Bavaria, the study investigates differences in the frequency and developmental timing of linear enamel hypoplasia (LEH) between males and females to evaluate sex-specific variation in early-life stress. The dataset comprises approximately 60 individuals from eight sites in northern and southern Bavaria, representing diverse ages and preservation states. Special attention is given to a distinctive mortuary feature of this period: necklaces made from animal teeth that occur exclusively in female burials. We test whether females buried with ornaments differ from other females in LEH prevalence, thereby exploring potential links between symbolic status, gendered social roles, and differential exposure to physiological stress during growth. Where present, LEH position was recorded by dividing the tooth crown into developmental zones and by measuring precise distances from the cementoenamel junction (CEJ). After correcting for crown height and dental attrition, ages at LEH formation were estimated using established dental development standards of AlQahtani (2010). By integrating developmental stress indicators, molecularly verified sex in both humans and associated animals, and gendered mortuary context, this study refines reconstructions of sex-specific childhood health, social inequality, and adaptive responses in Early Bronze Age populations. More broadly, it contributes to ongoing bioarchaeological discussions of growth, stress, and resilience in the human past.

722. Growing up in the Bronze Age: Health, Growth, and Development of Boys and Girls from Mokrin and Ostojićevo (2100–1700 BCE)

Authors: Mina Amzirkov – Sofija Stefanović (Department of Archaeology, Faculty of Philosophy, University of Belgrade)
Format: Oral

Differences in the burial practices of boys and girls at the Bronze Age Maros culture necropolises of Mokrin and Ostojićevo (2100–1700 BCE, northern Banat, Serbia) raise the question of whether they had differential access to care and resources during childhood. To address this, we reconstructed the health status, growth, and development of boys and girls and assessed whether age and biological sex influenced their lived experiences differently. We analyzed skeletal remains of 89 children, out of which biological sex was determined for 77 individuals using enamel peptide analysis. Health status was assessed through macroscopic paleopathological indicators of physiological stress, infection, dental disease, and trauma. Growth and development were reconstructed using estimates of stature and body mass, which were compared with modern reference standards to evaluate deviations from expected growth trajectories. By integrating biological and archaeological data, this study aims to identify potential sex-based differences in health, growth, and development among boys and girls. Together, the results will provide a more nuanced understanding of childhood and social organization in Bronze Age Maros communities, offering rare insight into how biological sex may affect quality of life.

771. Stressed out: multifaceted approach to (un)survived childhood stress at Mokrin necropolis (2100-1800 BC)

Authors: Marija Kreckovic Gavrilovic – Jelena Marković – Mina Amzirkov – Sofija Stefanović (Faculty of Philosophy, University of Belgrade)
Format: Oral

One of the challenges of studying childhood health is that it predominantly relies on evidence derived from the most vulnerable individuals, the children who did not survive. While non-adult skeletons provide direct evidence of frailty, adult skeletons preserve evidence of surviving childhood stress. By integrating evidence of childhood stress from both non-survivors (children) and adult individuals, this study aims to explore childhood stress in the Early Bronze Age population buried at Mokrin necropolis (2100-1800 BC) in Serbia with a more comprehensive approach. We integrate three complementary lines of evidence: linear enamel hypoplasia (LEH), Harris lines, and stable isotope analysis (δ13C and δ15N). LEH was recorded macroscopically for 91 adults and 60 children. Harris lines were assessed radiologically on the tibias of 64 adults and 6 children. Incremental isotopic analysis was done for 30 children of known biological sex, paying particular attention to weaning practices and signals of nutritional stress. Stress episodes were analysed in correlation with time-at-formation, biological sex, and social status derived from grave goods analysis. Previous studies on this skeletal series have shown a potential relationship between childhood stress and reduced longevity. By integrating different markers of stress derived from different parts of both children's and adults' skeletons, we were able to enlarge our highly fragmented and poorly preserved sample, as well as circumvent osteological paradox. Our findings contribute to a more nuanced understanding of health, survivorship, and fragility in the Bronze Age.

303. Child mortality rate of Fikris Gora cemetery

Authors: Tekle Ugulava (Ivane Javakhishvili Tbilisi state University History and Ethnology Institution)
Format: Oral

Child mortality is an important indicator of social well-being and population stability. Juvenile deaths may reflect epidemics, pandemics, genetic disorders, or malnutrition, as children generally have lower physiological resistance. Therefore, the statistical analysis of juvenile mortality can provide valuable insights into past health conditions and social environments. Information about juvenile mortality in the early medieval Caucasus remains limited. Preservation issues and local traditions of infant burial make it difficult to fully reconstruct mortality rates. Fiqris gora's cemetery belongs to ancient capital of Iberia Mtskheta. This cemetery is dated with 4th-6th century A.D. At this cemetery, 27 juvenile individuals were identified, representing all age categories from newborns to teenage years (12–14 years). Age at death was estimated based on bone length in younger individuals and tooth eruption in older individuals. Non-adults represent 14.36% of the total cemetery population. By comparison, some Roman-period sites show child mortality rates of 54% or higher. The relatively low proportion observed here may be related to burial practices and traditions, as juveniles were not always buried in cemeteries but often interred in household yards or gardens. The largest age groups among the studied individuals are children aged 7–8 years and early adolescents aged 10–12 years. Death at these ages may be associated with viral or infectious diseases. No evidence of violent trauma was identified. Two individuals aged 10–12 years exhibited a closed form of spina bifida, a condition also observed among adults in this population, mostly caused by prenatal deficits. In addition, many individuals show porotic hyperostosis on the cranial surface and tubular bones. Observed pathologies are commonly associated with metabolic stress and may indicate malnutrition affecting both mothers during pregnancy and children during early development, increasing susceptibility to infection.

1754. Bioarchaeological Analysis on the Early Life Stress of a Phrygian 'Young' Elite from Tumulus 52 in Gordion, Türkiye

Authors: Erge Bütün – Serpil Eroğlu (Hacettepe University | Human Behavioral Ecology and Archaeometry Laboratory - IDEA lab) – Donovan Adams (University of Central Florida) – Asuman Alpagut (Museum of Anatolian Civilizations) – Ali Büyükkarakaya (Hacettepe University | Human Behavioral Ecology and Archaeometry Laboratory - IDEA lab)
Format: Oral

Tumuli in Iron Age Anatolia, particularly in the Phrygian and Lydian heartlands, serve as monumental manifestations of social stratification and concentrated wealth. This study focuses on the bioarchaeological analysis of an elite individual recovered from Tumulus T 52, located in the South Ridge area of Gordion. Excavated in 2019 by the Museum of Anatolian Civilizations and the Gordion Project, T 52 is dated to the 8th century BCE—the era of King Midas—offering a rare opportunity to examine the biological costs of status during a pivotal historical period. The primary aim of this research is to evaluate the relationship between high social status and the indicators of physiological perturbations by analysing the preserved skeletal remains. Bioarchaeological analyses conducted on unfused epiphyses and dental remains have revealed that the individual was approximately 9 to 10 years of age at death. To reconstruct the child's health history, macroscopic and metric analyses of the remains were employed, specifically focusing on Linear Enamel Hypoplasia (LEH). The presence of these permanent stress markers indicates that the individual survived multiple episodes of systemic physiological stress between the ages of 2 and 5 years. By integrating these bioarchaeological indicators with the burial's material culture, this paper discusses the nuances of childhood stress within a stratified society. It challenges the assumption that elite status provided a total buffer against environmental or biological stressors, exploring the boundaries of inequality and biocultural adaptation in the Phrygian world.

920. Puberty and pathologies of the adolescents from the Military Hospital of the São Jorge Castle, Lisbon, Portugal (17th-18th centuries)

Authors: Carina Leirião (University of Coimbra, Research Centre for Anthropology and Health | HERCULES Laboratory, University of Évora) – Liliana Carvalho (University of Coimbra, Research Centre for Anthropology and Health) – Susana Henriques (CIDEHUS, Palácio do Vimioso, Largo Marquês de Marialva, University of Évora) – Ana Curto (HERCULES Laboratory, University of Évora | Department of Biology, Pólo da Mitra, University of Évora) – Sofia Wasterlain (University of Coimbra, Research Centre for Anthropology and Health)
Format: Oral

Puberty is characterized by changes in primary and secondary sexual characteristics, resulting in the attainment of reproductive maturity. The timing of these changes can be altered by several factors, namely chronic infectious diseases, malnutrition, metabolic deficiencies, and adverse environmental conditions. This work aims to estimate the timing of puberty and explore how some pathologies and physiological stress may have impacted it, among individuals from the Military Hospital of São Jorge Castle (17th-18th centuries). Osteological methods to estimate pubertal stages were applied to 98 individuals aged between 11 and 25 years old. Periosteal reactions, rickets, and physiological stress indicators (enamel hypoplasias, cribra cranii, orbitalia, humeralis, and femoralis) were recorded. No individual was in the stages of pre-puberty or acceleration, and the deceleration stage was the most common (40.8% of the individuals). In general, the age increased with the progression of puberty, being like the reported for the post-medieval sample of Middenbeemster. In total, 36.7% of the individuals showed some delay in their pubertal development, mostly in the maturation stage. Individuals with at least one sign of pathology or physiological stress presented a slightly higher frequency of delay (37.5%) than those without them (35.3%). Periosteal reactions, linear enamel hypoplasia, and cribra cranii were more common in individuals with delayed pubertal development. Although physiological stress indicators (all combined) were more frequent when individuals reached the pubertal stages at the expected age, the differences were not statistically significant ($p>0.05$). In 58.3% of the individuals with evidence of pathologies or physiological stress, the developmental delay was greater than two years, compared to 33.3% of those showing no such evidence. However, no specific relationship between the skeletal pathologies/physiological stress and the delay was found. This may indicate that the individuals suffered some kind of stress that may not leave signs on the bones.

899. 12,000 Years of Maternal Care: Isotopic and ethno-experimental reconstruction of maternal investment strategies in western North America

Authors: Alexandra Greenwald (University of Utah)
Format: Oral

Human mothers balance economic activities with infant and child care, including time and energy devoted to breastfeeding. These time and energetic trade-offs are especially challenging in societies whose subsistence regimes rely disproportionately on the resources women gather, tend, grow, or process, as in foraging populations in western North America. To address these maternal trade-offs and the unique behavioral and technological adaptations employed by an egalitarian foraging population in California over a 12,000-year period, I present two complementary datasets. First, isotopic reconstruction of breastfeeding, weaning, and early childhood provisioning derived from serial micro-samples of first molar dentin are employed as proxies for maternal investment strategies and population dynamics from the Pleistocene-Holocene Transition to the Spanish Colonial period. Duration of exclusive breastfeeding and weaning age shift significantly in response to major worldwide climatic shifts, attendant social change, and women's labor intensification. Second, I contextualize these results with ethno-experimental data on the energetics of maternal foraging with novel infant carrying technology that emerged in prehistoric western North America and was rapidly adopted by Indigenous communities on the continent. These data suggest that Indigenous cradle technology attenuated the energetic trade-offs experienced by breastfeeding mothers by increasing foraging returns relative to globally common modes of infant carrying. Together, these isotopic and ethno-experimental data sets highlight women's resilience and adaptation in the face of environmental and social change and the often-overlooked role of maternal decision-making on prehistoric population dynamics and the subsistence economy.

1477. Breastfeeding and weaning practices in the early medieval Dalmatian hinterland: Preliminary isotopic evidence

Authors: Tea Kokotovic (Institute of Archaeology, Zagreb) – Mario Novak (Institute for Anthropological Research, Zagreb) – Siniša Krznar (Institute of Archaeology, Zagreb)
Format: Oral

With the development and implementation of isotopic research in bioarchaeology, the reconstruction of breastfeeding and weaning patterns in past societies has been a topic of considerable interest. This method rests on the detection of elevated δ15N and δ13C values in subadult tissues, which are typically related to the onset of breastfeeding, and their subsequent decrease resulting from introduction of solid foods into the child's diet, continuing until the complete termination of breastfeeding. The early medieval period on the eastern Adriatic coast and its hinterland was a turbulent era characterised by the migration of new cultural groups and the establishment of the Croatian state. Historical sources on daily life and customs are scarce, therefore, most evidence derives from archaeological and bioarchaeological research. To date, bioarchaeological research has primarily focused on reconstructing daily activities and health status, while isotopic studies have concentrated on diet and dietary changes in adult populations. This study presents preliminary results of isotopic analysis of an aggregate subadult sample (n = 22) dating to the 8th–11th centuries from five sites in the Dalmatian hinterland (Vaćani-Grlo, Vaćani-Laluše, Dubravice, Stranče-Gorica, Kosa-Vrpolje). Changes in $\delta^{15}N$ values during the first eight years of life exhibit a clear breastfeeding and weaning curve. A period of exclusive breastfeeding is visible up to approximately one year of age, with a clear elevation in $\delta^{15}N$ values relative to the adult female mean (1.7–2.9‰). A drop to the level at or near the adult female mean (9.5‰) follows, lasting until approximately three to three and a half years of age, likely reflecting the weaning period. These findings are consistent with early childhood feeding practices documented in the Mediterranean region and reveal general breastfeeding and weaning trends in early medieval populations inhabiting the Dalmatian hinterland.

2008. Motherhood Written in Teeth: Sequential Dentine Carbon and Nitrogen Isotopes from Meso-Neolithic Western Iberia

Authors: Maria Ana Correia (Universidade do Algarve) – Andrea Czermak – Rick Schulting (University of Oxford) – Ricardo Godinho (Universidade do Algarve) – Dany Coutinho-Nogueira (Universidade de Coimbra) – Claúdia Cunha (Universidade Federal do Piauí) – Célia Gonçalves (Universidade do Algarve) – Cláudia Umbelino (Universidade de Coimbra)
Format: Oral

Motherhood is a biologically demanding and socially consequential experience, and breastfeeding and weaning lie at its core. While the transition from foraging to farming in prehistoric Europe is widely associated with major demographic change, direct evidence for how maternal feeding practices and infant diets shifted with the adoption of agriculture remains limited. This study compares childhood feeding practices across the Mesolithic-Neolithic transition in the western Iberian Atlantic Coast and explores how the adoption of agriculture may have influenced early-life diets. It presents carbon and nitrogen intra-tooth dentine data from first permanent molars of 40 individuals, namely 20 Mesolithic individuals from Cabeço da Amoreira, Cabeço da Arruda, and Moita do Sebastião, and 20 Neolithic individuals from Gruta de Melides, Casa da Moura, and Poço Velho. Because first permanent molars form incrementally throughout early childhood, sequential isotope sampling provides a fine-grained record of maternal investment during infancy, capturing breastfeeding signals, weaning trajectories, and the introduction of complementary foods through time. This study has broader implications for understanding motherhood as a driver of social and demographic change. Breastfeeding and weaning practices may affect female fertility and inter-birth intervals, and shifts toward earlier weaning and increased reliance on caregiver-supported feeding may have facilitated population growth in early farming societies. At the same time, these changes likely increased the demands of care labour and contributed to emerging divisions of labour and processes of social inequality often associated with the rise of agriculture. By tracing maternal feeding practices through isotope analyses of sequential dentine samples, this study highlights how everyday decisions made by mothers intersected with profound transformations in subsistence, social organisation, and inequality during the onset of farming.

2393. Breastfeeding in times of colonialism: The effects of the encomienda system of forced labor in maternal investment in the Antilles

Authors: Yadira Chinique De Armas (The University of Winnipeg) – Anouk Van De Ven (Leiden University) – Roberto Valcárcel Rojas (Instituto Politécnico de Santo Domingo) – Lourdes Pérez Iglesias (Departamento Centro-Oriental

de Arqueología, Holguín) – Jason Laffoon (Leiden University | Faculty of Science, Vrije Universiteit)
Format: Oral

The Caribbean was the first geographical region to feel the full impact of European colonial rule in the Americas. Colonization in the Antilles had a profound impact on indigenous populations and their lifeways, imposing new labor regimes, forcing depopulation and changing the type and frequency of physical activity and workload. We examined whether the stressors caused by the early Spanish colonial rule and the enforcement of the encomienda system of forced labor changed the breastfeeding and weaning practices (BWPs) in the indigenous community of Chorro de Maita in Cuba (cal 1465 – 1690 CE). To this end, 403 dentin samples from the first permanent molars of 37 adults from the site were processed for dentin collagen carbon (δ13Cco) and nitrogen (δ15Nco) stable isotope analysis. In addition, we explored the use of incremental dentine microsampling of bioapatite carbon (δ13Cbioapatite) and oxygen (δ18Obioapatite) stable isotope analysis to reconstruct BWPs in archaeology. In contrast to colonial narratives, we demonstrate that most babies were weaned at very early ages, which likely affected the mother-child bond and infant survival. This finding provided direct evidence of how the arrival of European colonizers affected the daily lives of the indigenous peoples of the Antilles. Archaeological knowledge of the past, beyond the narratives of Spanish colonizers, helps to decolonize the history of Indigenous populations in the Antilles, who have largely been studied as static and exotic counterparts to their European oppressors, as opposed to dynamic and diverse groups forced to adapt rapidly to a world conforming to European standards.

1402. Living at the Edge: Environmental Stress, Childhood Frailty, and Growth Disruption in a Late Medieval Rural Community (14th–15th c.)

Authors: Jiri Sneberger (Institute of Archaeology of the Czech Academy of Sciences, Prague | Nuclear Physics Institute of the Czech Academy of Sciences, Prague) – Eliška Zazvonilová – Jan Podhorský – Petr Čech (Institute of Archaeology of the Czech Academy of Sciences, Prague)
Format: Poster

Research into the extinct village and adjacent burial ground of Nesvětice (Northern Bohemia) prompted by the expansion of the Bílina mine, enabled a detailed anthropological analysis of a late medieval rural community (n= 217 individuals) living in a period of long-term environmental instability. The population under study is particularly interesting because this site, which had been continuously inhabited since prehistoric times, was the last to disappear, and with it the village itself. The late Middle Ages (approx. 14th–15th centuries) were a period of fundamental environmental change in Europe, transforming both the landscape and society. This poster summarizes basic demographic findings and the frequency of stress markers on the skeleton, documenting repeated episodes of malnutrition, disease or metabolic disease at critical stages of growth, that are high in the studied population. Demographic data suggest a relatively high representation of infants and young children in the burial population (136 nonadults, 81 adults). The frequency of stress markers (cribra orbitalia: 52%, porotic hyperostosis 27%, dental enamel hypoplasia: 69%) is high, in comparison with mining sites (Oškobrh – rural, Kutná Hora-Sedlec – town). The average stature was 162 cm, which is consistent with the above-mentioned comparative locations. Possible factors contributing to the high exposure to stress during growth in the study population include a lack of resources, particularly water. Further planned research, particularly isotope analysis, DNA, and analysis of historical data, will reveal more about the reasons for the decline of this poor rural community and its village.

2009. Reconstructing physiological stress from those who died young: Insights from enamel accentuated lines and isotopic signatures

Authors: Helena Álvarez Álvarez – Ani Martirosyan (Research Group in Biological Anthropology, Universitat Autonoma de Barcelona) – Carlos Tornero (ERC READ Biogeochemistry Laboratory, Universitat Autonoma de Barcelona) – Cristina Santos – Assumpció Malgosa – Xavier Jordana (Research Group in Biological Anthropology, Universitat Autonoma de Barcelona)
Format: Poster

Disruptions in enamel formation result in Accentuated Lines (ALs), which are associated with physiological stress that individuals experience during dental development. These stress events may be associated with nutritional changes, diseases or other environmental challenges, making ALs a valuable indicator of the infant's well-being in ancient populations. In this study, we aim to investigate stress patterns of early childhood by integrating histomorphometric analysis of dental enamel with δ15N stable isotope analysis from bone samples as a proxy of nutritional intake. We use a total of 48 deciduous and permanent teeth from 33 individuals who died during infancy recovered from three different archaeological sites in Northeastern Iberia spanning from the Bronze Age to the Medieval period: Cova des Pas (Menorca, 1100–800 BC), Olèrdola (Barcelona, 350 to 200 BC) and Sant Pere de Terrassa (Barcelona, 5th to 10th centuries AD). Dental thin sections were prepared and examined under a polarised light microscope. Crown formation time was calculated to establish the timing of enamel formation, and the occurrence and prevalence of ALs were recorded for each tooth. Histomorphometric results were correlated with previously obtained δ15N isotopic data from bone samples of the same individual, which provide insight into nutritional status. Results show an increase in both the occurrence and prevalence of ALs after birth, with notable peaks around seven months of age and towards the end of the first year. These results closely correlate with changes observed in the $\delta^{15}N$ levels. This pattern is likely due to dietary transitions related to breastfeeding practices and suggests that ALs may be used as a proxy for infant health status.

2145. Early-Life Stress, Growth, and Survivorship in an Urban Skeletal Population from Thessaloniki

Authors: Asterios Aidonis – Christina Kakasa – Elissavet Ganiatsou – Angelos Souleles (Laboratory of Biological Anthropology, Democritus University of Thrace | Institute of Applied Bioarchaeological Research, Democritus University of Thrace) – Vasileios Nanis (Laboratory of Biological Anthropology, Democritus University of Thrace | Ephorate of Antiquities of city of Thessaloniki, Ministry of Culture Greece) – Tania Protopsalti – Stavroula Tzevreni – Krino Konstantinidou – Stella Vasileiadou (Ephorate of Antiquities of city of Thessaloniki, Ministry of Culture Greece) – Christina Papageorgopoulou (Laboratory of Biological Anthropology, Democritus University of Thrace | Institute of Applied Bioarchaeological Research, Democritus University of Thrace)
Format: Poster

Linear enamel hypoplasia (LEH) is widely used as a marker of physiological stress during childhood and has been hypothesized to influence both growth and survivorship in past populations. This study investigates the relationship between early-life stress and later-life outcomes in the urban skeletal population from Thessaloniki (3rd c. BC–15th c. AD) by integrating adult body size and survival as proxies. Two-way analysis of variance (ANOVA) was conducted to examine the effects of LEH, sex, and their interaction on adult stature (N = 136). Results indicated that LEH had no significant effect on stature ($F(1,132) = 0.25$, $p = 0.616$), and there was no significant LEH and sex interaction ($F(1,132) = 0.70$, $p = 0.405$). In contrast, sex had a strong and significant effect on adult stature ($F(1,132) = 50.74$, $p < 0.001$), reflecting expected sexual dimorphism in the population. Survivorship patterns were assessed using Kaplan–Meier analysis and the relevant log-rank test, which revealed no significant differences in age-at-death distributions between individuals with and without LEH among females (N = 96; $\chi^2 = 0.12$, $p = 0.729$) or males (N = 128; $\chi^2 = 0.002$, $p = 0.965$). The findings suggest that survivors of early-life stress were able to achieve normal adult stature, consistent with developmental resilience and compensatory catch-up growth, and showed no evidence of differential survivorship. These preliminary results highlight the complexity of stress outcomes, suggesting that while enamel hypoplasia may serve as a useful marker of physiological stress, it does not appear to have a measurable effect on final adult stature or survivorship in this skeletal sample.

115 ARCHAEOLOGICAL COLLECTIONS, CONTEXT AND IDENTITY IN EUROPE: THEIR CLASSIFICATION AND PROTECTION

Theme: 1. Widening perspectives in material culture studies
Organisers: Patrícia Brum (Universidade Autónoma de Lisboa / Instituto Politécnico de Tomar) – Adolfo Silveira (CGEO / Universidade Autónoma) – Jean-Olivier Gransard-Desmond (ArkeoTopia)
Keywords: Artefact, Heritage, Narrative, Provenance, National Treasure, Legal framework
Format: Discussion session
Affiliation: Political Strategies Community - PSC

SESSION ABSTRACT

This session addresses a fundamental question: Is archaeological knowledge reflected or distorted in the classification of archaeological objects? While legal and administrative frameworks often privilege rarity, artistic value, or market worth, they frequently overlook the essential archaeological significance rooted in context, assemblages, and cultural processes. A primary concern is the widespread practice of classifying decontextualized objects—items acquired through auctions, donations, or antiquarian collecting without archaeological provenance. By elevating such objects to symbolic status as "national treasures," for instance, states risk promoting misleading or incomplete narratives of the past, while objects of genuine archaeological importance may remain unrecognized. This raises urgent questions about representation: Who determines what merits classification? Are current listings truly representative of diverse archaeological heritage? Should classification become a participatory process aligned with the Faro Convention's principles of community engagement? The session explores critical gaps in heritage governance, including the disconnection between legal concepts operating in political spheres and archaeological practice focused on scientific context. This divide leaves the public with simplified, object-focused understandings rather than appreciation for archaeology's interpretive complexity. Furthermore, many classified object listings remain inaccessible or unknown to both archaeological communities and local populations, limiting their potential value for research and social cohesion. Drawing on European case studies, participants will debate the implications of current classification practices for research, heritage protection, and public perception. The session aims to foster interdisciplinary dialogue bridging law, archaeology, and community participation, while critically examining whether "National Treasure" designations serve contemporary understandings of cultural property. Ultimately, we seek to move beyond protective classification toward frameworks that balance global heritage principles with local distinctiveness, ensuring that archaeological significance—not merely aesthetic or economic value—guides heritage governance and creates meaningful connections between collections and communities.

CONTRIBUTION ABSTRACTS

1123. Following Every Collector Stands an Archaeologist. Traveling Objects from the George Severeanu Museum in Bucharest (Romania)

Authors: Sorin Clesiu – Dan Pîrvulescu (Bucharest Municipality Museum)
Format: Oral

The George Severeanu Museum is a small-sized museum in Bucharest, yet it houses one of the most valuable private collections in Romania. Housed in the memorial home of the Severeanu family, built in the Belle Époque style, the museum brings together the artifacts collected by Dr. George Severeanu, a distinguished numismatist and passionate historian. Throughout his life, he promoted a significant part of his vast collection through exhibitions and scholarly publications. In this context, we will also discuss the close relationship between archaeologists and collectors of the time, emphasizing the pioneering stage of the legal and administrative framework for heritage management in that period. Our presentation proposes this collection as a case study, tracing its historical trajectory up to its current configuration as an exhibition intended for the general public. The analysis begins with the founding collector of the Bucharest Municipal Museum and the first legislative regulations concerning heritage protection, continues with his testamentary wish to donate the collection to the Romanian state in 1939, and extends to the fate of the collection during the communist and post-communist periods, when it became integrated into the concept of the "National Treasure." Twenty-eight years after 1989, the exhibition entitled "In the Footsteps of the Past. The Maria and Dr. George Severeanu Collection" was inaugurated, marking an opportunity for specialists to study each category of material and artefacts. The publication of catalogues and scholarly volumes led to the accurate placement of the collection's artifacts in time and space, through sustained documentary and archival research, in line with modern archaeology and the current scientific context. The collection includes ancient Greek vessels, clay figurines, bronze and marble sculptures, Roman glassware, gems and cameos, objects made of precious metals, and approximately 9,000 coins from various periods.

1629. A Modest Hoard, a Strong Context: A Horse-Harness Deposit from Pomerania and Heritage Practice

Authors: Kamil Niedziółka (Institute of Archaeology, University of Gdańsk) – Dawid Borowka (Department of History and Archaeology, University of Crete)
Format: Oral

In 2022, a hoard consisting of 25 bronze horse-harness fittings was discovered south of Gdańsk (Eastern Pomerania, Poland) during a legal amateur metal-detecting survey. The findspot was reported immediately. Two days later the deposit was investigated through a rescue excavation led by the local Monuments Protection Office. The objects formed a compact cluster in a shallow pit and were fully recorded in situ. Typological and distributional analysis assign the assemblage to Bronze Age Period V (c. 1000/950–800/750 BC) and links it to the Nordic Bronze Age traditions. Although modest in size, the hoard is a useful case for discussions on how archaeological collections can be classified, valued and protected. The circumstances of discovery are particularly significant: the amateur finders did not excavate the deposit themselves but cooperated with heritage service and later supported professional excavations, an approach still uncommon within heritage practice worldwide. This makes the case directly linked to ongoing work on amending Poland's Act on the Protection of Monuments and to the question of how reporting duties of amateurs can translate into real protection of archaeological context. Because the depositional context was documented, the assemblage can be compared reliably with other Late Bronze Age deposits from the South Baltic zone and used to refine interpretations of cultural processes during the Late Bronze Age. The paper addresses also the "afterlife" of a hoard in institutional care, from rapid conservation and radiocarbon dating to laboratory analyses and museum display which together generated significant local interest. The discovery was later recognised in a poll organised by a leading Polish popular-science archaeology magazine, mainly thanks to support of other amateur detectorists. Overall, we argue that the heritage and research value of "treasures" depends less on their scale than on context integrity, documentation quality and transparent pathways from discovery to curated collection.

2744. Archaeological collections in Ukraine in the context of wartime challenges and European integration

Authors: Kateryna Chuyeva (Independent scholar | The Ukrainian Association of Archaeologists)
Format: Oral

According to the Ministry of Culture of Ukraine, archaeological sites account for over 60% of officially registered cultural heritage sites. Hundreds of Ukrainian museums keep the archaeological collections, a number of them since the XIX century, and continue to accept artifacts to this day despite the wartime challenges. Official statistical data on archaeological sites and artifacts are incomplete, in particular due to limited resources and numerous challenges in the heritage management and preservation field that began to accumulate rapidly after 1991, and especially after 2014 and 2022. Every year brings a lot of archaeological discoveries even in times of war, but also information about new cases of looting of sites or confiscation of illegally obtained archaeological finds. The presentation will focus on the following topics: - What does archaeological collection management politics look like in Ukraine? What principles are used to select items for collections? - What kinds of gaps could / should be covered in the legislation in its museum policy and politics regarding the archaeological collections? - How should wartime challenges and the European integration process affect policies and politics in the field of archaeological collections, and have they affected? The complexity and systemic nature of the problems require professional discussion and updating of certain standards at the national level, but this must

be preceded by research into existing mechanisms and practices. The results of international professional discussions and recommendations developed by the international professional community are also extremely important for advocating positive change.

1890. Archaeological movable property of national interest or 'National Treasures': the case of the Roman chronology collection

Authors: Patrícia Brum (Universidade Autónoma de Lisboa / Instituto Politécnico de Tomar) – Maria João Torres Silva (ARTIS Faculdade de Letras da Universidade de Lisboa)
Format: Oral

As part of the doctoral research project "National Treasures of Roman Portugal in the 21st Century", this presentation presents Roman-period movable artefacts inscribed as national interest, examining their significance in the construction of Portuguese collective identities. Starting from a critical reflection on the concept of 'national treasure', the research interrogates the criteria underlying the classification of Roman artefacts in this category. Portugal's Roman heritage spans three formal categories defined by current legislation: immovable heritage (archaeological sites and architectural remains), movable heritage (everyday and artistic objects), and intangible legacies persisting in language, law and custom. The 2001 Framework Law on Cultural Heritage generated the 2009 decrees classifying immovable property as "National Monument", "Public Interest" or "Municipal Interest", and Decree-Law 148/2015 extended equivalent classifications to movable property, including the designation of "National Treasure". The institutional context of collection formation is significant. Several artefacts were recovered during excavations led by José Leite de Vasconcelos and Manuel Heleno, the founding directors of the National Museum of Archaeology — where the vast majority of this collection is currently housed. The 1980 exhibition Treasures of Portuguese Archaeology is particularly emblematic: organised around the founding mission of the Portuguese Ethnological Museum to document the origins of the 'Portuguese people', it classified most exhibits as 'national treasures', revealing the ideological frameworks that shaped early heritage categorisation. The analysis focuses on artefacts from key sites across Portugal — including the coastal settlement of Troia, the urban centre of Conimbriga and the Roman villa of Santa Vitória do Ameixial — which document Roman occupation across a range of contexts, from agricultural exploitation and commercial activity to urban settlement, offering a broad view of Roman life in Lusitania. The presentation presents preliminary conclusions on the criteria governing the selection and classification of these objects as 'national treasures'.

117 FACES FROM THE SOUTH. FIGURINES OF THE MEDITERRANEAN NEOLITHIC

Theme: 1. Widening perspectives in material culture studies
Organisers: Valeska Becker (University of Münster) – Rune Iversen (University of Copenhagen)
Keywords: Neolithic, Mediterranean, figurines, figurative finds, cultural context
Format: Discussion session

SESSION ABSTRACT

Anthropomorphic and zoomorphic figurines and other figurative finds – vessels, applications, reliefs, paintings, rock art etc. – have been widely discussed for central and southeastern Europe. However, the regions around the Mediterranean are often left out of the discussion or treated only marginally, maybe due to language barriers or an overall less well established understanding of the Neolithic cultural phenomena in the south of Europe. Still, research in the last decade has yielded a plethora of new finds that warrant attention and, what is more important, an evaluation regarding their placement within Neolithic Europe in general. This session aims to shed light on figurative objects from the Mediterranean: their shapes and decorations, their cultural context, their significance within their likewise societies, but also their possible connections, similarities to and differences from such objects from central and southeastern Europe. A focus should be on comparisons between figurative finds of different regions but also between cultural phenomena that make and use figurines vs. those that do not, or between figurative finds and other finds/features related to the ritual sphere, such as enclosures, burials or depositions. Changes in styles and numbers, but also in quantity or quality can get us closer to explore what figurative objects meant for Neolithic communities. Presentations can address figurines in their associated cultural context roughly between the seventh and the fourth millennium calBC.

CONTRIBUTION ABSTRACTS

2418. Zoomorphic Figurines of the Mediterranean and South-Eastern Europe - A Comparison

Authors: Julia Luckner (University of Kiel | Cluster of Excellence ROOTS)
Format: Oral

Neolithic animal figurines usually receive little attention in research, even though they played a central role in everyday Neolithic life in many regions of Europe. However, it is un-clear what the figurines were used for. Were they toys, teaching aids, ritual objects or something else entirely? What was their significance and function? In order to shed some light on this topic, this lecture will compare selected animal figurines from South-Eastern Europe and the Mediterranean Neolithic. This study will pay particular

attention to the context of the figurines, as this can provide clues as to their function and significance. This study pays particular attention to the context of the figurines, as this can provide clues as to their function and significance. The archaeozoological data from selected sites is also examined. The aim is to find out whether different animal species depicted as figurines had different meanings in the two regions under investigation. In addition, stylistic similarities and differences will be discussed, also to see whether different representations of the same animal species suggest different meanings. Furthermore, in addition to stylistic similarities and differences, the state of preservation of the animal figurines will also be taken into account.

2592. Where do you come from, my fair lady? "Archaic" Persistence vs Innovation in the Late Neolithic Continental Croatia

Authors: Marcel Buric (University of Zagreb, Department of Archaeology)
Format: Oral

The geographical position of continental Croatia during the Late Neolithic positioned it as a spatial nexus between two major cultural traditions: the Central European Linearbandkeramik (LBK) and the Southeastern European Vinča culture. The local Late Neolithic expression of this period, the Sopot culture, was once considered a primary impetus in shaping the Late Neolithic of Hungary and, indirectly, further north in Central Europe. Although Sopot ceramic production is chronologically, typologically, aesthetically, and technologically anchored in the Vinča tradition, particularly evident in its dark burnished wares, the fact is that its figural plastic art diverges markedly from the conventions prevalent in the area of the Central Balkans. This paper is an attempt for examining key similarities and differences in the style and manufacturing technology of the Late Neolithic figural plastic expression in continental Croatia, emphasizing the contemporaneous adoption of novel pyrotechnologies and stylistic principles alongside the persistence of distinctly archaic, Starčevo-derived modes of figurine representation.

2606. Ornithomorphic Vessels in the Neolithic: New Evidence from Slatina-Sofia, Central Balkans

Authors: Desislava Takorova (National Archaeological Institute with Museum - Bulgarian Academy of Sciences) – Vassil Nikolov (Bulgarian Academy of Sciences)
Format: Oral

Zoomorphic images are a significant element of the symbolic repertoire of early Neolithic communities and are attested from the very beginnings of the Neolithic in the Near East. As the Neolithic way of life expanded westwards, symbolic traditions accompanied this process, spreading across a vast geographical area and undergoing regional transformations. Animal representations were not only decorative elements, but also played an important role in the articulation of social identities and ritual practices. Bird images, although well documented in the Near Eastern Neolithic and parts of the eastern Mediterranean, remains relatively rare in the European Neolithic record. Isolated examples are known from various regions, including the western Mediterranean. Within this context, the presence of four ornithomorphic vessels from the early Neolithic settlement site of Slatina-Sofia, located in the Central Balkans, is particularly striking. Each vessel is unique in form and decoration, differing in the species of bird represented as well as in the specific manner of stylistic and morphological rendering. These finds raise several important issues related to the function, meaning, and symbolic value of ornithomorphic vessels within early Neolithic societies. Do these objects reflect shared symbolic concepts across the Mediterranean and Balkan regions, or do they represent localised reinterpretations of broader Near Eastern traditions? Furthermore, how did the semantics of bird images change through time and space? The material from Slatina-Sofia offers a valuable case study for exploring these issues within a wider Mediterranean Neolithic framework.

118 MOVING BEYOND ARCHAEOLOGICAL PREDICTIVE MODELS: UNDERSTANDING PAST HUMAN LAND USE WITH TOOLS AND THEORY FROM ECOLOGY

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Peter Yaworsky (Aarhus University | University of Copenhagen) – Kenneth Vernon (University of Utah) – Anaïs Vignoles (University of Cologne | University of Kansas) – Elisabetta Canteri (University of Copenhagen) – Jesper Pedersen (University of Tübingen)
Keywords: Species distribution models, ecological niche models, eco-cultural niche models, ecology, behavioral ecology, land use
Format: Regular session

SESSION ABSTRACT

With the advent of powerful personal computers and the proliferation of high resolution remotely sensed data, landscape-scale archaeological data analysis has become commonplace. There are two veins within this type of work, classic archaeological predictive modeling and broader behavioral land use studies. Both use similar tools (i.e., logistic regression, machine learning) and data (i.e., presence, absence, climate, topography) to identify distinguishing patterning within environmental characteristics at archaeological site locations, but with different research goals. The goal of archaeological predictive modeling is to identify patterning between environmental characteristics and archaeological site occurrences to estimate the probability of unknown archaeological sites in areas lacking systematic inventories. Often, this a) is done using remotely sensed data from the present, b) is atheoretical, and c) has little consideration or interest in how past human land use decisions were structured and changed through time. More recently, archaeologists have begun adapting methods and theory from ecology with an explicit focus on understanding variation in human behavior, land use, and material culture. Distinguishing features setting apart the latter research from archaeological predictive models include a) use of paleoclimatic data to estimate conditions present during period of site occupation, b) explicit theoretically informed decisions in model construction and interpretation, and c) spatiotemporal predictions of habitat suitability. The focus of this session is on research falling under the latter, with discussions of, and case studies illustrating how we can push archaeological applications of methods and theory from ecology further to address a broader range of anthropological questions and develop a better understanding of human behavior.

CONTRIBUTION ABSTRACTS

1675. One theory, many models of habitat suitability

Authors: Kenneth Vernon (University of Utah Scientific Computing and Imaging Institute)
Format: Oral

Archaeological research into habitat choice behavior can be usefully divided into two main varieties: research focused on theory and the development of formal models irrespective of any or even all of the available data and research focused on empirics and the evaluation of statistical models fit to a finite subset of data. In ecology, the latter empirical models go by many names, more often than not Species Distribution Models, though it is probably more accurate to refer to them as Habitat Suitability Models. Of the former theoretical models, there are many, mostly owing to the challenges of formalization, but the core model is known as the Ideal Free Distribution, which is derived from Darwin's theory of natural selection. This paper seeks to spell out the differences between these varieties of research into habitat choice behavior, with a focus on modes of inference and explanation. Using an old verificationist argument, it is also shown that the Ideal Free Distribution has conceptual priority over all empirical models of habitat choice.

1992. Global, Regional and Local Patterning in Ceramic Assemblages: A Generative Simulation Framework for Hypothesis Testing

Authors: Anastasiia Korokhina (Leibniz-Institute for the History and Culture of Eastern Europe, GWZO | Institute of Archaeology, National Academy of Sciences of Ukraine)
Format: Oral

Studies of system-level dynamics in both ecological and archaeological research emphasize interactions among processes operating across multiple spatiotemporal scales. In community ecology, these processes concern species dispersal and abundance, but similar principles can be applied to archaeological assemblages, where dynamics may be encoded through the interplay of global, regional and local organizational impulses. This paper presents a generative modeling framework based on Approximate Bayesian Computation (ABC) for evaluating how these multiscalar processes jointly shape ceramic group distributions under conditions of sparse archaeological data. Competing hypotheses are formalized as data-generating models in which site-level assemblages arise from different combinations of latent compositional parameters, including: (i) global patterning, (ii) local preferences, and (iii) spatially structured or externally driven regional signals. From a historical perspective, these mechanisms can be interpreted as reflecting standardized production and consumption practices, external cultural, political, or economic influences, and local effects — while simultaneously providing a general framework for analyzing phenomena across diverse contexts. Synthetic populations are generated according to each model, and counts are subsampled to match archaeologically observed assemblages. Hypothesis plausibility is evaluated using the standard distance-based ABC rejection scheme, supplemented by Random Forest diagnostics and likelihood-based inference via a Bayesian multinomial model, which assesses scenario separability and provides an alternative inferential information. As a case study, compositional groups of Byzantine amphorae from the territories of Kyivan Rus' and the Kingdom of Poland are analyzed. The results indicate detectable signals consistent with a clustered structure of the consumption network and central-place influences. The proposed approach provides a flexible method for evaluating hypotheses regarding connectivity, structure, and constraint in archaeological material culture.

1526. Predictive modelling and settlement pattern analysis with a probabilistic approach in the Tiszazug microregion, Eastern Hungary

Authors: Gábor Mesterházy – András Füzesi (Hungarian National Museum, National Institute of Archaeology) – Norbert Faragó (Eötvös Loránd University, Institute of Arcaheological Sciences)
Format: Oral

The advantages of concurrently examining long-term archaeological settlement patterns and integrating temporal aspects into the modelling process have proven beneficial over the past few decades in microregional studies. These spatiotemporal investigations have provided a clearer understanding of how human activities occurred within the landscape, as well as how shifting environmental, social, and ecological conditions have necessitated and constrained human adaptation. This study aims to explore changes in

the Early (EN), Middle (MN), and Late Neolithic (LN) (6000–4300 BC) settlement patterns of the Tiszazug microregion in Eastern Hungary by integrating a microregional settlement database, chronological probability modelling, a radiocarbon-dated temporal framework, and predictive modelling. The Archaeological Topography of Hungary in the 1980s and 1990s identified 758 archaeological sites within the 546 km² Tiszazug microregion through extensive field surveys. During a recent complete chronological review of the collected artefacts, Bevan's and Crema's probabilistic method was applied to gain artifact-based chronological uncertainty of approximately 17,500 Neolithic finds. A site-based summary of the individual assessments aimed to balance the low count of highly diagnostic ceramics with the high count of moderately diagnostic ceramics in order to calculate the overall occupation probability of the sites during the Neolithic periods. The absolute chronological framework for the Körös culture (EN), Alföld Linear Pottery culture (MN), Szakálhát group (MN) and Tisza culture (LN) in the microregion was established using more than 60 collected and newly measured radiocarbon dates, highlighting asynchronous and overlapping cultural phases. KDE-based probabilistic settlement pattern analysis and maximum entropy predictive modelling were conducted to visualise and analyse culture-dependent occupation strategies throughout the Neolithic. The models indicate significant changes from the Early to the Late Neolithic in habitation areas and intensity, highlighting short- or long-lived local and microregional centres and their changing environmental conditions.

842. Evaluating SDM Style Inference Using Theory-Driven Simulation of Human Behavior across Spatiotemporal Environmental Change

Authors: Kurt Wilson (Lawrence University) – Brian Codding (University of California Santa Barbara)
Format: Oral

The archaeological record is a palimpsest of decisions made by people navigating and valuing landscapes that shifted across time. Recent advances in computation, paleoenvironmental data, and behavioral theory have enabled researchers to extract "site suitability" signals from this accumulated record, offering new insights into how past groups perceived and used their environments. Yet a central uncertainty remains: how reliably can we infer suitability from an archaeological record formed under environmental conditions that were themselves changing? To address this problem, we develop an agent-based model grounded in behavioral ecology to simulate the formation of archaeological landscapes across a range of environmental suitability patterns and volatility regimes. Using these controlled experiments, we evaluate the accuracy of suitability reconstructions derived from site locations under three common approaches: (1) a single static suitability surface, (2) a time-averaged surface reflecting long-term environmental conditions, and (3) a spatiotemporally sampled surface capturing suitability only when and where occupations occur. By systematically varying environmental predictability, we assess how each method performs under different levels of landscape stability. Our results identify the conditions under which SDM-style suitability estimates remain robust—and where they break down—as environmental volatility increases. Finally, we compare outcomes generated under Ideal Free (free-access) and Ideal Despotic (territorial) conditions, demonstrating how social organization shapes emergent settlement patterns and testing whether these differences remain detectable in the palimpsest record. Together, this work offers a theoretical baseline for understanding the limits of suitability inference in archaeology, highlighting when environmental reconstructions, social behavior, and long-term landscape dynamics can (and cannot) be reliably disentangled.

655. The population ecology of Classic Maya cities: Climate, conflict, and economies of scale

Authors: Weston Mccool (California Polytechnic State University)
Format: Oral

Urbanization was one of the most significant transitions in human history, yet explanations for the rise and expansion of early cities remain contentious. In this talk, we propose that simple models from population ecology can integrate existing theories for the development of early cities. Using newly synthesized paleoclimatological, paleoecological, demographic, and historical data from across the Classic Period Maya Lowlands (250–1000 CE) integrated with piece-wise structural equation models, we show that climate downturns, intergroup conflict, and strong economies of scale interact to promote the coevolution of urbanism and patron–client relationships, fueling city expansion, urban institutions, and systemic inequality. In addition, we elucidate how these non-linear pathways structure the persistence or dissolution of cities. This study underscores the importance of robust economies of scale in the development of early cities and provides a comprehensive framework for understanding the conditions that promote or hinder urbanization, offering insights applicable to both ancient and contemporary urban dynamics.

1907. Modelling farming systems and land-use variability in the Early Neolithic of the Iberian Peninsula (ca. 5600-4500 cal BC)

Authors: Juan Antonio Fernández-Morales – Daniel García-Rivero (Universidad de Sevilla)
Format: Oral

Research on Early Neolithic agriculture (ca. 5600-4500 cal BC) in the Iberian Peninsula has largely developed through regional approaches, mainly based on material culture, while the systematic integration of carpological evidence with geographical, settlement-type and archaeological variables –such as edaphic and topographic conditions, settlement type (cave or open-air), material culture and chronology- has been uneven and rarely addressed at a peninsular scale. Given the pronounced geographical and environmental diversity of Iberia, this study proposes a comparative framework to assess how these factors conditioned the organisation of agricultural systems among the earliest farming communities and their articulation with other components of the archaeological record. The analysis is conducted at the scale of the entire Iberian Peninsula, treating agriculture as the response variable, defined through quantitative archaeobotanical data, and using geographical, settlement-type, chronological and artefactual factors as explanatory variables. Geographical variables are derived through GIS-based analyses, extracting spatial information from edaphic cartography and digital elevation models. In a first phase, agricultural systems are identified and categorised through clustering analyses applied to available carpological assemblages. Subsequently, their relationships with the explanatory variables are evaluated using mixed-effects models that incorporate the hierarchical structure of the dataset (for example, region, site or chronological phase). Finally, using statistical prediction procedures, models are developed to check their likelihood based on observed data, and also to estimate the most probable agricultural system at sites that lack direct carpological evidence. This systemic approach enables exploration of the spatial variability of Neolithic agriculture beyond preservation biases, integrating agricultural systems within broader frameworks of human-environment interaction. From a theoretical perspective, the study contributes to an evolutionary and ecological reading of Neolithic agriculture, in which productive systems are understood as inherited packages of knowledge and of course as dynamic responses to geographically structured constraints and opportunities across the peninsular geography.

1695. Socioenvironmental Driven Shifts in Subsistence Farming Settlement Patterns: An example from the American Southwest

Authors: Ishmael Medina (University of California, Santa Barbara) – Weston Mccool (California Polytechnics, San Luis Obispo) – Kenneth Vernon (University of Utah) – Kurt Wilson (Lawrence University) – Peter Yaworsky (Aarhus University) – Jerry Spangler (Colorado Plateau Archaeological Alliance) – Brian Codding (University of California, Santa Barbara)
Format: Oral

Settlement and land use patterns are, in part, structured by underlying components of habitat suitability, which are closely linked to subsistence and economy. For subsistence farmers, habitat suitability is closely tied to the ability to reliably grow focal crops. Thus, subsistence farming societies should i) preferentially settle in and occupy the most suitable places for focal crops, and ii) as population increases, people will occupy lower quality farming habitats. Machine learning models trained on sites with cultigens can help identify places profitable for ancient agriculture. To demonstrate the utility of this approach, we focus on maize agriculture in the northern margins of the American Southwest. By comparing locations best suited for maize agriculture over time and relative to estimates of past population density, we suggest that Indigenous maize farmer settlement patterns follow predictions from an ideal distribution model, in which increasing competition drove farmers into less suitable farming habitats. The results from the observed environmental and demographic patterns help explain the spread and demise of Indigenous maize farming at its northern limit.

306. What's on the Menu and What's good? Using Ecological Niche Models to understand spatiotemporal variation in zooarchaeological assemblages

Authors: Peter Yaworsky (Aarhus University | University of Copenhagen)
Format: Oral

Models, methods, and theory developed by ecologists are often adopted and adapted by archaeologists. In recent decades, archaeologists interested in understanding how aspects of the environment influences and structures human dispersal and land use patterns have incorporated models used by ecologists understanding species' distributions. Here I will focus on models collectively referred to as ecological niche models (ENMs) and how they can be used in concert with anthropological archaeology to address important questions relating to human-environment interactions, subsistence variation, and species extinctions during the Late Pleistocene and early Holocene. At the core of these questions is understanding local hunting ecologies and human hunting decisions, or what's on the menu and what's good on the menu. Using ENMs, we can estimate species compositions of specific hunting ecologies in the past to understand what's on the menu. Then, using Prey Choice Model, we can estimate what's good on the menu based on subsistence payoffs, like calorie, fat, and other macronutrients. In combination we can a). derive expectations about human-animal interactions and the composition of specific zooarchaeological assemblages to better understand spatial and temporal variations, b). identify the hunting ecologies in which specific species should be hunted, and c). better define the role humans and climate played in specific extinction events.

370. Mechanistic models: their use in ecology and potential applications to archaeology

Authors: Elisabetta Canteri (University of Copenhagen)
Format: Oral

Ecological Niche Models (ENMs) relate species occurrence data to environmental variables in order to infer suitable conditions and predict potential species distributions across space and time. Widely used in macroecology and biogeography to identify and explain spatiotemporal patterns of biodiversity, ENMs have more recently been applied in archaeology to investigate hominin–environment interactions and the relationship between climate and cultural transmission, from the Palaeolithic to the Neolithic. However, as correlative approaches, ENMs do not explicitly account for dispersal, biotic interactions, evolutionary change, or behavioural adaptations to environmental variability—processes that play a key role in shaping species distributions and population dynamics through time. Process-based (mechanistic) models address these limitations by explicitly simulating ecological processes and population dynamics in response to changing climatic and environmental conditions. In this presentation, I provide an overview

of different types of process-based models, illustrate their application through reconstructions of muskox and reindeer population dynamics over the last 21,000 years, and discuss their potential relevance and applications in archaeological research.

2499. Working Toward Causality in Modeling Past Land Use Decisions

Authors: Brian Codding (University of California, Santa Barbara | University of Utah) – Simon Brewer (University of Utah)
Format: Oral

Models of past human settlement and land use decisions often emphasize predictive accuracy over interpretation, focusing on where or how many — rather than why — settlements occur. Yet if we want to understand the drivers of past land use change, research needs to work toward identifying causal relationships. Building on theory and methods in ecology, this paper explores how incorporating causal processes into statistical and machine learning models can improve our understanding of human-environment relationships and past land use decisions. We demonstrate the utility of these approaches using case studies in Neolithic Europe and Indigenous North America. Cases illustrate how common predictor variables such as climate may only have indirect effects on settlement decisions as mediated through endogenous factors such as habitat availability and inferred resource profitability. We also explore how these approaches can better account for the coupled climatic and anthropogenic factors that influenced past land cover and ecosystem change.

2585. Applying Ideal Distribution Models to Predict Settlement Patterns during the high Middle Ages in Denmark

Authors: A. Ja'Net Baide – Callum Dingley (University of Utah) – Weston Mccool (University of Utah | California Polytechnic State University) – Brian Codding (University of Utah | University of California, Santa Barbara)
Format: Poster

We employ ideal distribution models (IDM) from behavioral and population ecology to predict settlement patterns in historic Denmark during the Scandinavian Medieval Period (AD 1050 – 1536). Prior to the 14th century, Denmark is characterized by the Medieval Warm Period with favorable climate for agriculture, supporting a growth factor of 2.4x in population size and 50% expansion in arable land relative to the Viking Age. We apply the Ideal Free Distribution (IFD) model to predict past settlement patterns among stratified agrarian Danish society, to test whether past history of settlement expansion can be predicted by environmental suitability. Patterns consistent with an IFD support population settlement in the most suitable areas first, and with increasing competition, expansion to more marginal habitats. Archaeological data of deserted churches are compiled as a proxy for historical population distribution. Following the European Soil Data Centre, raster for productivity of wheat, barley, and arable land are used as an estimate for environmental conditions. This case study demonstrates the utility of IDM to predict optimal settlement strategies in the past, and to better understand changes in land use.

119 GOD OR DEAD? COMPARING FUNERARY AND RELIGIOUS RITUALS IN EUROPE (1000 BCE – 25 BCE)

Theme: 1. Widening perspectives in material culture studies
Organisers: Rebecca Perruche (Chrono-Environnement UMR 6249 CNRS) – Valérie Taillandier (InSitu Archéologie SA | Chrono-Environnement UMR 6249 CNRS) – Matthieu Demierre (UNIL)
Keywords: ritual practices, necropolis, place of worship, material culture, Iron Age, Late Bronze Age
Format: Regular session

SESSION ABSTRACT

During the first millennium BCE, sacred places and necropolises represent two categories of sites which, although distinct in their primary function — the former devoted to the worship of deities, the latter to honor of the dead — nonetheless belong to a shared symbolic and ritual sphere. Both are spaces where codified gestures are performed, expressing a relationship with the sacred, whether to honor divine powers or to maintain the continuity of ties between the living and the deceased. This functional proximity is materially reflected in a series of architectural and cultural convergences: enclosure systems, deposit pits, and ditched structures with circular or quadrangular layouts appear in both contexts, suggesting a comparable conception of delimited ritual space. Likewise, the nature of the artefacts — weapons and ceramics broken or not, animal remains, metallic and miniature objects — reveals a shared symbolic vocabulary in which the gods and the deads are closely intertwined. These morphological and behavioral parallels invite us to consider sanctuaries and necropolises not as isolated entities, but as complementary components of a complex religious and social system, within which ritual operates as a vector of communal cohesion and mediation between these different spheres. Therefore, we encourage papers and case studies exploring the relationships between cult places and funerary areas during the Late Bronze Age and the Iron Age, as well as during the transitional phases between or within these periods, with particular attention to their comparison in terms of material culture, architectural features and ritual practices. We invite reflections on the interaction and permeability between necropolises and places of worship: how do these spaces intersect, coexist, or borrow from one another? Regional studies are particularly welcome, highlighting how ritual gestures and their spatial or material expressions change over time, reflecting shifts in belief systems or social organization.

CONTRIBUTION ABSTRACTS

1645. Functional Ambiguity of La Tène Enclosures : cult, burial or living spaces?

Authors: Christelle Sanchez (Eveha International | UMR 6249 Chrono-environnement) – Matthieu Thivet – Emmanuel Hamon (Université Marie et Louis Pasteur | UMR 6249 Chrono-environnement)
Format: Oral

Extensive magnetic surveys at Verdun-sur-le-Doubs (Burgundy, France) have revealed several ditched enclosures on the southern periphery of the nucleated settlement. Two of these structures, subsequently excavated, are characterized by their small scale, measuring between 7 and 10 metres per side. Interpreted as the footprints of earth-and-timber buildings with load-bearing walls and peripheral foundation trenches, these remains raise significant functional questions. Their seamless integration into the urban fabric along a preferred East-West axis points to rigorous spatial planning. While morphologically similar to the funerary enclosures ubiquitous across Celtic Europe, these La Tène features often lack the material finds required for definitive characterization. However, European comparisons offer fresh perspectives: At Roseldorf (Austria), such enclosures are identified as sanctuaries, with functions linked to weapon deposits and feasting remains. The excavation of Enclosure 525, at Němčice (Czech Republic) confirmed this functional diversity, revealing a memorial dimension (residual human remains) associated with martial rites, including fragments of swords and bent spears. At Haselbach (Austria), micro-archaeology has provided "evidence of absence": the enclosure was intentionally kept clean, precluding any domestic waste, which suggests a space dedicated to intangible activities such as assemblies or trade. This paper seeks to define the function of the Verdun-sur-le-Doubs enclosures by cross-referencing multi-method geophysical data with recent excavation results (2023–2025). We will explore the hypothesis of "hybrid" spaces, where the maintenance of strict cleanliness and the proximity to ritual deposits may indicate places of worship or civic assembly at the heart of the urban fabric.

280. Long-term evolution of rituals in the Caisses de Jean-Jean in Mouriès (Fr)

Authors: Loup Bernard (Université de Strasbourg / CNRS UMR 7044)
Format: Oral

Known and excavated for nearly a century, Mouriès is one of the most important Iron Age settlements in the small Alpilles mountain range, at the interface between Mediterranean and Celtic cultures. The resumption of excavations and archival research highlights the site's ritual role, which is beginning to be better identified and appears to be fundamental. The functional changes at the site over time—Bronze Age steles, a necropolis between the 6th century BC and the Merovingian period at the foot of the site, and a communal hall in the 2nd century AD—were already known but little published. Recent excavations have uncovered numerous deposits of fauna (ovine and caprine) in pits between the end of the Iron Age and the beginning of the Roman period. Placed at the bottom of small pits, these deposits represent an example that seems to fit well with the theme of the session, particularly with regard to the cultural trajectories of these sites during the intermediate phases. The evolution from a stele sanctuary to a necropolis, habitat, cult site, and the establishment of a final habitat at the beginning of the Roman period is quite unique for Mediterranean Celtic culture. The presentation will also be an opportunity to seek comparisons with these practices, which appear to be poorly documented at present.

2179. Gallic beliefs in Mediterranean Celtic culture during the second Iron Age through funeral and ritual practices

Authors: Anaïs Masquelier (umr 5140 asm) – Réjane Roure (umr 5140 asm | Université de Montpellier Paul Valéry)
Format: Oral

In the lower Rhône valley, the rise of rescue archaeology has profoundly renewed regional funerary documentation, allowing a better understanding of the location of tombs in the occupied environment, as well as funerary rituals, individual and collective practices, in and around the tomb. These reflect complex symbolism, which must be integrated into a more comprehensive reflection on belief systems. At the same time, recent discoveries and projects in the last decades have led to a better understanding of Gallic ritual practices in this region. While it is still difficult to interpret the remains found with certainty, the repetition of practices, the renewal of studies and analyses have made it possible to better characterize a large number of discoveries that can clearly be considered ritual in nature. These remains—infant burials in domestic contexts, statuary evoking heroic worship, displays of severed heads and warrior panoplies, or even the manipulation of objects—appear in both public and private spaces and may thus reflect, similarly to well-identified cult sites, common beliefs. Thus, through this regional approach, the objective will be to analyze the spatial and gestural links between the various remains that may be related to rituals and known funerary practices, in order to highlight their common elements. The cross-referencing of these data, which are rarely compared in the South of France, will enable the approach of shared beliefs and their evolution in the Gallic groups of Mediterranean Celtic culture between the 6th and 1st centuries BC, in particular by examining their territorial settlements during this period.

478. Graves, cult, memories. Ritual practices and places from the late Bronze Age to early Roman period

in Lausanne-Vidy (Switzerland)

Authors: Lionel Pernet (Musée cantonal d'archéologie et d'histoire, Lausanne) – Romain Guichon (Archeodunum)
Format: Oral

Numerous excavations carried out since the 1950s beneath the Roman town of Lousonna, on the site of Vidy (Switzerland), have uncovered funerary and cultic remains dating from the first millennium BCE. A late Bronze Age necropolis yielded around 25 widely spaced cremation graves, with at least three tumulus and some non-sepulchral deposits. Some of the structures clearly reused slabs from a Middle Neolithic cemetery located on the same place. For the Iron Age, a recently published La Tène D1a burial site (150-110 BCE) shows in contrast 33 bi-ritual structures in a confined area, with original material deposits and only women and children among the inhumated people. An ancient burial mount seems to guide the spatial organisation of this cemetery and suggests a function of memory place. The same interpretation is possible for another Bronze Age tumulus redeveloped at the late La Tène period, with an external ditch containing human and non-human deposits. For the early Roman period, current excavations in the western necropolis of Lousonna reveal both material deposits and non-conventional inhumations, with Celtic and Mediterranean patterns. In the same area, animal burials are also attested in front of the so-called indigenous sanctuary, with three megaliths reused for Gallo-Roman rituals. The presentation will summarize these contexts focusing mainly on the interaction between cultic and funerary spaces and practices, as well as topographical and memorial aspects from a long-term perspective from late Prehistory to Antiquity.

176. Funerary and cult rituals in eastern Gaul: comparative study of the Jura massif and the Saône plains (4th-1st c. BCE)

Authors: Valérie Taillandier (InSitu Archéologie SA | UMR 6249 Chrono-Environnement) – Rebecca Perruche (UMR 6249 Chrono-Environnement)
Format: Oral

With the major structural transformations of Celtic societies during the 5th century BCE, the following century—and even more markedly the one after—witnessed profound changes both in belief systems and social practices. These developments are reflected, on the one hand, in the establishment and territorial anchoring of sanctuaries that now display purpose-built layouts and a clearly defined, regular, and standardized architectural form, and on the other hand in the abandonment of tumulus burial in favor of flat-grave necropolises organized in small family-based groups, sometimes associated with monuments no longer built in elevation but expressed through subsurface features. These changes were accompanied by significant evolutions in rites, practices, and choices related to the selection and deposition of artefacts intended for the deceased or for deities, as well as in the organization and performance of funerary ceremonies and cult activities. This paper aims to examine, within a territory encompassing both the Saône Valley and plains and the Jura Massif, how rites and practices observed in sanctuaries and necropolises coexisted and interacted over the four centuries preceding the beginning of Roman period. In particular, it seeks to compare the practices and the artefacts identified in the funerary sphere with those attested in the cultic domain, in order to assess convergences, divergences, and possible transfers of ritual behaviors between these two contexts.

122. Archaeozoology of two La Tène square enclosures (Objects 40, 41) from "cult district 2" in Roseldorf-Sandberg (Lower Austria)

Authors: Konstantina Saliari – Tim Langnitschke – Georg Tiefengraber – Veronika Holzer (Natural History Museum Vienna)
Format: Oral

The current contribution presents new research on the faunal remains from two square enclosures, Objects 40 and 41, located in "cult district 2" at Roseldorf-Sandberg. The function of several La Tène period square enclosures is often unclear and their interpretation sometimes ambiguous. The new archaeozoological data will offer crucial insights into the character of these structures. Based on archaeological finds, both Objects were interpreted as "small sanctuaries". A comparison between the faunal assemblages excavated in the settlement and "cult district 2" also revealed remarkable differences, supporting a different (ritual) function for Objects 40 and 41. However, it seems that different rituals were performed in the two enclosures, because of significant faunistic differences noted between them: in Object 40 cattle and horse prevailed, whereas in Object 41 non-adult pigs dominated. The highest number of identified faunal material was retrieved from Object 41 (1050 animal bones and teeth) offering the opportunity to investigate additional archaeozoological aspects. Notable observations were made concerning the skeletal element representation, which exhibited an overrepresentation of non-meaty regions for the non-adult pigs and for cattle (the second most important species). Furthermore, four skeletons of piglets were additionally documented in the trenches of Object 41. Interestingly, Object 41 contained a cremation burial in its center and a burial of a male individual lying in a crouched position in the southeastern part of the trench. Thus, one of the questions that we discuss is, if the faunal assemblages should be considered as grave goods for the deceased or remains of sacrifices. However, sacrifices might be quite complex to interpret, since it is rarely possible to understand to whom they were addressed to. Nevertheless, the archaeozoological results for both Objects indicate a costly selection of animals, reflecting their great social importance for the participants.

1214. Between Atypical Funerary Practices and Ritual Deposits: The Gallic Settlement of Verdun-sur-le-Doubs, Burgundy, France (2nd century BCE)

Authors: Emmanuel Hamon – Matthieu Thivet (Université Marie et Louis Pasteur | Chrono-environnement UMR 6249)
Format: Oral

The site of Verdun-sur-le-Doubs is a nucleated settlement dating to the 2nd century BCE, situated at the confluence of the Saône and Doubs rivers. Its advantageous location—at the northern end of the Saône corridor and at the intersection of major fluvial and overland routes—gave it considerable strategic importance within exchange networks, at the margins of Aedui and Sequani territories. Since 2019, the Gaulish settlement has been the subject of systematic excavations conducted within the collaborative research project "Saône–Doubs–Dheune Confluence in the Iron Age." Recent fieldwork has focused on the southern periphery of the settlement, an area marked by repeated evidence of atypical funerary remains and acts of violence directed at humans, animals, and artefacts. These practices appear to follow ritualized or socially regulated prescriptions and are primarily documented in two categories of features that may have functioned as symbolic or physical boundaries. The first consists of two wells located approximately fifteen meters apart, both containing articulated human skeletons with the lower limbs removed peri-mortem. One of these wells also yielded animal remains, suggesting a deliberately staged practice at the intersection of atypical funerary treatment, punitive violence, and ritual behavior. The second feature corresponds to a dense, linear concentration of material forming a boundary along the northern edge of the area. Dominated by faunal remains and amphorae, this assemblage also includes personal ornaments and metal objects—most notably a prisoner's shackle with its key—as well as several human skulls bearing traces of trauma or post-mortem manipulation. Taken together, these elements point to practices of exposure and socially performative display. Placed within the socio-economic context of a major settlement in eastern Gaul, these results highlight the complex social, political, and ritual roles of funerary practices, offering new insights into their function within broader community dynamics.

1299. Religious and funerary practices in the Swiss Plateau during the Second Iron Age: expressions of complex and intertwined symbolism

Authors: Matthieu Demierre (University of Lausanne)
Format: Oral

A survey of the funerary and religious practices of the populations of the Swiss Plateau during the Iron Age reveals striking similarities, particularly at the end of the period and among the elite. This is evidenced, for example, by the recurring discovery of horse and wild animal bones, the practice of depositing intact or fragmentary (pars pro toto) chariot parts, harnesses, weapons and adornments, and the selection of human bones, not to mention the deliberate breaking and selection of pottery. Often close to each other, the contexts in which they are found also show similarities in terms of their morphology (pits, ditches) and their general context (wet environment, geographical location, proximity to megaliths and earlier deposits). This paper aims to review the practices observed and assess their contribution to a complex symbolic system that was significant for the Celts of the Swiss Plateau. Using a selection of places of worship and deposits (Bern-Enge and Tiefenau, Port, La Tène), necropolises (Regensdorf, Frasses, Châbles) and sites where funerary and religious spheres coexist (Avenches, Mormont), it will question our ability as archaeologists to reconstruct the semiology hidden behind the observed gestures by placing them in their context.

120 TRACING ANCIENT FARMING: ISOTOPIC STRATEGIES TO EXPLORE AGRICULTURAL SYSTEMS

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Sayuri Kochi (Johannes Gutenberg University Mainz) – José Araus Ortega (University of Barcelona) – Ramiro Barberena (National Council of Scientific and Technical Research) – Francesca Cortese (University of Rome Tor Vergata)
Keywords: Subsistence, Palaeoecology, Stable isotopes, Archaeobotany, Zooarchaeology, Bioarchaeology
Format: Regular session

SESSION ABSTRACT

The interplay between humans and environments can be observed at any stages of production, distribution and consumption of staple foods in agricultural systems, and stable isotope analyses proved to be a powerful tool to characterize them. While for analytical and methodological reasons we tend to examine separately binomials of human-plants or human-animals' relationships, isotopic approaches allow us to reconstruct how were integrated all organisms as an agro-ecological community in a specific socioenvironmental setting, and the outcomes of its structure. Moreover, as a method grounded on biogeochemical principles, it is particularly suited to explore the human management of the agro-ecological factors enabling food production, as well as its constraints and limitations. In turn, the interpretation of isotopic data has its own methodological issues, and any case study must address similar questions: What are the particularities of local biogeochemical cycles? How is this isotopic variability reflected into producers and successive consumers? What is the magnitude of isotopic variation that is meaningful for the research question? Another common challenge is the construction of baselines for inter-site and diachronic comparisons, which are challenging for any model at broader

scales. A comparative perspective helps us to better explain the isotopic variations in terms of past farming practices, as similar biogeochemical processes may underly agricultural strategies divergent in their components, and vice versa. This session invites to present case studies from any period and region around the world, applying different isotopic markers to explore the human management of crops, livestock and environmental conditions for food production; the distribution of agricultural products at different scales; and the associated human dietary patterns. It also welcomes presentations combining different lines of evidence; as well as modern frames of reference and experiments that enhance our understanding of ancient agricultural systems.

CONTRIBUTION ABSTRACTS

2757. Growing conditions of cereals during the emergence of agriculture in the southern Levant: evidence from stable isotope signatures

Authors: Jose Araus – Salima Yousfi – Maria Dolors Serret (University of Barcelona) – Tobias Richter (University of Copenhagen) – Juanjo Ibañez (Institució Milà i Fontanals – CSIC) – Barbara Proserpio – Amaia Arranz-Otaegui (University of the Basque Country)
Format: Oral

Wheat, barley, and grain legumes are part of the group known as the "founder crops" of the Neolithic period in the Levant. These crops were fundamental to the transition from hunting and gathering to sedentary agriculture, a process that began around 12,000 years ago in the Fertile Crescent and is known as the Neolithic Revolution. Whether changes in environmental conditions, such as water availability and temperature, facilitated this transition is still under debate. Shubayqa (specifically Shubayqa 1, 3 and 6) and Tell Qarassa North are key archaeological sites in the Levant (Jordan and Syria, respectively) that document the transition from hunter-gatherers to farmers during the Late Epipalaeolithic and pre-pottery Neolithic interval. The carbon isotope discrimination ($\Delta^{13}C$) of seeds from different wild and domesticated species of wheat (Triticum boeticum/urartu, T. monococcum, T. dicoccoides), barley (Hordeum spontaneum), and legumes (Lens sp.), recovered from these sites, has been studied as an indicator of the moisture conditions of these crops. As an additional reference for understanding moisture conditions crop plants growth, the $\Delta^{13}C$ of seeds and tubers of Bolboschoenus maritimus recovered from the same sites was analyzed. This species belongs to the Cyperaceae family and is a perennial, hydrophytic, rhizomatous plant, characteristic of wetlands, riverbanks, marshes, lagoons, and ditches. Consequently, this species would show the maximum $\Delta^{13}C$ value expected under non-limiting moisture conditions. In addition, the nitrogen isotopic composition of the same samples was analyzed as an indicator of soil fertility and the potential occurrence of soil manuring. Finally, to allow for a diachronic comparison of the growing conditions, the isotopic values of the archaeobotanical remains were compared with the isotopic signatures of present-time samples of these species, growing in areas surrounding the sites.

2552. Agriculture at the frontiers of Neolithic expansion: stable isotope evidence from sites in Eastern Europe and Scandinavia

Authors: Sayuri Kochi (Johannes Gutenberg University Mainz) – Elena Marinova (State Office for Cultural Heritage Baden-Württemberg) – José Araus Ortega (University of Barcelona) – Sven Brömme (Max Planck Institute for Chemistry) – Gabriela Juźwińska – Magda Kapcia (W. Szafer Institute of Botany, Polish Academy of Sciences) – Maria Lityńska-Zając (Institute of Archaeology and Ethnology, Polish Academy of Sciences) – Tina Lüdecke (Max Planck Institute for Chemistry) – Aldona Mueller-Bieniek (Faculty of Archaeology, University of Warsaw) – Maria Ivanova-Bieg (Johannes Gutenberg University Mainz)
Format: Oral

The expansion of the pioneering farming communities across Europe has been characterized as a punctuated process over time, rather than a steady and uniform one. It remains debated to what extent the timing of this process was driven by cultural dynamics related to the adoption of new subsistence strategies, or by environmental factors that influenced the feasibility of food production. At higher latitudes, factors such as daylength were beyond the control of farmers, and cold stress can adversely affect crop growth and development. To assess the interplay between humans and environments in farming systems, stable isotope analyses of charred crops are a powerful tool, as they record plant growing conditions mediated by climate. Stable carbon isotope values depend on photosynthetic pathways, with isotopic discrimination in C_3 crops being positively correlated with water availability. Nitrogen isotope values are influenced by a variety of factors within the soil–plant system, including natural soil fertility and manuring practices. Here, we characterize the scope and limitations of Neolithic agricultural strategies at the frontiers of the initial Neolithic expansion through three case studies. From western Lesser Poland and the Carpathian Foothills region, we analyze six sites dating to the 6th–5th millennium BCE, where Neolithic communities approached the forest–steppe ecotone of eastern Europe. The second case study comprises two sites from the Kuyavia region in the North European Plain, dating to the 5th millennium BCE. We then present results for one site in Central Sweden dating to the 4th millennium BCE. Early Neolithic agriculture reached its northernmost extent here, corresponding to the border between boreal forest and taiga. Regional patterns are further discussed in comparison with previous findings from the southwestern frontier of the Linearbandkeramik expansion in Germany.

2372. Mapping Early Neolithic livestock mobility through multi-isotope analysis of sequentially sampled dental enamel

Authors: Phoebe Heddell-Stevens (Johannes Gutenberg University Mainz | Max Planck Institute of Geoanthropology) – Rosalind Gillis (ICArEHB) – Petrus Le Roux (University of Cape Town) – László Domboróczki (István Dobó Castle Museum) – Angélique Labrude (Centre de Conservation et d'Etude d'Alsace) – Krisztián Oross (ELTE Research Centre for the Humanities, Institute of Archaeology) – Joanna Pyzel (Maria Curie-Skłodowska University) – Maria Ivanova-Bieg (Johannes Gutenberg University Mainz) – Kyra Lyublyanovics (Hungarian National Museum, National Institute of Archaeology, Budapest)
Format: Oral

As farming spread across Europe, Early Neolithic communities were required to adapt livestock herding strategies to new climatic conditions, landscapes, and agro-ecological constraints. Livestock mobility and grazing regimes were central to these adaptations, yet direct evidence for how early farmers organised seasonal movement across landscapes remains limited. This study investigates seasonal movement patterns in cattle (*Bos taurus*) during the first 500 years of farming across multiple early Neolithic sites in Europe. We combine intra-tooth strontium ($^{87}Sr/^{86}Sr$) isotope analysis with zooarchaeological evidence and complementary stable carbon ($\delta^{13}C$) and oxygen ($\delta^{18}O$) isotope data to reconstruct livestock movement at a sub-annual scale. Sequential enamel sampling enables the identification of potential seasonal shifts between pastures, including movement across geologically distinct lowland and upland areas. The project uses existing regional strontium baseline datasets to identify livestock movements and seasonal ranging across varied environmental contexts. This paper presents preliminary results from an ongoing multi-isotope study, integrating isotopic geochemistry with zooarchaeological data to move beyond inferred models of transhumance. The study explores how early farmers structured livestock mobility and adapted herding practices to regional environmental variability, contributing to a more refined understanding of human–animal–environment interactions and the organisation of early farming economies in Neolithic Europe.

829. Dietary Evolution and Agropastoral Adaptation in Neolithic Alpine Societies: Diachronic Insights from the Valais Region (Switzerland)

Authors: Déborah Rosselet-Christ (ARCAN - Archaeology of Africa & Anthropology, University of Geneva) – Charles Le Moyne (Plant Humanities, Royal Botanic Gardens, Kew) – Massimo Chiaradia (Department of Earth Sciences, University of Geneva) – Jocelyne Desideri (ARCAN - Archaeology of Africa & Anthropology, University of Geneva)
Format: Oral

Funded by the Swiss National Science Foundation (SNSF grant 205059), the ALPS project employs an interdisciplinary framework—combining isotope geochemistry, dental non-metrics and calculus analysis, ancient DNA and paleopathology—to investigate Neolithic Alpine communities in Switzerland and Italy. By reconstructing dietary patterns, subsistence strategies, and mobility dynamics, this research seeks to understand how these populations adapted to the challenges of an alpine environment. This presentation focuses
on the evolution of agropastoral practices and dietary habits in the Sion region (Valais, Switzerland), covering the Middle Neolithic to the Bell Beaker period (4500-2200 BCE). Our analysis includes stable isotope ratios ($\delta^{13}C$, $\delta^{15}N$, $\delta^{34}S$) from 365 human individuals, 90 animals, and 15 seed samples, complemented by human dental calculus analysis from a subset of 69 individuals. Our findings indicate a gradual diversification of grazing environments, marked by a progressive expansion into higher-altitude areas beginning in the Final Neolithic. Herding practices underwent dynamic shifts, transitioning from open, humid zones (e.g., the Rhône Valley) to more varied landscapes, including high-altitude pastures, before reverting to more enclosed environments during the Bell Beaker period. Simultaneously, isotopic evidence reflects local soil management strategies (e.g., manuring), indicating optimised land-use and agricultural practices mastery. While human diets remained largely consistent over time, a subtle gender-based differentiation emerged during the Final Neolithic, suggesting distinct social or labour-related practices within communities. These insights deepen our understanding of subsistence and land-use trajectories in Alpine agropastoral societies, highlighting a diversification of grazing and agricultural practices. Although the drivers of these adaptations remain uncertain, they enhance the resilience and adaptability of Alpine agropastoral economies in response to environmental and socio-cultural pressures.

2448. Strontium isotopes and pre-Hispanic agriculture in the southern Andes (Argentina and Chile)

Authors: Maria Quintana (CONICET, Universidad Nacional de Cuyo) – Petrus Le Roux (Department of Geological Sciences, University of Cape Town) – María López (CONICET, Universidad Nacional de La Plata) – Carolina Belmar (Departamento de Antropología, Universidad de Chile) – Claudia Mallea (Instituto de Investigaciones Arqueológicas y Museo M. Gambier) – Gustavo Lucero (Departamento de Antropología, Universidad Católica de Temuco) – Andrés Troncoso (Departamento de Antropología, Universidad de Chile) – Carina Llano (CONICET, Instituto de Ingenieria y Ciencias aplicadas a la industria) – Ramiro Barberena (CONICET, Universidad Nacional de Cuyo)
Format: Oral

This study presents an approach anchored in strontium isotopes ($^{87}Sr/^{86}Sr$) to reconstruct pre-Hispanic farming areas and agropastoral strategies in a highland biogeographic corridor of the southern Andes. We focus on the linked valleys of Iglesia, Calingasta, and Uspallata (Argentina), and extend the analytical framework by presenting a first exploration for the Semi Arid region of Chile. We discuss case-studies from these valleys that allow evaluating farming areas across altitudinal gradients, seasonal mobility, and spatial conveyance of domestic plants. These valleys are emplaced between the Precordillera and main Andes ranges, characterized by striking geological and isotopic differences, that make Sr a robust tool to track the life-history of domestic plants. We characterize $^{87}Sr/^{86}Sr$ in archaeological and modern domesticated plants, wild flora, local fauna, and sediments to evaluate spatial variability and agricultural practices across the southern Andes. In the Valle de Iglesia, strontium isotopes reveal contrasts between the highland

Precordillera (2000-3500 masl) and the lowland valley contexts (<2000 masl). In this context, Pircas Negras site shows more radiogenic values, Las Quinas (valley) exhibits restricted variability, and Punta del Barro shows a broader dispersion, potentially reflecting more diverse farming areas and/or strategies. Samples from highland contexts in the Valle de Uspallata (Mendoza) and Calingasta (San Juan) allow evaluating seasonal highland farming in contexts above 2500 masl, contributing to explore broader agricultural dynamics. Data from Los Morrillos sites in Calingasta also suggest the conveyance of quinoa across the Andes. Comparative data from northern Chile situate these findings within broader discussions of agricultural experimentation, water management, and cultigen conveyance. Integrated into the isotopic framework, these observations underscore variability across valleys and highlight diverse cultivation and plant-movement strategies in arid highlands. These results highlight the value of integrating $^{87}Sr/^{86}Sr$, $\delta^{13}C$, and $\delta^{15}N$ isotopes isotopes with archaeobotanical evidence to reconstruct pre-Hispanic productive landscapes and adaptive strategies.

614. Reconstructing Bronze Age Agro-Ecological Systems in Italy: the PROTO-GREEN Project

Authors: Francesca Cortese (University of Rome Tor Vergata) – Marialetizia Carra (University of Bologna) – Mariateresa Cuda (Civic Museum of the Prehistory of Mount Cetona) – Alessandro Fedrigotti – Alex Fontana – Nicola Nannini (MUSE - Museo delle Scienze) – Adalberto Piccoli (Museo archeologico dell'Alto Mantovano) – Mattia Rossi (University of Parma) – Mario Rolfo (University of Rome Tor Vergata) – Paola Iacumin (University of Parma)
Format: Oral

The PROTO-GREEN project investigates how Italian Bronze Age communities employed agriculture and livestock breeding to adapt to environmental changes through stable isotope analyses of plant and faunal remains from UNESCO heritage sites. This contribution presents the methodological framework and preliminary objectives for isotopic analyses of carpological remains from northern Italian pile-dwelling settlements dated to the Early and Middle Bronze Age. Carbon and nitrogen stable isotope analyses will be conducted on seeds of broad beans (Vicia faba), emmer (Triticum monococcum/dicoccum), wheat (Triticum aestivum), and barley (Hordeum vulgare) from multiple Bronze Age sites including Molina di Ledro, Santa Maria in Belverde, La Bellanda and Bande di Cavriana. These analyses will provide insights into soil management practices, including manuring and irrigation strategies employed across different lacustrine and wetland communities dated from the Early to Middle Bronze Age. These isotopic approaches are particularly significant for the Bronze Age, as they can reveal economic transformations, climate-driven agricultural shifts, and the evolution of manuring practices during a crucial phase of agro-pastoral intensification. This multi-site approach enables reconstruction of integrated agro-ecological communities within diverse socioenvironmental settings and assessment of regional variability in farming practices. The isotopic characterisation of local biogeochemical cycles across these settlements will establish essential baselines for inter-site comparisons within Italian protohistoric contexts. Understanding the magnitude of isotopic variation related to water availability and nitrogen inputs allows us to characterize the agricultural strategies that supported these communities during a period of intensive agricultural development. The project outcomes serve as foundational data for future dietary studies and offer a comparative framework for understanding how past populations managed environmental factors enabling food production, providing insights relevant for sustainable agricultural practices today.

558. Agro-Ecological Adaptation in the Mid–First Millennium BCE: Stable Isotope Evidence from the Middle Gangetic Plain and Mainland Greece

Authors: Aarushi Yadav – Santosh Yadav (Lovely Professional University)
Format: Oral

Agricultural systems of the mid-first millennium BCE (c. 600–300 BCE) developed under divergent climatic constraints, requiring strategies to manage water availability, soil fertility, and production stability during a period of increasing social and economic complexity. In the Middle Gangetic Plain of South Asia and mainland Greece, farming communities operated within contrasting environmental regimes characterized by monsoon-driven precipitation and seasonally arid Mediterranean conditions, creating distinct challenges for long-term agricultural sustainability. This study examines these adaptive dynamics through a comparative synthesis of published stable isotope datasets ($\delta^{13}C$ and $\delta^{15}N$). Drawing on isotopic values from charred macro-botanical remains, faunal material, and human skeletal records, the paper explores how biochemical variability reflects interactions between cultivation practices and ecological constraints. The analysis focuses on three interconnected dimensions: isotopic indicators of water stress and potential irrigation; signatures of soil amendment, particularly the intensity of manuring inferred from $\delta^{15}N$ variability; and crop management strategies, including the use of C_4 millets alongside C_3 cereals to buffer against environmental uncertainty. By comparing datasets from distinct hydrological contexts, the study evaluates how agricultural resilience was structured through localized combinations of nutrient management, multi-cropping, and water regulation. The findings demonstrate that stable isotope analysis provides a high-resolution means of tracing how early agrarian societies managed resource constraints and mitigated environmental risk. Situating isotope values within broader archaeological and environmental frameworks, this approach contributes to understanding the ecological logic governing ancient agricultural systems. The results offer a deep-time perspective on human–environment interactions, highlighting long-term dynamics of sustainability, resource management, and climatic adaptation.

115. Between tradition and innovation: fluctuations in millet consumption in the Eastern Adriatic during the Bronze and Iron Ages

Authors: Valentina Martinoia (University of Udine) – Mario Carić (Institute for Anthropological Research) – Natalija Čondić (Archaeological Museum Zadar) – Slavko Galiot (Delmat Galiot Ltd) – Domagoj Perkić (Archaeological Museum Dubrovnik) – Dinko Tresić Pavičić (Kaducej Ltd) – Morana Vuković (Archaeological Museum Zadar) – Emily Zavodny (University of Central Florida) – Sarah Mcclure (University of California Santa Barbara) – Mario Novak (Institute for Anthropological Research | University of Primorska)
Format: Oral

The Bronze and Iron Ages in the eastern Adriatic were marked by major transformations in settlement organisation, subsistence strategies, and agricultural practices. Among these developments was the introduction of broomcorn millet, a fast-growing C_4 cereal well suited to the diverse and unstable environmental conditions of the Bronze- and Iron- Age Eastern Adriatic. Here, where archaeobotanical and zooarchaeological evidence remains uneven, stable isotope analysis provides a key line of evidence for assessing millet adoption in prehistoric diets. Previous isotopic research in Croatia consistently indicates predominantly C_3-based diets in coastal Bronze and Iron Age populations, with only sporadic evidence for millet consumption, while inland regions suggest more substantial incorporation of C_4 plants. Building on this background, this study presents the first regional-scale comparative stable carbon and nitrogen isotope analysis of human (n = 280) and faunal (n = 53) remains from Bronze and Iron Age contexts in the Eastern Adriatic, combined with a Bayesian two-endmember mixing model to estimate the contribution of C_4-derived dietary input. Our results indicate that millet became a significant component of human subsistence already from the Middle–Late Bronze Age transition. Faunal isotope data show no evidence for C_4 consumption among domestic animals, demonstrating that millet entered human diets primarily through direct consumption rather than via animal products. Moreover, while coastal communities display little to no evidence for millet use throughout the Bronze and Iron Age, inland groups exhibit increased C_4 input during both the Middle/Late Bronze Age and the Iron Age, although in a non-uniform and patchy manner. Overall, our findings refine the chronology of millet adoption in the Eastern Adriatic, pushing its earliest significant dietary contribution back to the Middle/Late Bronze Age transition, and highlight a context-dependent, regionally differentiated pattern of subsistence change shaped by local ecological conditions and broader social dynamics.

1865. Land Tenure and Multi-Seasonal Harvesting at Bronze Age Erdaojingzi, NE China Revealed by Integrated Archaeobotanical and Stable Isotopic Studies

Authors: Yufeng Sun (Institute of Archaeology, Chinese Academy of Social Sciences)
Format: Oral

In this research, stable isotope analysis of plants was integrated with macrofossil studies to investigate social conditions underpinning millet cultivation and mundane food production at the Bronze Age village Erdaojingzi (3600 – 3500 cal. yr BP), Northeast China. Specifically, we sought to answer two questions: 1) Did different households (or other groupings) manage cultivation collectively in similar environments, or did house groups have unequal access to (or ownership of) different farmlands? 2) Were millet harvests organized according to house group distinctions, or were they equally distributed among households? How were crops harvested in the field within this social context? Our results seem to suggest that both cultivation and harvest were configured in the context of the household economy. Millet was cultivated in environments only accessible to certain house groups, while the products were shared among household members rather than pooled across the whole community. The correlation between morphologically attested grain sizes and isotopic results indicated circumstances that grains from the same family plot were harvested multiple times sequentially, rather than in a single seasonal harvesting regime. Extensive archaeobotanical sampling at Erdaojingzi has enabled fine-grained analysis of how millet cultivation and production were woven into social conditions operating both in the field and within the settlement.

2630. Agro-Ecological Change and Settlement Decline: Stable Isotope Evidence from Medieval Deserted Villages (Czech Republic)

Authors: Libor Vobejda – Tereza Šálková Šálková (University of South Bohemia) – Lukáš Holata (Charles University) – Jan Ciglbauer (Palacký University Olomouc)
Format: Oral

The application of stable isotope analysis to the reconstruction of past agricultural systems has become increasingly widespread. Interpretations of isotopic ratios derived from archaeobotanical material are often based on combinations of modern experimental data and ethnographic analogies. In contrast, our approach integrates multiple types of archaeobotanical material originating from diverse archaeological contexts. This contribution applies stable carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) isotope analysis to reconstruct agricultural practices in deserted medieval villages and to compare them with the castle environment, understood as a locus of resource concentration and elite residence within the microregion. Stable isotope analysis of cereal grains provides a robust dataset for understanding farming practices, including manuring intensity and field location strategies. The inclusion of $\delta^{13}C$ and $\delta^{15}N$ values from arable weeds, charcoal, and wild forest fruits enables the integration of agricultural practices into a broader environmental framework, reflecting local ecological conditions. Stable isotope analysis of charcoal from different archaeological contexts further allows us to trace changes in forest management before and after the abandonment of medieval settlements. Our primary aim, however, is to contribute to the understanding of the mechanisms behind the abandonment of medieval villages through a comparative analysis of material from deserted rural settlements and from a nearby castle environment, interpreted as the microregional centre where resources from the surrounding landscape were likely concentrated. Comparing these environments allows us to identify differences that may help explain why some villages were abandoned while others persisted.

1165. The effect of manured grains on diachronic rise in δ^{15}N values in humans and animals of medieval Lithuania

Authors: Ruta Karaliute – Giedre Motuzaite Matuzeviciute (Lithuanian Institute of History)
Format: Oral

Stable isotope analysis of human bone collagen indicates a notable shift in the human diet in medieval Vilnius city (Lithuania). This shift is traditionally interpreted as evidence of increased consumption of animal-based products and/or an indicator of a higher social status individual. However, recent research suggests that additional factors may also be responsible for the observed increase in nitrogen levels within the food chain, such as agricultural reforms, deep ploughing and increased fertilization of land. As cereals constituted a significant part of the daily caloric intake of humans, changes in agricultural systems – particularly the introduction of more intensive farming practices and the expanded use of fertilizers – may have raised nitrogen baseline levels in crops and, consequently, in animal and human remains. This may ultimately bias the later interpretation of isotopic results. This study examines stable nitrogen isotope data from crops (285 samples), wild and domestic animals (240 samples) and human (564 samples) remains. It contains samples from the territory of contemporary Lithuania, dating from the Mesolithic period to the 18th century. The data indicates a correlation between major changes in agricultural practices observed around the middle of the 16th century, and rising δ15N values in crops, and, consequently, higher δ15N values in human skeletal remains. These considerations are essential for the refinement of future interpretations of past human diet and the prevention of the overestimation of animal-based food consumption in any other historical population.

1480. Exploring Long-Term Agricultural Development in the Southeastern Baltic through Stable Isotope Analysis

Authors: Kotryna Alma Bojarskaitė (Lithuanian Institute of History, Department of Archaeology) – Karolis Minkevičius – Gustė Mickevičiūtė (Vilnius University, Department of Archaeology)
Format: Oral

Stable carbon (δ^{13}C) and nitrogen (δ^{15}N) isotope analysis of archaeobotanical remains have only recently begun to be applied to the study of prehistoric farming practices and landscape management in the southeastern Baltic region. Existing stable isotope datasets from Lithuania are largely dominated by material dating from the Late Bronze Age (1100–500 BC) to the Roman Iron Age (1–400 AD), while agricultural practices of the subsequent Migration (400–800 AD) and Viking (800–1200 AD) periods remain less understood. From current evidence we know that intensive permanent-field agriculture was already in the Late Bronze Age, followed by reorganisation of agricultural practices in the Roman Iron Age. However, the lack of datasets from later periods limits our understanding of long-term prehistoric developments. This gap is particularly striking given archaeological evidence for broader changes after the Roman Iron Age in settlement patterns, functionality of hillforts, economy and social structure of the society. Archaeobotanical evidence indicates further agricultural transformation, including shifts in crop importance and emerging regional differences. In this context, stable isotope analysis offers a key tool for exploring these changes in terms of cultivation intensity, fertilisation practices, and land-use strategies that are not easily visible through plant macrofossil evidence alone. This paper presents the first stable isotope results from charred cereal grains dated to the Migration and Viking periods, recovered from a range of settlement contexts with a broad spatial and chronological representation. By integrating new data with previously published isotope datasets, the study provides new insights into previously unanalysed periods and offers a long-term perspective on agricultural development in the southeastern Baltic, tracing regional strategies of adaptation, resilience, and transformation from the Late Bronze Age through the end of the Iron Age.

2748. Crops and societies. Reconstructing Agricultural Trends through Archaeobotanical, Archaeogenetic, and Isotopic Data in Central and Eastern Europe

Authors: Julia Salova (University of South Bohemia in České Budějovice) – Leonid Vyazov (LEIZA-ZBSA Leibniz Centre for Archaeology | University of Ostrava) – Adéla Pokorná (Institute of Archaeology of the Czech Academy of Science | Charles University) – Mária Hajnalova (Constantine the Philosopher University in Nitra) – Vera Haponova (University of Edinburgh) – Ricardo Fernandes (Max Planck Institute of Geoanthropology) – Catriona Pickard (University of Edinburgh) – Jaromír Beneš (University of South Bohemia in České Budějovice)
Format: Poster

Over the last decade, large-scale archaeobotanical datasets have increasingly been employed to reconstruct supra-regional trends in agricultural development, moving beyond individual site interpretations toward broader assessments of crop distribution, land-use strategies, and economic organization. At the same time, advances in archaeogenetics and stable isotope analysis have significantly refined our understanding of population mobility, dietary practices, and social interaction in past societies. Together, these approaches provide new possibilities for examining the relationship between agricultural change and human migration. This study synthesises archaeobotanical evidence from Central and Eastern Europe between 1000 BC and 1000 CE and evaluates agricultural transformations in relation to patterns of mobility. We analyse diachronic shifts in cereal assemblages, crop diversity, and the balance between cultivated and gathered plant resources, and compare these trends with data derived from ancient DNA and isotopic indicators of diet and movement. Particular attention is given to periods of intensified mobility from the Iron Age and the Migration Period to the Early Medieval Period, when large-scale demographic shifts reshaped the cultural landscape of the region.

121 HIDING IN PLAIN SIGHT: ARCHAEOLOGICAL AND ARCHAEOMETALLURGICAL PERSPECTIVES ON NON-FERROUS METALLURGY ACROSS THE BALKANS, EASTERN MEDITERRANEAN AND MIDDLE EAST

Theme: 1. Widening perspectives in material culture studies
Organisers: Athina Nikolopoulou (National and Kapodistrian University of Athens | NCSR "Demokritos") – Demetrios Ioannides (The Cyprus Institute)
Keywords: non-ferrous metallurgy, Balkans, Eastern Mediterranean, Middle East, Archaeometallurgy
Format: Regular session

SESSION ABSTRACT

The study of technology and production forms an essential component of Archaeology, offering insights into the organisation, economy, and identity of ancient societies. Among technological practices, metallurgical production, particularly of non-ferrous metals, has been linked to the development of communities, craft specialisation, and interregional connectivity. Metallurgy evolved both independently and through interaction between metallurgists and communities, shaped by technological innovation as well as ideological and commercial exchange. The study of the chaîne opératoire - from mining and smelting to melting, refining, cupellation, casting, and object manufacture, "resonates" with broader social and cultural aspects and choices. Each stage, and the location where it was carried out, reflects decisions regarding technological choices, resource management, knowledge transmission, and the organisation of labour, embedded within distinct local and regional contexts. Interdisciplinary approaches integrating archaeological and analytical methods play a crucial role in reconstructing the production sequence and thus in unveiling aspects of specialisation, technological exchange, trade, and social stratification in antiquity. This session invites contributions focusing on metallurgical and metalworking practices across the Balkans, Eastern Mediterranean, and Middle East (BEMME). We particularly welcome papers that combine archaeological and archaeometric perspectives to investigate the production sequence of non-ferrous metals, such as copper, lead, and silver. By situating the technological evolution and choices within their cultural and socio-political framework, the session aims to highlight the diversity and interconnectedness of metallurgical traditions across the region. Completed and ongoing studies from researchers at all career stages are welcome.

CONTRIBUTION ABSTRACTS

880. Following in the footsteps of the Neolithic metalwork in north-eastern Aegean: reconstructing chaînes opératoires from archaeological material

Authors: Valentine Martin (University Paris 1 Panthéon-Sorbonne | ArScAn UMR 7041 | Free University of Berlin)
Format: Oral

The earliest metallurgical activities in north-eastern Aegean have been traced to the fifth millennium BC. These appear to have taken place locally: finished products, waste products and evidence of copper smelting have been found at nearby sites, including Dikili Tash, Sitagroi, and Promachon. However, the technological details of this craft, which consists of producing small copper ornaments (beads, rings, pins, appliques) and tools (drills, chisels, hooks, needles), remain somewhat unclear to us. To reconstruct the chaînes opératoires, a multi-scale approach must be applied to the archaeological material. Indeed, this is necessary to address the multiple issues related to its context: the Neolithic copper artefacts are mostly fragmented and tiny finds, affected by significant conservation problems, which can make any type of analysis difficult. This is without considering the challenge of identifying the structures and tools associated with these metallurgical activities. It should also be emphasised that presence in the field is, as far as possible, necessary for optimised data acquisition and conditioning. By using different approaches, we aim to adapt to the diversity and specific nature of those copper finds. Macro- and microstudies, archaeometric analyses and archaeological experiments have been combined to obtain results on the chaîne opératoire of Neolithic copper objects. Further analysis or additional methods are also being considered for future research.

2098. Copper ornaments from the Cucuteni-Dâmbul Morii settlement (Iasi County, Romania)

Authors: Radu Balaur („Alexandru Ioan Cuza" University of Iasi, Arheoinvest Center)
Format: Oral

In the Chalcolithic, copper metallurgy is a significant topic of discussion. This raised the issue of procuring raw materials and developing processing techniques. Possible workshops for the Cucuteni cultural area are mentioned at Poduri–Dealu Ghindaru, Hăbășești, or Brânzeni VIII. According to spectrum examinations, these items are typically made from native copper, with or without accompanying elements. Skilled and perhaps itinerant artisans are credited for the craftsmanship. The discovery of raw material, wires, plates, and sheets suggests that the processing procedure involves basic hammering and additional heating of the copper bars and

wires, at least for the items known to exist from the Cucuteni A-B phase. This study presents the copper artifacts found in the A-B phase settlement of Cucuteni-Dâmbul Morii. These are classified as ornamental objects, such as beads, spiral rings, and bracelets. With one exception, the copper artifacts were discovered in five different dwellings. An elemental examination was also performed for these artifacts, on the core and surface, analyzing the metal and corrosion products. For this purpose, a scanning electron microscope SEM model VEGA II LSH coupled with an EDX detector type QUANTAX QX2 was used. The investigated objects were made of copper, with no other trace of foreign elements. For one of the pieces from dwelling no. 12, a series of elements originating from corrosion was identified, an aspect that reveals the lack of the metal core and its replacement with corrosion products, thus indicating a high degree of degradation. The analyses performed on the surfaces of the artifacts identified elements originating from corrosion products and elements originating from the soil, accumulated following depositional processes. Thus, products such as oxides (CuO, Cu2O, Fe2O3, Fe3O4, SiO2, etc.) and basic carbonates (CuCO3.Cu(OH)2, CuSO4.3Cu(OH)6, etc.) were identified.

1626. Tracing Ancient Silver Production at Laurion: Integrating Ore Geochemistry, Lead Isotopes, and Archaeological Evidence

Authors: Frank Hulek – Yannis Bassiakos (N.C.S.R. Demokritos) – Kerasia Douni (Ephorate of East Attica) – Eleni Filippaki – Anno Hein (N.C.S.R. Demokritos) – Moritz Jansen (German Mining Museum) – Konstantina Kaza-Papageorgiou (The Archaeological Society at Athens) – Panagiotis Voudouris (National and Kapodistrian University of Athens)
Format: Oral

The Laurion district in southeastern Attica was one of the most important mining and metallurgical regions of the ancient Mediterranean, with silver exploitation beginning in prehistoric times. Its geological diversity and rich argentiferous lead deposits supported large-scale mining activities that played a crucial role in the economic and political development of ancient Athens. Mining started already in the Early Bronze Age, and for a long time the ore deposits of the so-called "First Contact", were exploited. Ancient written sources associate the intensification of silver production with the late 6th or early 5th century BC, yet the archaeological and chronological attribution of specific ore bodies remains problematic. This intensification has traditionally been linked to the exploitation of the so-called "Third Contact," a deep ore-bearing zone rich in argentiferous galena. However, this association relies largely on historical narratives, as secure archaeological correlations are lacking. Previous geological and geochemical research suggests that the Laurion mineralization may have been formed through more than one metallogenetic event, during, albeit, the Upper Miocene times. This paper presents results from the LAURICON project (WIDERA/Marie Skłodowska-Curie), conducted at the Laboratory of Archaeometry, NCSR "Demokritos." More than 50 plumbiferous ore samples from across the Laurion district were analyzed using mineralogical and chemical analyses to investigate any variability between ore types that are associated with the known contacts in term of differing mineralogical and/or chemical characteristics. Lead isotope analyses are in progress. In addition, approximately twenty litharge samples from archaeological excavations were studied with the same as above techniques, thus allowing links to be established between ore sources and ancient and prehistoric settlements in the wider Laurion region. By integrating archaeometric data with archaeological evidence, this study contributes to a more robust chronological framework for mining at Laurion and to broader discussions of metal production and circulation in the Aegean.

1198. Recovering the Unseen: Micro Residues and Metallurgical Practice in the Early Cycladic Bronze Age

Authors: Demetrios Ioannides (STARC, The Cyprus Institute) – Rosie Campbell (AEGIS, Université catholique de Louvain | Vrije Universiteit Brussel) – Michael Boyd (STARC, The Cyprus Institute | British School at Athens | McDonald Institute for Archaeological Research, University of Cambridge) – Thilo Rehren (STARC, The Cyprus Institute)
Format: Oral

The Keros–Dhaskalio complex constitutes a key locus of Early Bronze Age (EBA) technological practice, with small scale primary smelting and extensive secondary metalworking attested across the settlement. Within this broader industrial landscape, the present study focuses on an understudied class of evidence: copper micro residues — minute spills and droplets of molten metal recovered through the project's systematic sieving and fine fraction recovery strategy. These residues, typically lost in conventional excavation, preserve high resolution snapshots of metallurgical action at the scale of individual gestures, offering an unparalleled opportunity to examine production behaviour in detail. Microstructural and chemical analyses (optical microscopy; SEM–EDS) document the compositional variability and formation processes of these copper spills, while their secure contextual attribution allows correlations with broader assemblages of slag, metallurgical ceramics, and workshop features. Preliminary results confirm our understanding of the copper based metallurgical activities studied previously, but increase the resolution of these datasets by providing additional information on the production of arsenical copper on the site, reinforcing Dhaskalio's role as a major EBA metalworking centre. A further component of the study involves the spatial reconstruction of metallurgical activity through a 3D GIS based model charting the distribution of micro residues alongside larger metallurgical debris. The emerging patterns illustrate both the spread and character of metalworking (primary vs secondary) along the various trenches of the settlement. Together, these findings demonstrate how micro residues — recoverable only through meticulous excavation methods — can significantly refine interpretations of early metallurgical organisation, technological choice, and inter island connectivity within the evolving craft landscape of the Early Cycladic world.

576. Tracing early brass production in Southeast Arabia: Materials, provenance, and processes at Early Bronze Age Umm an-Nar (UAE)

Authors: Daniel Berger (Curt-Engelhorn-Zentrum Archäometrie) – Tatiana Valente (Department of Culture and Tourism, Abu Dhabi)
Format: Oral

Recent excavations on Umm an-Nar Island (Abu Dhabi Emirate, UAE) are reshaping interpretations of this pivotal Early Bronze Age settlement in Southeast Arabia (2700–2000 BCE). Targeted fieldwork has revealed a complex occupational sequence, including evidence for seasonal aggregation, ritual activity, and extensive long-distance exchange networks linking the Gulf with Mesopotamia and the Indus Valley. Of particular relevance are copper-based fragments of objects and small, unworked prills/ingots, which indicate frequent use and circulation of metal on the island despite the absence of clear evidence for on-site production. Here we present archaeometallurgical results for a selected set of ten metal items, simple strips, pins or wire fragments, and casting waste, analysed by chemical methods and lead isotope analysis; three specimens preserved in metallic form were additionally examined metallographically. EDXRF analyses yielded unexpected compositions: two artefacts contain remarkably high zinc concentrations of 25 and 27 mass%, while a third is characterised by very high lead of 18 mass% alongside 5% zinc. Because these materials derive from recent excavations in undisturbed contexts securely dated to the Bronze Age, they represent, to date, three of the earliest known brass objects not only in Southeast Arabia but globally. These findings raise fundamental questions concerning raw-material provenance, the source and introduction of zinc, and the metallurgical pathways by which zinc could have been retained through smelting and remelting. The talk addresses these issues to provide new insights into the site's history and its wider cultural and economic entanglements.

473. A metal detector survey of el-Ahwat reveals the largest bronze working assemblage in the early Iron Age southern Levant

Authors: Karan Desai (University of Haifa) – Shay Bar (Zinman Institute of Archaeology, University of Haifa) – Michal Artzy (The Leon Recanati Institute for Maritime Studies, University of Haifa) – Tzilla Eshel (School of Archaeology and Maritime Cultures, University of Haifa | Zinman Institution of Archaeology, University of Haifa)
Format: Oral

Copper and bronze artifacts recovered from the early excavations at el-Ahwat, situated in the central hill country of the Southern Levant, significantly challenge previous expectations concerning metallurgical practices in the region's marginal areas during the Early Iron Age [1-2]. To fully understand the scale and scope of the bronze working industry at the site and to elucidate the chaîne opératoire of bronze production, a metal detector survey (MDS) was conducted throughout the entire site. The survey revealed 265 copper based artifacts, 91 of which were identified as belonging to bronze working debris (denoted spills). This is contrast to other bronzeworking sites in the Early Iron Age in the Southern Levant, which usually indicate small scale operations, focused on recycling [3]. The metal spills were subsequently analyzed using portable X-ray fluorescence (pXRF) to better understand their bulk compositions. Although the use of pXRF on oxidized surfaces does not yield quantitatively verifiable results, the data does suggest certain consistent patterns, enabling interpretations regarding possible bronze working practices. Specifically, the analysis indicated lower sulfur values in bronze spills compared to copper spills. Furthermore, tin values within the bronze show a distinct bimodal distribution between samples with less than 2 wt% Sn and samples clustering around 9 wt% Sn. Based on these results, we propose two principal conclusions: first, that imported copper was likely refined prior to being alloyed with tin; and second, that the bronze production system employed two parallel processes. One process involved the manufacturing of high-tin bronze by alloying new copper with tin metal, while the other produced low-tin bronze, likely as a result of recycling bronze scrap mixed with pure copper.

331. Scientific studies of Balkan white metal jewellery of the 19th-20th centuries

Authors: Quanyu Wang (Shandong University)
Format: Oral

Blue copper corrosion was identified on Balkan 'silver' jewellery in preparation for the exhibition 'Traditional jewellery and dress from the Balkans" at the British Museum. How can copper corrosion products be present on white metal thought to be 'silver'? Does the 'silver' contain copper and what its purity is? These questions prompted scientific examination of the metals used for the jewellery, including 90 Bulgarian and 30 Yugoslav pieces. It was hoped that the technical investigation would help better understand the materials used and contribute to the wider study of 19th to 20th century Balkan jewellery. The objects were analysed by X-ray fluorescence spectroscopy, from which some items were selected for metallography and compositional analysis using SEM-EDX. They were found to have been made using a variety of alloys, including copper-silver-arsenic (Cu-Ag-As), copper-silver, copper-nickel-zinc (Paktong), copper-nickel (cupronickel), copper-zinc (brass), copper, silver, as well as arsenic brass. No association between jewellery types and the alloys used for their production has been found. Most of the items studied have multi-components which are soldered together. The Cu-Ag-As alloys were found to be dominant among the jewellery and were used for the main components in the majority of the items. Silver plating and gilding have been applied to some pieces. The alloys of Cu-Ag-As are similar to aghiari, an alloy of copper-silver widely used in Greek traditional jewellery with silver contents of less than 50% and arsenic being added to produce a silvery colour. It seems that aghiari-type alloy may have been widely used in Balkan traditional or folk jewellery to reduce material cost.

1075. Functional assessment of bronze weapons from a "warrior burial" at Plasi Marathon: archaeological and analytical perspectives

Authors: Angeliki Charalampous – Michel Roggenbucke (National and Kapodistrian University of Athens) – Eleni Filippaki (NCSR "Demokritos") – Yiannis Papadatos (National and Kapodistrian University of Athens)
Format: Oral

The excavations of the National and Kapodistrian University of Athens at the site of Plasi, in Marathon, revealed a burial dating to the beginning of the Late Bronze (Late Helladic I phase), which was accompanied by four bronze weapons, a sword, a knife, a spearhead and a dagger. Despite the fact that such burials have traditionally identified as "warriors", serious doubts have been expressed about the identity of the deceased. For this reason, important parameters for their identification as warriors is the technological and functional characteristics of the weapons, as attested by the composition of the alloys that were used for their manufacture, and the metalworking techniques that were employed. The choice of appropriate alloys and metalworking practices is essential for achieving the mechanical properties required for a weapon to be functional in combat. Consequently, this information can provide important insights into whether these weapons were intended for practical use or had a more symbolic role, emphasizing other aspects, such as the social status or the political power of the deceased. To address these questions, three analytical techniques were applied on the weapons from Plasi, X-ray fluorescence technique, using a portable device (p-XRF), scanning electron microscopy (SEM) coupled with an energy dispersive spectrometer (EDS) and optical microscopy (OM). The results of these analytical techniques not only provided valid answers to questions regarding the utility of these weapons, but revealed also a much more complex picture, which will be discussed within the broader context of early Mycenaean warrior ethos.

1051. Casting strategies of Eneolithic shaft-hole axes from Poland. An archaeometallurgical study of hammer-axes from Kałdus and Karłowice Małe

Authors: Jędrzej Kubiak (Nicolaus Copernicus University in Toruń)
Format: Poster

In studies of the oldest copper metallurgy in Central Europe, the technology used to produce massive axes is of key importance. There are several more or less confirmed hypotheses about the methods used to cast these objects, which point to the possibility of using open sand moulds, single-piece or two-part moulds, cores or piercing the shaft holes. The presented research focuses on reconstructing the production technology of two Eneolithic copper axe-hammers from the area of present-day Poland. The first one was part of a treasure discovered at the Funnel Beaker Culture site in Kałdus, which dates back to the second half of the 4th millennium BC. The second axe is an out-of-context find from Karłowice Małe, which can be linked to the Funnel Beaker Culture or the Lendzielsko-Polgar Culture and dated to the end of the 5th and the first half of the 4th millennium BC. The research involved elemental composition analysis, casting defect analysis and surface structure analysis of the original hammer axes and their copies, which were obtained during experimental casting sessions conducted under semi-controlled conditions. The experimentally obtained traces and casting defects on the copies of the hammer axes are consistent with those observed on the original artefacts. The results of experimental casting allow us to conclude that the analysed axes were cast in sand and clay moulds, and the hole for the handle was pierced after casting or formed using a core. The research complements our knowledge of axe production technology in Central Europe in the 4th millennium BC and provides a good starting point for further experimental and comparative research in this field.

2353. Forms of Copper and Modes of Circulation in the Bronze Age Aegean

Authors: Athina Nikolopoulou (National and Kapodistrian University of Athens | NCSR "Demokritos")
Format: Poster

Copper ingots are among the most recognizable metal forms of the Bronze Age Aegean and are generally understood as deliberately cast units intended for storage and transport. Their recurring morphology reflects shared technical practices and an awareness of copper as a measurable and transferable resource within emerging exchange systems. By contrast, axes are typically interpreted as functional tools marking the completion of production. Yet in many cases, their formal consistency and comparable weight ranges invite reconsideration of their role within early systems of distribution. Selected archaeometric observations further indicate convergences in both composition and certain aspects of metal processing between axes and ingot material, raising the question of whether the two categories operated within the same broader framework of copper circulation. Approaching the evidence in this way shifts attention from strict typological divisions to the organization of copper itself. Rather than assuming a clear separation between raw material and finished artefact, it becomes possible to consider that different forms of copper — including ingots and axes — could participate in parallel modes of storage, transfer, and redistribution. In this perspective, metal mobility in the Bronze Age Aegean appears structured, yet not limited to a single formal expression.

122 MIGRATION AND MOBILITY: ADVANCES IN EXPLORING THE BELL BEAKER PHENOMENON

Theme: 7. Interaction, connectivity and mobility
Organisers: Nicoline Schjerven – Fredrik Dahlberg (Department of Historical Studies, University of Gothenburg) – Julien Vitani (University of Paris 1 Panthéon-Sorbonne)
Keywords: Bell Beaker, Mobility, Migration
Format: Regular session

SESSION ABSTRACT

In this session, we aim to explore the Bell Beaker migration and mobility during the pivotal period of the 3rd millennium BC. Human mobility and interaction between cultures are central themes in the development of interdependent networks between populations. Migration, whether driven by necessity, opportunity, or curiosity, has long facilitated the formation of social and economic networks. When people travel, they carry with them not only objects but also knowledge, ideas, and beliefs, all of which develop through contact and exchange with other communities. The Bell Beaker phenomenon is an enigmatic area of study through which to trace these processes. The scientific contributions to mobility studies (e.g., isotopes, aDNA, 14C) have changed how we address migration and mobility research. We can explore the complex relationships between people, places, and practices through increasingly larger data sets, however, it also requires a discussion what these contributions mean for our understanding of prehistory. We welcome papers and posters that address, but are not limited to, the following topics: · Gendered dimensions of mobility · Circulation and communication of people, materials, and ideas · Scientific contributions to mobility studies (e.g., isotopes, aDNA, 14C) · Intersections between individual agency and collective dynamics This session encourages both case studies and theoretical reflections that contribute to a more nuanced and methodologically integrated understanding of Bell Beaker networks.

CONTRIBUTION ABSTRACTS

367. Migrations and admixture of Late Neolithic European populations and the emergence of Corded Ware and Bell Beaker cultures

Authors: Eva-Maria Geigl (University Paris Cité - CNRS - Institut Jacques Monod) – Oguzhan Parasayan – Thierry Grange (Université Paris Cité - CNRS - Institut Jacques Monod)
Format: Oral

Archaeological evidence points to the 3rd millennium BCE as period of great changes that ultimately ended the Neolithic. Cultural elements from the eastern European steppes expanded westwards into Central Europe catalyzing the emergence of the Corded Ware Culture (CWC), which spread into northern Europe. Archaeogenetic research has shown that the spread of the CWC was associated with the spread of the steppe-ancestry, well documented in central and northern/northwestern Europe, to the exclusion of France. On the other hand, and just a few centuries later, the Bell Beaker phenomenon (BBP) arose and spread at unprecedented speed over Europe creating a pan-European cultural network. Its origin, however, is still not universally accepted owing mainly to chronological problems. While the spread of the BBP was associated with the spread of steppe-ancestry, its early expressions and occurrences were not, rendering the situation inconclusive. We generated whole genome sequences of Late Neolithic individuals in the Paris Basin and conducted a high-resolution analysis of ancient genomes in 3rd millennium BCE Europe. The analyses revealed the hitherto unknown Europe-wide dynamics of population admixtures during this period that coincide with the major cultural transitions. The data allowed us to elaborate a model that proposes a synthesis of archaeological and genetic evidence to explain the emergence of the BBP in the 3rd millennium BCE and the associated restructuring of the genetic landscape in Europe.

590. The Bell Beaker Phenomenon in the Southern Upper Rhine Valley: Vessel Decoration as a Means of Identification?

Authors: Katalin Puster (Eberhard Karls Universität Tübingen | Landesamt für Denkmalpflege im Regierungspräsidium Stuttgart)
Format: Oral

The Upper Rhine region is a key area for current research into the Bell Beaker Complex. According to the latest findings, it could be the melting pot in which the typical Bell Beaker Phenomenon emerged, and the starting point from which it spread. A comprehensive archaeological and anthropological study of graves in South Baden, compared with those in the southern Upper Rhine Valley, reveals evidence of flexible gender roles and distinct ceramic decoration development in the latter region. In this area, it seems that vessel decoration served as a means of identification within the Bell Beaker East Group. The corded pottery, which was particularly influential in the early stages, and the absence of metope decoration, which is typical of the Western Group, alongside the clear burial customs, which are typical of the Eastern Group, illustrate the area's independent role. This self-definition could be based on the region's special historical role and geographical location as the westernmost part of the Bell Beaker East Group.

951. Mobility, Inequality and Funerary Practices during the Bell Beaker Period: A Transnational Perspective

from the Rhine to the Seine Valleys

Authors: Lisa Gaignard (Paris 1 Panthéon-Sorbonne | UMR 8215, Trajectoires) – François Giligny (Paris 1 Panthéon-Sorbonne | CNRS, Centre National de la Recherche Scientifique | UMR 8215, Trajectoires) – Clément Nicolas (CNRS, Centre National de la Recherche Scientifique | UMR 8215, Trajectoires) – Alessandra Varalli (Aix-Marseille Université | CNRS, Centre National de la Recherche Scientifique | Ministère de la Culture | UMR 7269, Lampea | INRAP, Institut National de la Recherche en Archéologie Préventive)
Format: Oral

The Bell Beaker phenomenon is characterized by the wide circulation of grave goods, ideas and people across large parts of Europe. The region extending from the Rhine Valley to the Seine Valley represents a key cultural crossroads between Central Europe and the Atlantic façade, making it a particularly relevant area for investigating patterns of mobility during the Bell Beaker period. Funerary practices offer a privileged perspective on both social inequality and mobility. This communication will presents the preliminary results of an ongoing research project (Master's thesis and newly started PhD) synthesizing published data on Bell Beaker burials from a transnational perspective. The dataset has been carefully selected using a combination of geographical, geological and archaeological criteria, in order to reduce interpretative biases. Structure were selected using a polythetic approach to ensure secure attribution to the Bell Beaker phenomenon while preserving the wide diversity of funerary practices. The analysis highlights the considerable variability of funerary practices observed across the Rhine–Seine landscape, including differences in burial architecture, body treatment, grave goods and biological informations of the individuals. This variability reflects social hierarchies at both the individual and populations levels, while also pointing to varying degrees of cultural connectivity and mobility. The spatial distribution of burial types suggests the coexistence of local traditions and shared supra-regional norms, indicating the circulation of ideas alongside the possible movement of individuals. By integrating funerary evidence within a broader geographical framework, this study provides new insights into exchange networks and mobility patterns during the Bell Beaker period. This communication will also outlines future research directions, including the integration of published ancient DNA data and the generation of new isotopic analyses, which will allow a more refined discussion of individual mobility and its relationship to social inequality.

296. Gender, Mobility and Transregional Marriages in Beaker Central Europe

Authors: Jan Turek (Center for Theoretical Study, Charles University, Prague)
Format: Oral

When analysing levels of population mobility in prehistory, one potential indicator is particularities within burial assemblages. For the Corded Ware and Bell Beaker periods, these considerations also involve the gendered symbolism of burial ritual and gender-specific grave goods. The Bell Beaker period is commonly associated with long-distance contacts and marriages of individuals across the so-called Chalcolithic Frontier in north-western Europe (Brodie 2001). An illustrative example is the high-status burial of the Amesbury Archer. Isolated occurrences of exotic artefacts within culturally distinct settings may likewise be linked to a form of individual mobility. Examples include a wholly unique burial containing Coțofeni-style pottery in the Moravia region (Czech Republic) and occurrences of Bell Beaker and Proto-Nagyrév pottery in the Vojvodina and Srem areas (Serbia), both located roughly 500 km from the artefacts' common distribution. Recently traces of four wheeled carriages were identified in some elite Corded Ware burials in Moravia, perhaps indicating an eastern origin of the individuals buried with them. Differences in burial rite may also testify to long-distance marriage. It is possible that nearly 20 % of all Bell Beaker burials in Moravia that diverge from the regional norm by employing cremation represent women married in from the Carpathian Basin, where cremation predominated. This interpretation is further supported by the presence of female-gendered grave goods accompanying these burials.

822. Moving People, Shifting Societies: Mobility and Social Reorganization in the Neolithic Alps

Authors: Jocelyne Desideri (Archaeology of Africa & Anthropology - ARCAN, University of Geneva) – Anouk Bystritzsky (InSitu Archéologie SA, Sion) – Massimo Chiaradia (Department of Earth Sciences, University of Geneva) – Mila Courlet (Archaeology of Africa & Anthropology - ARCAN, University of Geneva) – Julie Debard (InSitu Archéologie SA, Sion) – Anja Furtwängler – Johannes Krause (Max-Planck-Institute, Leipzig) – Antoine Mailhot – Axelle Paszkowiak – Déborah Rosselet-Christ (Archaeology of Africa & Anthropology - ARCAN, University of Geneva)
Format: Oral

The SNSF-funded project ALPS (10521F-205059; 2022–2026) examines Neolithic societies (c. 5500–2200 BCE) of the Swiss–Italian Alps, a mountainous corridor where environmental constraints and cultural interactions jointly shaped long-term social trajectories. By mobilizing an integrated analytical framework - combining stable isotope geochemistry, dental nonmetrics, ancient DNA and palaeopathology - the project interrogates how diet, mobility and social organization co-evolved in early Alpine agropastoral communities, with a particular focus on the Bell Beaker period as a moment of major social reconfiguration. ALPS is anchored in a uniquely continuous funerary record from eleven necropolises, including Petit-Chasseur (Sion) and Saint-Martin-de-Corléans (Aosta), encompassing nearly 400 individuals from the Middle Neolithic to the Bell Beaker period. This diachronic, spatially coherent dataset offers a rare opportunity to trace biological and social change within a well-defined Alpine territory over more than three millennia. Multi-isotopic analyses ($^{87}Sr/^{86}Sr$, $\delta^{18}O$, $^{143}Nd/^{144}Nd$), combined with dental and genetic markers, show that although

the overall proportion of non-local individuals remains relatively stable across the Neolithic (around 30%), the Bell Beaker period is distinguished by a specific social pattern of mobility. In contrast to the Late Neolithic, when mobility is strongly male-biased and includes children, Bell Beaker mobility remains substantial but is largely restricted to adult males. When considered alongside funerary practices, this pattern points to a reorganization of gender roles, integration strategies and social differentiation, supporting the interpretation of the Bell Beaker period as a distinct social configuration rather than a simple continuation of earlier Neolithic dynamics.

2571. Settlement site selection, distribution of buildings: legacies of mobility on the Loriol Bell beaker site, Rhône Valley, France.

Authors: Karine Raynaud (Eveha Agence de Lyon)
Format: Oral

In this presentation, we aim to explore how Loriol domestic site provide new data regarding the mobility of ideas, knowledge and traditions during the end of the 3rd millennium BC. Considering the choice of site location, congregated dwellings, architectural standards and relation ship to natural environment, the Loriol site appears as a imported model. Specifically built at the confluence of the Rhône and Drôme rivers, orientation of Bell Beaker dwellings show a common denominator with remote area as north of Swiss Plateau or Netherlands; it supports the idea of a physical relocation of the occupants. If lack of typical domestic features lead to questions about economic and material life, search for a broad-spectrum environment is illustrated by the selected living space, wheter temporary ("on the way to") or permanent. Apart of that, livestock farming and agriculture refer to a cultural background supposed to follow or accompany human mobility and interaction between local cultures.

29. From cerealisation to mobility

Authors: Jens Johannsen (The Agency for Culture and Palaces, Denmark)
Format: Oral

The presentation highlights the role of subsistence practices in Bell Beaker mobility. In the Late Neolithic of Southern Scandinavia, the influence from the Bell Beaker Phenomenon includes a shift toward greater reliance on plant-based subsistence. This shift is reflected, among other things, in crop diversification and changes in material culture. The new subsistence practices led to increased food production and more sedentary lifeways. Sedentism and enhanced food availability are well-known drivers of demographic expansion, and this cerealisation of Southern Scandinavia thus appears to have supported substantial population growth, which in turn generated waves of human mobility across the region. Archaeological evidence suggests that these movements initially radiated from Jutland into western Sweden and southwestern Norway, followed by later dispersals from western Sweden into eastern Denmark and eastern Norway. These intertwined developments contributed to the gradual cultural and genetic unification of southern Scandinavia, laying the groundwork for the emergence of the Nordic Bronze Age.

125 MERC ROUNDTABLE: PUBLISHING MEDIEVAL ARCHAEOLOGY — STRATEGIES, CHALLENGES, AND OPPORTUNITIES

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Jakub Sawicki (Institute of Archeology of the Czech Academy of Sciences) – Aleks Pluskowski (University of Reading) – Pam Crabtree (New York University) – Andreia Rodrigues (University of Évora)
Speakers: Cécile Lagane (Université de Caen Normandie) – Roland Filzwieser (University of Vienna) – Rosie Bonté (Brepols) – Miroslav Dejmal (Masaryk University) – Magdalena Bis (Polish Academy of Sciences) – Maciej Radomski – (Polish Academy of Sciences) – Emma Lockwood (Routledge Taylor and Francis Group) – Piotr Strzyż (University of Lodz)
Keywords: science studies, global middle ages, publishing, editorial, medieval europe, Evaluation
Format: Round table
Affiliation: Medieval Europe Research Community - MERC

SESSION ABSTRACT

Medieval archaeology differs from other "branches" of archaeology not only in its chronological scope but also in its specific thematic focus. This distinctiveness stems from the close integration of archaeological research with a broad range of non-archaeological sources, which often shape the subjects and approaches adopted by specialists in this field. Such factors strongly influence what and how we publish, the structure of scholarly works, and the nature of the key problems addressed. Publication practices and priorities vary considerably across regions and countries, reflecting differing research traditions, interpretative frameworks, and even nation-building narratives. At the same time, the contemporary academic environment imposes further constraints on publication strategies, as national evaluation systems frequently prioritise certain journals or databases (for example, the Polish journal ranking system assigning points, or the emphasis on SCOPUS and WoS-indexed journals in the Czech Republic). These mechanisms inevitably shape how and where researchers choose to publish their results. Conversely, there is a growing call to open medieval

archaeology beyond its traditional "national" frameworks — to internationalise and even globalise its research questions, ensuring that the discipline does not become a scholarly enclave. Within this context, a number of issues remain open for discussion: How can our publications effectively reach their intended audiences amid the growing volume of academic output? What balance should be struck between publishing in national languages and in English to ensure accessibility and visibility? This Roundtable brings together editors-in-chief of leading medieval archaeology journals from across Europe to reflect on the current state of the discipline and its publication landscape, and invites a wider audience to join this stimulating discussion.

126 ISOTOPIC AND MULTI-PROXY INSIGHTS INTO PALAEOCLIMATE, ECOSYSTEMS AND PREHISTORIC HUMAN DECISION-MAKING IN EURASIAN PREHISTORY

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Mónica Fernández García (University of Lancashire | IPHES-CERCA) – Jennifer Jones (University of Lancashire) – Rosa Arniz-Mateos (Leibniz Zentrum für Archäologie, LEIZA)
Keywords: biogeochemistry, palaeoecology, palaeoclimate, human adaptation, Prehistory, Eurasia
Format: Regular session
Affiliation: Palaeolithic and Mesolithic Community - PaM

SESSION ABSTRACT

Climatic and environmental conditions influence human behaviour and choices in the present, just as they did in the past. Over the past decades, advances in biomolecular approaches to the archaeological record have provided new tools to study past ecological and biological processes, enabling access to quantitative data to characterise ancient climates and ecosystems. These methods can be applied to a variety of commonly recovered bioarchaeological remains - such as animal bones (small and large mammals, fish, birds), mollusc shells, charcoal, and sediments - offering new insights into climate oscillations and human-environment interactions. This session will focus on reconstructing past climate and ecosystem dynamics across diverse Eurasian ecosystems from the Pleistocene to the Middle Holocene, and on evaluating the impact of changing conditions on prehistoric human populations, from Palaeolithic hunter-gatherer-fisher groups to the first Neolithic agricultural and pastoral communities. The session will primarily focus on stable isotope and geochemical techniques ($\delta^{18}O$, $\delta^{13}C$, $\delta^{15}N$, Sr, $\delta^{34}S$, Ca, etc.) applied to bioarchaeological remains as proxies for reconstructing long- and short-term palaeoclimatic records. Studies incorporating biomolecular approaches (e.g., proteomics, metabolomics) and spectroscopic techniques for trace-element analysis of calcium carbonates (e.g., LIBS, LA-ICP-MS, ICP-MS) are also welcome. The session aims to characterize Quaternary climatic fluctuations, such as glacial-interglacial dynamics, and to evaluate their impact on human decision-making processes. It will also compare methodologies to assess their strengths and limitations, fostering an interdisciplinary dialogue on human-environment interactions. Open science principles (e.g., data sharing, repositories) and strategies for data management will be discussed not only to support collaborations and research transparency, but to strengthen the reproducibility of palaeoclimate and ecosystem reconstructions. By integrating past climate evidence with open science, this session will offer perspectives relevant to present and future climate change and resource management, drawing on prehistoric examples of adaptability and sustainability during abrupt climate shifts.

CONTRIBUTION ABSTRACTS

1747. Palaeoclimatic reconstructions using oxygen stable isotopes of bison tooth enamel: preliminary results from Notarchirico (southern Italy).

Authors: Lilian Reiss (UMR 7194, CNRS, Museum National d'Histoire Naturelle) – Beniamino Mecozzi (Independent researcher) – Francesca Alhaique (Museo delle Civiltà) – Marta Arzarello (Università degli Studi di Ferrara) – Michael Joachimski – Christoph Mayr (Friedrich-Alexander-Universität Erlangen-Nürnberg) – Alessio Iannucci – Raffaele Sardella (Sapienza Università di Roma) – Kate Britton (University of Aberdeen) – Marie-Hélène Moncel (UMR 7194 HNHP, CNRS, UPVD, Muséum National d'Histoire Naturelle, Paris)
Format: Oral

The Middle Pleistocene site of Notarchirico (Venosa Basin, Basilicata, southern Italy) represents a key site for some of the earliest Acheulean occupations in Europe and covers a sequence of almost 100 ka, documenting different climatic conditions throughout both interglacial and glacial periods. Here, we present preliminary results of palaeotemperature reconstructions using oxygen stable isotopes from bison enamel phosphate, which provide time-series proxy data for the isotopic composition of local precipitation ingested by this obligate-drinking herbivore. Bison teeth from different archaeological layers were sampled sequentially to obtain a high-resolution isotopic information and to capture seasonal climatic shifts. Samples originated from layers D and E (approx. 657 – 660 ka), both of which can be attributed to Marine Isotope Stage (MIS) 16, and layer I1b (approx. 690 ka), which corresponds to MIS 17. $\delta^{18}O$phosphate generated so far indicate a more strongly seasonal environment and generally cooler winter periods during MIS 16 than during MIS 17, with data from MIS 17 showing less pronounced seasonal variability and indicating slightly warmer and more humid conditions overall. While pilot data should be considered preliminary, slightly warmer mean annual temperatures were calculated for MIS 17 than for MIS 16 at this location. These initial results provide direct evidence of climate variability throughout the Notarchirico sequence and are consistent with other large mammal biochronological data, which suggest warm-temperate conditions during MIS 17 and cooler conditions during MIS 16.

1828. Reconstructing seasonal mobility and home ranges of European Late Pleistocene reindeer using multi-isotope analysis, niche modelling, and spatial assignment

Authors: Sarah Barakat (Department of Archaeology, University of Aberdeen) – Mael Le Corre (Department of Archaeology, University of Aberdeen | BioArch– UMR 7209, Muséum national d'Histoire naturelle) – Elodie-Laure Jimenez (Department of Archaeology, University of Aberdeen) – Rebecca Lam (CREAIT Network, Memorial University, St. John's) – Vaughan Grimes (Memorial University, St. John's) – Olivier Bignon-Lau (Technologie et Ethnologie des Mondes Préhistoriques) – Emmanuel Discamps (TRACES, University of Toulouse Jean Jaurès) – Kate Britton (Department of Archaeology, University of Aberdeen)
Format: Oral

Reconstructing Late Pleistocene prey-species palaeoecology provides insights into the ecological plasticity of ungulate taxa and is essential to understanding human behaviours, hunting strategies and landscape use. Strontium (87Sr/86Sr) isotopic analysis is commonly used to assess the geographical origins of remains; and advances in mass spectrometry and sampling methods have produced increasingly high-resolution data. Despite this, interpretation of 87Sr/86Sr data in overly homogenous or heterogenous lithologies landscapes remains challenging. Multi-isotope analysis should be implemented to enhance precision, and sulfur isotope approaches are emerging as a leading, complementary technique. Sulfur, δ34S, found in bone collagen alongside carbon (δ13C) and nitrogen (δ15N), can be used in mobility studies due to natural variations in sulfur values across differing lithologies and strong influences from the sea-spray effect; this allows identification of mobility over geologically varied regions and with distance to the sea. By combining 87Sr/86Sr and δ34S isotopic analyses archaeologists can explore life movement histories and infer species-specific spatial behaviours, alongside investigating dietary niches. Building on recent 87Sr/86Sr experimental studies, isoscape mapping, and isotope niche modelling– alongside the increasing knowledge of δ34S isotopic spatial (and temporal) variability– this study combines techniques to explore variability in migratory behaviours of Late Pleistocene reindeer. We present a combination of intra-tooth 87Sr/86Sr, with bulk bone collagen δ34S, δ13C, and δ15N data from Late Pleistocene (MIS 5 to MIS 2) reindeer across the Paris Basin, Aquitaine Basin, and Pyrenees to compare mobility and dietary behaviours through time. Red deer, equids, bovines, and roe deer palaeoecology are also discussed in reference to reindeer. Results show movement patterns between the river basin regions of France through time, while δ34S data show refined home range sizes of the key prey ungulates. This approach permits new insights into long-term changes in the migratory behaviour of reindeer in relation to environmental and climatic changes.

2208. Isotopic perspectives on mammoth ecology and human subsistence in Geißenklösterle and Hohle Fels

Authors: Manhon Mouhat Bourquard – Britt Starkovich – Nicholas Conard – Hervé Bocherens – Dorothée Drucker (Senckenberg Centre for Human Evolution and Palaeoenvironment | University of Tübingen)
Format: Oral

The Middle Palaeolithic-Gravettian transition (ca. 60,000 to 30,000 cal BP) in the Swabian Jura marks a pivotal shift in human-environment interactions. Focusing on the woolly mammoth (*Mammuthus primigenius*), this research investigates its dual role as both a landscape engineer and a crucial resource for hunter-gatherer societies. This study presents a high-resolution chronological and isotopic reassessment of mammoth remains from the complete sequences of Geißenklösterle and Hohle Fels. We employ a multi-proxy approach, integrating collagen stable isotope ratios ($\delta^{13}C$, $\delta^{15}N$, $\delta^{34}S$) from mammoth and associated large mammals to reconstruct the palaeoecological conditions of the Middle Palaeolithic to Gravettian succession. The isotopic results will be compared to other local environmental proxies such as pollen and micromammals. By analysing these sequences, we investigate how MIS 3 climatic fluctuations influenced mammoth mobility, paleobiology, and consequently, human prey selection and raw material procurement. Our results refine the understanding of ecological niche partitioning during the Middle to Upper Palaeolithic transition, providing a robust framework for regional comparisons and enabling us to assess correlations between climatic events and shifts in resource management, specifically clarifying Pleistocene human-mammoth interactions. Sulfur isotopic values reveal an increase in mammoth mobility at Hohle Fels during the Gravettian compared to the Aurignacian, possibly driven by increased climatic pressures and the intensified hunting practices of Gravettian populations. This research provides a robust quantitative dataset for reconstructing the Swabian Jura's "mammoth steppe" dynamics and contributes to a broader Eurasian synthesis of human-environment interactions. Furthermore, this work evaluates cultural transitions and the adaptability of Palaeolithic groups to climate variability, providing long-term perspectives on human resilience. By integrating paleoclimatic and faunal evidence, it also clarifies the socio-economic importance of megafauna. Ultimately, this research provides a high-resolution perspective on hunter-gatherer adaptability and human–environment dynamics in Central Europe.

2252. A regional palaeoenvironmental synthesis of the MIS 3-2 transition in Iberia through stable isotopes

($\delta^{18}O$, $\delta^{13}C$) on small-mammal remains

Authors: Mónica Fernández García (University of Lancashire | IPHES-CERCA)
Format: Oral

This study presents the first regional synthesis of palaeoenvironmental evolution in the Iberian Peninsula based on stable oxygen and carbon isotope ($\delta^{18}O$, $\delta^{13}C$) analyses of rodent tooth remains covering the MIS 3–MIS 2 transition. Rodents, commonly found in archaeological deposits, are sensitive tracers of local environmental conditions, providing high-resolution insights into landscape structure and climatic parameters associated with the conditions experienced by human occupations. This period is crucial for evaluating environmental dynamics linked to the progressive extinction of Neanderthals in Iberia, as well as the arrival and consolidation of modern human populations in the region, largely characterised by short and recurrent occupations until the advanced Upper Palaeolithic. The Iberian Peninsula played a key role as a refugium during unstable (MIS 3) and cold phases (such as the Last Glacial Maximum); however, environmental responses were spatially heterogeneous, and Mediterranean areas may have oscillated between temperate, favourable conditions and episodes of increased aridity. The synthesis includes sites with MIS 3 deposits (Abric Romaní, Teixoneres) as well as sequences spanning the MIS 3–MIS 2 transition (Xaragalls, Cova de l'Arbreda, Cova de les Cendres, Cova de les Malladetes and Cova Foradada), covering approximately 60,000 to 20,000 years ago. The dataset combines results from both phosphate and carbonate fractions within a unified interpretative framework, allowing direct regional comparison and integration with equivalent datasets and other proxies. The combined isotopic record indicates a predominance of Mediterranean environmental conditions, with generally temperate temperatures comparable to present-day values and no abrupt shifts throughout the sequences. Subtle isotopic variations suggest episodes of increased aridity and humidity, tentatively correlating with stadial and interstadial phases. Integrating multiple isotopic records at a regional scale, this work presents a regional isotopic curve that refines palaeoenvironmental reconstructions and contextualises human settlement patterns in the Iberian Peninsula during the MIS 3–MIS 2 transition.

1902. Pre-Holocene Climate Variability in Crete from Speleothem Stable Isotopes and Trace Elements

Authors: Vasile Ersek – Dimitra Skoulikari (Northumbria University) – George Iliopoulos (University of Patras) – Chuan-Chou Shen (National Taiwan University) – Diana Sahy (British Geological Survey) – Micheline Campbell – Hubert Vonhof (Max Plank Institute for Chemistry) – James Bendle (University of Birmingham)
Format: Oral

Crete occupies a strategic position at the crossroads of European, African, and Asian climate systems, yet it remains conspicuously absent from regional palaeoclimate syntheses covering the pre-Holocene. Here we present the first speleothem-based Last Glacial climate reconstruction for the island, using stalagmites from Chainospilios cave in central Crete. Preliminary U-Th dating indicates growth spanning ~55,000 years BP, encompassing the Last Glacial Maximum, and the Younger Dryas. Stable isotope analyses ($\delta^{18}O$, $\delta^{13}C$) are used to reconstruct regional hydroclimate variability and vegetation dynamics, while LA-ICP-MS trace element analysis will capture local environmental signals around the cave site. Together, this multi-proxy approach will reveal how this climatically sensitive region responded to major global climate perturbations and to other known regional climate events. These records will provide critical palaeoenvironmental context for Late Pleistocene faunal extinctions and early human presence on Crete, offering new evidence on human-environment interactions during abrupt climate shifts in the Eastern Mediterranean.

423. Seasonality from Mg/Ca ratios of Patella spp. during the Mesolithic-Neolithic transition in Žukovica cave (Korčula, Croatia)

Authors: Rosa Arniz-Mateos (Leibniz Zentrum für Archäologie) – Dinko Radić (Centar za kulturu, Vela Luka) – Stašo Forenbaher (Independent scholar) – Preston Miracle (McDonald Institute for Archaeological Research University of Cambridge) – Niklas Hausmann (Leibniz Zentrum für Archäologie)
Format: Oral

Mg/Ca ratios of shell calcium carbonates can be used to determine the seasonality of mollusc collection at archaeological sites. Previous studies using modern and archaeological specimens have confirmed the potential of trace element analysis and techniques such as laser-induced breakdown spectroscopy (LIBS) to provide relevant information about human behaviour and site use of prehistoric groups during the mid-Holocene in the Mediterranean. Establishing shell collection patterns is crucial to understand subsistence strategies and coastal settlement patterns of these populations. In the present study, we analysed archaeological mollusc shells (*Patella* spp.) from the Late Mesolithic to Early Neolithic contexts (7 ka cal BC - 5.5 ka cal BC) at the key archaeological site of Žukovica cave located in Korčula island, Croatia. Our aim is to identify seasonal mollusc collection patterns and to assess their role in the subsistence strategies of the communities undergoing the transition from hunter-fisher-gatherer lifeways to early herding, who inhabited Žukovica. The analysis in progress will provide high-resolution data on the timing of mollusc shell collection over a time span of 1,500 years. This approach will allow us to identify possible differences in mollusc exploitation patterns during the Late Mesolithic to the Early Neolithic periods, determining whether marine molluscs were collected year-round or only in specific seasons of the year. The results will be integrated at the excavation unit level with other archaeological findings —such as domesticated and wild terrestrial fauna, fish remains, pottery, stone tools and human bones— to have a wider overview of their subsistence economy in the context of the Neolithic dispersal across the central Mediterranean.

826. Bioapatite $\delta^{18}O$ as a Complementary Paleoclimate Proxy in Greece: Insights from the Neolithic to the Present

Authors: Elissavet Dotsika (National Centre for Scientific Research "Demokritos") – Pavlos Meratzis (National Centre for Scientific Research "Demokritos" | School of Mineral Resources Engineering, Technical University of Crete) – Platon Gamaletsos (School of Mineral Resources Engineering, Technical University of Crete) – Panagiotis-Leandros Poutoukis (CERTH, Centre for Research & Technology)
Format: Oral

Oxygen isotope records ($\delta^{18}O$) from speleothem waters are among the most widely used indicators for paleoclimate reconstruction. In the present study, however, $\delta^{18}O$ measured in bioapatite is applied as a paleoclimatic proxy. We present new bioapatite $\delta^{18}O$ data covering the period from the Neolithic to the present day in Greece, evaluated alongside regional speleothem archives. The measured values range from –15.9‰ to –2.5‰ (VSMOW-equivalent) and show marked temporal and spatial variability. Boxplot distributions and regression analyses point to a gradual long-term shift toward more negative $\delta^{18}O$ values through time (approximately –0.5‰ per millennium), as well as clear geographic patterning, with coastal sites generally yielding more enriched values and inland or mountainous regions displaying more depleted signatures. Comparison with speleothem records reveals both similarities and consistent offsets, indicating that the two proxies reflect partly different, yet complementary, aspects of climatic and environmental change. Taken together, the results suggest that bioapatite $\delta^{18}O$ represents a robust and independent archive for tracing paleoclimatic and paleoenvironmental variability in the Eastern Mediterranean. The study provides the first systematic evidence that bioapatite $\delta^{18}O$ can record hydrological signals in parallel with speleothems, offering an additional line of insight into long-term climate and human–environment dynamics in the region.

2068. A Detailed Climatic Context for Crete, Greece: Speleothem-Based Climate Reconstruction from the Late Bronze Age to Present

Authors: Dimitra Skoulikari (Northumbria University) – James Bendle (University of Birmingham) – George Iliopoulos (University of Patras) – Chuan-Chou Shen (National Taiwan University) – Diana Sahy (British Geological Survey) – Micheline Campbell – Hubert Vonhof (Max Plank Institute for Chemistry) – Vasile Ersek (Northumbria University)
Format: Oral

Crete's unique position in the eastern Mediterranean and its extensive archaeological record make it an ideal location for investigating past climate dynamics and human-environmental interactions. Despite this potential, Crete's paleoclimate remains underexplored. Intense human occupation since the Neolithic has complicated the use of terrestrial climate archives, as sediment profiles devoid of human influence are scarce. Stalagmites therefore offer a unique opportunity to provide high-resolution Holocene climate records for the island. Crete hosts thousands of caves many of which have been used by humans for millennia, meaning these archives exist near and are intertwined with human occupation sites. Consequently, paleoclimate information derived from stalagmites has direct relevance to understanding past human populations. The Holocene is marked by multiple abrupt climate change events documented throughout the eastern Mediterranean and linked to major cultural transitions. However, due to the highly variable climate across the Mediterranean, locally derived paleoclimate records are essential for exploring differences in the amplitude and duration of these events. Many studies have demonstrated variable responses between regions and within subregions, highlighting the need for additional local records to better understand past Mediterranean climate variability and human responses to it. Here we present the first speleothem-derived Holocene paleoclimate reconstruction for Crete. A stalagmite from Chainospilios Cave in central Crete, spanning from the Late Bronze Age (ca. 3,300 years BP) to near-present, is being precisely 230Th-dated and a multi-proxy approach is being employed. Coupling stable isotope ($\delta^{18}O$ and $\delta^{13}C$), LA-ICP-MS trace element, and fluid inclusion analyses will enable identification of local and regional hydrological changes, exploration of past vegetation dynamics, and reconstruction of drought episodes. This record will reveal how Crete responded to global and regional climate shifts while providing a crucial local climatic context for understanding human-environment interactions during key periods of cultural change and development on the island.

699. Rhythms of the Coast: Seasonal shellfishing during the Late Neolithic at Cabezo del Plomo (Murcia, SE Spain) through $\delta^{18}O$ values

Authors: Alberto Marchán-Fernández (University of Salamanca | GIR PREHUSAL, University of Salamanca) – Asier García-Escárzaga (University of Burgos, Burgos, Spain | IsoTOPIK Lab, University of Burgos) – Jesús F. Jordá Pardo (Universidad Nacional de Educación a Distancia | GIR PREHUSAL, University of Salamanca) – Esteban Álvarez-Fernández (University of Salamanca | GIR PREHUSAL, University of Salamanca)
Format: Poster

Cabezo del Plomo is a Chalcolithic settlement located in Mazarrón (Murcia, south-eastern Spain). The site occupies an area of approximately 3,200 m^2 and is partially enclosed by a defensive wall along its southern and western sides. It is situated on a flat-topped hill at around 90 m above sea level, from which there is a clear view of the Bay of Mazarrón and the Moreras wadi. The settlement is characterised by a stone-built wall measuring approximately 130 m in length, about 1 m in width and up to 2 m in height, and reinforced by eight bastions spaced roughly 10–15 m apart. Within the enclosed area, eleven circular stone-built structures have been documented and interpreted as huts or domestic dwellings. Archaeological excavations conducted between 1979

and 1985 investigated four of these structures, yielding abundant ceramic remains, lithic assemblages, and both marine and terrestrial faunal remains, among other materials. Radiocarbon dates place the occupation of the site between the Late Neolithic and the Chalcolithic. This poster presents the results of the analysis of marine and terrestrial invertebrate remains recovered from one of the aforementioned domestic structures. Radiocarbon dating of one of the shells assigns this assemblage to the Late Neolithic. The archaeomalacological study was first conducted from quantitative, taxonomic, taphonomic and biometric perspectives. Secondly, stable oxygen isotope ($\delta^{18}O$) analyses were carried out on specimens of *Phorcus turbinatus*, the most representative marine gastropod species in the assemblage, in order to determine their seasons of capture. The results are compared with available data from other sites of similar chronology along the Mediterranean Levant of Spain and contribute to a better understanding of marine resource exploitation at Cabezo del Plomo and along the eastern coast of the Iberian Peninsula.

1921. Palaeoenvironmental reconstruction of the Roman Basin (central Italy) during the Middle Pleistocene using oxygen and carbon isotopes from large-mammal teeth

Authors: Francesca Giustini (Consiglio Nazionale delle Ricerche) – Francesca Alhaique (Museo delle Civiltà) – Mauro Brilli (Consiglio Nazionale delle Ricerche) – Alessio Iannucci – Raffaele Sardella (Sapienza Università di Roma)
Format: Poster

The urban area of Rome and its surroundings - the Roman Basin- is one of the most significant prehistoric regions of the Tyrrhenian sector in central Italy, owing to the abundance and richness of its archaeo-palaeontological sites and materials dating to the Middle Pleistocene (MIS 15–MIS 9). The abundance, taxonomic diversity and excellent preservation of mammalian remains make the Roman Basin an exceptional context for reconstructing palaeoclimatic, palaeoecological and palaeoenvironmental conditions from a biogeochemical perspective. This study presents the results of stable isotope analysis ($\delta^{13}C$ and $\delta^{18}O$) performed on tooth enamel from large mammals (*Palaeoloxodon antiquus* and *Bos primigenius*) recovered from several sites within the Roman Basin. The specimens derive from historical collections preserved at MUST (Earth Science University Museum, Sapienza University of Rome) and at MUCIV (Museum of Civilizations, Rome) and originate from the sites of Casal Selce (MIS15), Ponte Molle and Tor di Quinto (MIS13), Castel di Guido and Malagrotta (MIS11), Sedia del Diavolo, Vigne Torte, Prati Fiscali and Batteria Nomentana (MIS9). This study will contribute to a more comprehensive understanding of how faunal communities responded to climatic fluctuations during the Middle Pleistocene. This work has been supported by the Italian Ministry of University and Research, PRIN 2022 scorrimento – Prot. 2022JWFEKE "The evolution of mammals in changing ecosystems of the Middle Pleistocene of Italy".

1943. Late Quaternary paleoenvironment of the Fucino Basin: Faunal and stable isotope evidence

Authors: Mauro Brilli (Consiglio Nazionale delle Ricerche) – Francesca Alhaique (Museo delle Civiltà) – Dušan Borić (Sapienza Università di Roma) – Emanuela Ceccaroni (Soprintendenza Archeologia, Belle Arti e Paesaggio province di l'Aquila e Teramo) – Francesca Giustini (Consiglio Nazionale delle Ricerche) – Beniamino Mecozzi (Independent Researcher)
Format: Poster

Several caves, located at approximately 700 m above sea level, open along the margin of the Fucino Basin, a tectonic depression in the central Apennines. The basin, bordered by mountain ranges reaching 2000 m a.s.l., is today an upland plain. However, during the Late Pleistocene, a shallow lake intermittently occupied the area, and it still covered about 150 km² in historical times prior to land reclamation. Several caves were excavated during the 1950s and 1960s. In the Late Quaternary, most of the caves experienced human occupation as testified by lithic assemblages and faunal remains. Radiocarbon dates constrain the stratigraphic sequences between 18 and 10 ka cal BP. Zooarchaeological evidences suggested that humans occupied this region year-round, taking advantage of the favorable microclimate created by the lake. In addition, carnivores also frequented these caves and contributed to the accumulation of bones. This contribution examines the faunal remains from four caves in the Fucino Basin: Grotta di Ciccio Felice, Grotta La Punta, Grotta Maritza, and Grotta Ortucchio. Stable isotope analyses ($\delta^{13}C$ and $\delta^{18}O$) have been performed on the enamel of 90 teeth housed at Museo delle Civiltà (MUCIV). The analyzed specimens include *Bos primigenius*, *Capra ibex*, *Rupicapra rupicapra*, *Equus ferus*, *Equus hydruntinus*, *Cervus elaphus*, *Capreolus capreolus*, and *Sus scrofa*. The aim of this research is to integrate faunal data with stable isotope signatures from diverse herbivore and omnivore taxa, investigate spatial and temporal variability in the palaeoenvironment of the Fucino Basin, and reconstruct dietary strategies of herbivorous mammals. Carbon isotope data, from -8 to -13‰ VPDB, suggest an environment dominated by C3 plants in open and dry habitats, such as grasslands and steppes. Differences among mammals reflect differences in feeding strategies and habitat preferences. The oxygen isotope data, from +23 to +28‰ VSMOW, indicate the use of local water resources.

2458. Multi-isotope analysis reveals differences in reindeer behaviour between two Last Glacial cold stages in Central Europe

Authors: Phoebe Heddell-Stevens (Max Planck Institute of Geoanthropology | Friedrich Schiller University) – Olaf Jöris (Leibniz-Zentrum für Archäologie, MONREPOS | Johannes Gutenberg University Mainz) – Michael Baales (Ruhr University Bochum) – Tim Matthies (Johannes Gutenberg University Mainz) – Martin Street (Leibniz-Zentrum für Archäologie, MONREPOS) – Thomas Higham (University of Vienna) – Petrus Le Roux (University of Cape Town) – Mary Lucas (UiT Arctic University of Norway) – Patrick Roberts (Max Planck Institute of Geoanthropology | University of Cologne)
Format: Poster

Large herbivores were integral to Late Pleistocene ecosystems, yet how they adjusted their movement and foraging strategies to rapid climatic oscillations remains unclear. Here we investigate how reindeer (*Rangifer tarandus*) responded to two severe cold stages of the Last Glacial Cycle in Central Europe. Using multi-isotope analyses ($^{87}Sr/^{86}Sr$, $\delta^{18}O$, $\delta^{13}C$) of sequentially sampled tooth enamel from reindeer assemblages at Lommersum (Aurignacian; Heinrich Event 4, ~40 ka BP) and Kartstein (Final Palaeolithic; Younger Dryas, ~12 ka BP), we reconstruct patterns of seasonal mobility and habitat use. Intra-tooth isotope profiles indicate that reindeer during the earlier cold stage maintained more consistent seasonal ranges across similar lithologies, whereas those dating to the Younger Dryas likely exploited more distinct summer ranges. We suggest that these contrasting mobility patterns reflect changes in landscape structure, potentially linked to increased habitat fragmentation during late-glacial reforestation. Our results demonstrate behavioural plasticity in a key boreal-arctic ungulate and highlight the role of vegetation dynamics in shaping the spatial ecology of large herbivores during Late Pleistocene environmental instability.

127 3D DOCUMENTATION TECHNIQUES IN ARCHAEOLOGY: OPPORTUNITIES AND CHALLENGES FROM PRACTICAL APPLICATIONS

Theme: 1. Widening perspectives in material culture studies
Organisers: Marina Weiss (Freie Universität Berlin | Humboldt-Universität zu Berlin) – Emilia Jastrzębska (Polish Academy of Sciences | Royal Lazienki Museum in Warsaw) – Philippe Kermeen (Independent) – Marco Hostettler (Institute of Archaeological Sciences, University of Bern) – Estelle Rault (Archeologie Alsace UMR 7044)
Keywords: 3D modeling, photogrametry, documentation, digital humanities, low visibility, small finds
Format: Regular session

SESSION ABSTRACT

The growing availability and user-friendly nature of digital documentation technologies are reshaping how archaeologists record and interpret finds. Although still developing as a standard workflow, 3D modelling is gaining momentum for its ability to produce non-destructive, metrically accurate, and visually rich representations of portable objects and archaeological contexts. This session offers a constructive forum for discussing current approaches, focusing on the two primary capture methods, photogrammetry (Structure from Motion) and Structured Light Scanning (SLS). Its central objective is to support archaeologists and heritage specialists in choosing the most suitable technique for their research context by comparing accuracy, workflow complexity, cost, equipment requirements, and adaptability to diverse recording environments. In addition to laboratory-based applications, the session addresses the challenges of documenting objects and contexts in environmentally or spatially constrained settings. Conditions such as low light, reflective or refractive surfaces, suspended sediments, dense vegetation, confined architectural spaces, or structural obstructions complicate accurate data capture and require tailored and often innovative methodological adaptations. By bringing together expertise from both controlled and challenging environments, the session encourages practical exchange of technical strategies and problem-solving approaches. Beyond creating visually compelling models, we emphasize how 3D data can function as a reliable analytical source for metric comparison, morphological study, typology, long-term digital preservation, and dissemination of complex archaeological evidence. We also reflect on how digital documentation informs interpretive frameworks, linking technical practice with questions of style, function, materiality, and cultural context. We welcome contributions presenting case studies from archaeology, art history, conservation, and digital humanities, as well as those comparing instruments or software, discussing field and laboratory challenges, or highlighting adaptive workflows and open-source or low-cost solutions. The session seeks to define a more integrated and methodologically resilient future for the 3D documentation of archaeological materials.

CONTRIBUTION ABSTRACTS

245. TEMPA 3D: Technological assessment of Mesolithic portable art via sumbillimeter image-based 3D modeling

Authors: Simon Radchenko (University of Stavanger)
Format: Oral

The rapid improvement in how digital data in archaeology are accessed and produced brings, on the one hand, the significant democratization in the use of these powerful tools. On the other hand, it provides a foundation for a more thorough and reflexive interpretation of 3D data. While 3D modeling, at first glance, seems scientific per se, its true research potential is revealed only after 3D documentation is complete and undergoes further processing. However, the processing stage is never linear and often raises more questions than answers, especially regarding data representation, informativeness, and the ability to be successfully extrapolated to larger datasets. To what extent can 3D data cope with research questions that we aim to answer using these methods? Is digital modelling the most rational and sustainable way to answer them? How can it be paired with other digital recording techniques? This talk aims to unpack the relationship between 3D documentation, the technological study of portable art, and other digital recording techniques within a single research framework. Building on the challenges of the TEMPA-3D research project, it

reflects on the limitations of 3D studies of portable art and examines the potential to overcome them. TEMPA 3D revealed three approaches to enhance 3D data and maximize output: a "reciprocation" approach paired with experimental archaeology or field research; a multiscale use of 3D data—from microSfM to regular photogrammetric setups; a combination of SfM with a variety of 2D imaging techniques. This approach effectively challenges the idea of 3D documentation as a self-standing means of comprehensive technological assessment of surface modifications, especially for small artifacts and portable art objects.

1364. Photogrammetric Documentation of Small Lithic Finds: A Workflow-Based Case Study of Chalcolithic Axes and Adzes from Northern Jordan

Authors: Ziyi Shao (School of Archaeology, University of Oxford | Department of Anthropology, University of Toronto)
Format: Oral

This paper presents a workflow-focused case study of photogrammetric documentation applied to small lithic finds (~5–10 cm in length), using bifacial tools from the Chalcolithic site of WZ121 near Tubna, northern Jordan. The study evaluates a controlled laboratory protocol for recording small artefacts, employing a fixed DSLR camera, turntable-based photography, adhesive clay to stabilise object orientation, and coded targets with scale bars to support reliable calibration. Photographs were captured in systematic rings from multiple elevations and processed in Agisoft Metashape through alignment, camera optimisation, and merging of dorsal and ventral image sets. This workflow produces high-accuracy, metrically reliable 3D models suitable for analytical comparison. The paper also foregrounds practical challenges encountered during implementation, including inconsistent coded-target detection, shifting camera focus during rotation, and surface artefacts caused by reflectivity. The resulting models are evaluated for their analytical potential in lithic analysis through comparison with traditional hand-drawn illustrations and orthomosaic imaging. Situating observed morphological and surface features within existing lithic and excavation literature informs functional interpretations related to heavy-duty woodworking and hafted tool use.

2310. Photogrammetry of Tower-House Figurines: A Methodological Framework for Future Research at Tell el-Ghaba

Authors: Alicia Flores Martín (Archaeological Mission at Tell el-Ghaba | Independent researcher)
Format: Oral

Tell el-Ghaba is an archaeological site dated to the Third Intermediate and Saite Periods, located in North Sinai, near the Pelusiac Branch of the Nile. Between 1995 and 2010, fieldwork conducted by the Argentinian Mission revealed the presence of two casemate structures identified as tower houses. This type of construction was widely used in several regions of Egypt and appears, according to the available data, to have been particularly prevalent in Lower Egypt. Archaeological remains of these buildings, documented in a wide range of settlements, generally consist only of foundations, which considerably limits the study and interpretation of their architectural features and functions. The first stage of this research consisted of a comparative analysis of tower houses identified at a selection of archaeological sites in the Nile Delta and North Sinai. The present study focuses on tower-house figurines. These models, which may have served as lamps, provide valuable information regarding the vertical development of these constructions, an aspect that cannot be reconstructed on the basis of the archaeological remains alone. In recent years, digital technologies have come to play a key role in archaeological research. Among them, photogrammetry has become one of the most widely used methodologies. In this study, photogrammetric analysis is applied to the tower-house figurines, allowing the creation of highly accurate three-dimensional models. These models enable detailed observation, analysis, and comparison of architectural elements, contributing to a deeper understanding of tower-house architecture. Through this approach, the present work advances not only the study of material culture but also the architectural analysis of tower houses, complementing the data obtained from archaeological excavations and opening new perspectives for future research.

157. Spinning in Circles: 3D Modelling Ring Dance Figurines from Iron Age Cyprus

Authors: Marina Weiss (Freie Universität Berlin | Humboldt-Universität zu Berlin)
Format: Oral

Ring dance figurines from Iron Age Cyprus (ca. 1125/1100–310 B.C.E.) represent some of the most visually and conceptually complex small finds within the island's coroplastic and sculptural repertoire. Composed of multiple figures arranged in circular formations, these objects challenge conventional modes of visual access and documentation. This paper builds on an ongoing doctoral project on the archaeology of dance in Iron Age Cyprus and focuses specifically on the creation and analytical use of 3D models of ring dance figurines produced through Structure from Motion (SfM). The contribution addresses two interconnected aspects. First, it reflects on methodological considerations involved in modelling ring dance figurines, whose circular compositions and densely articulated forms require particular attention during image acquisition and model construction. Rather than aiming for technical exhaustiveness, this discussion highlights how object design directly shapes documentation strategies and outcomes. Second, the paper explores how interactive 3D models contribute to the study of these figurines beyond documentation alone. Digital manipulation of the models allows for a mode of visual engagement that approximates the potential handling of the objects, making visible sequences of figures that cannot be grasped from a single viewpoint. Such modes of engagement foreground the importance of movement, rotation, and temporality in both the perception and conception of these artefacts. In this way, working with 3D models opens up new perspectives on how viewing practices are embedded in the design of ring dance figurines. By combining methodological reflection with interpretive analysis, this paper demonstrates how 3D modelling can support a more nuanced understanding of dance representations and their visual logic within the archaeological record.

708. From Excavation to Conservation: 3D Scanning and Digital Twin Analysis of Asymmetry, Deformation and Craftsmanship in a Roman Bronze Situla

Authors: Anna Gebarska (Smarttech) – Joanna Zagorska-Telega (Jagielonian University in Krakow, Institute of Archaeology)
Format: Oral

In August 2024, during archaeological excavations at a bi-ritual cemetery in Kazimierza Wielka (site 12, Świętokrzyskie Voivodeship, Poland), a bronze situla of the Eggers 18 type - a Roman import - was discovered in a cremation burial together with weaponry. The vessel is distinguished by decorative attachments and three small dolphin-shaped legs. To preserve as much technological information as possible and to support conservation decision-making, a two-stage high-resolution 3D documentation campaign was conducted: immediately after discovery and again after completion of the conservation treatment. Measurements were performed using a SMARTTECH3D MICRON3D high-resolution 3D scanner (stereo 20 MP) and SMARTTECH3Dmeasure software. A series of arbitrary cross-sections and surface analyses revealed pronounced asymmetry of the vessel body, including a critical lack of symmetry in the attachment zones, which is essential for archaeometric interpretation. "Before vs. after" model comparisons enabled evaluation of conservation impact, identification of areas affected by advanced degradation, and quantification of localized deformations and indentations (up to approximately 1.4 mm). In addition, deviation-map analysis supported the assessment of the distribution and relative volume of corrosion products and concretions. Separate 3D scanning of the handles/attachments (atazz) and the dolphin-shaped legs, combined with direct shape comparison, indicated high similarity in selected regions and differences attributable to final fitting to the vessel body. When correlated with conservation observations and material studies (including pXRF and SEM/EDS), the results support a hypothesis that some decorative details were likely produced using reusable templates and assembled using different soldering/brazing techniques. The study demonstrates that high-resolution 3D metrology is an effective tool for conservation expertise, technology-oriented comparative studies, and long-term monitoring of metal archaeological artefacts.

2264. The design, fine-tuning, and adaptation of a modern AI model for 3D pottery reconstruction

Authors: Cristina Mircea – Ioan Gabriel Mircea – Sorin Nemeti (Babes-Bolyai University)
Format: Oral

The purpose of the presentation is to introduce an AI model capable of reconstructing 3D vessels given a collection of 3D reconstructions of actual ceramic fragments found across an entire archaeological site. The first step in training involves the algorithmic generation of synthetic datasets using 3D models of pots and vessels, which are then digitally fragmented. These fragments undergo simulated erosion, tearing, and scratching to accurately replicate the conditions found in real archaeological pottery excavations. The initial version of the AI will be trained on synthetic data, but its optimization will be realized on a dataset obtained by 3D scanning actual pots and vessels that were physically created and broken into pieces. To test the model's ability to sort through real archaeological data and provide practical archaeological recommendations, a dataset comprising actual pottery fragments excavated from a real archaeological site (the Roman castrum of Potaissa in Turda, Romania) will be used for performance evaluation.

1178. Building Workflows for Building Stones – 3D Documentation of Architectural Stone Carvings

Authors: Ákos Ekrik (ELTE Research Centre for the Humanities Institute of Archaeology | ELTE Faculty of Humanities Doctoral School of History)
Format: Oral

The documentation of architectural stone carvings presents recurring challenges in archaeological practice, including limited accessibility, large size, and inadequate storage conditions. This paper aims to present and compare 3D documentation workflows for architectural stone carvings based on two case studies from Hungary. The methodological framework is primarily based on photogrammetry, which currently represents one of the most accessible and cost-effective solutions for documenting large and complex stone artifacts. The workflows developed during the author's MA and PhD research are compared in order to highlight their practical advantages, limitations, and applicability in different research contexts. The first case study focuses on the stone material of a demolished medieval parish church in Noszvaj, originally built in the 13th century and later modified during the Gothic period. The second case study examines the architectural stone carvings of the Inner City Parish Church in Pest, a monument with a complex building history spanning from the medieval period to the early modern era. Beyond documentation, the paper outlines further possibilities for data processing and analysis, including profile extraction and surface analysis. The standardized 3D datasets also provide a foundation for future database development and AI-assisted analytical systems.

2328. 3D analysis of the illumination effects in Medieval churches in Bukovina, Romania

Authors: Marc Frincu – Maitane Urrutia-Aparicio (West University of Timisoara) – Manuela Incerti (Università degli Studi di Ferrara) – Vasileia Lianou (West University of Timisoara)
Format: Oral

The Medieval Church of Patrauti, Bukovina, has been extensively documented via images and videos that show the illumination of various biblical scenes throughout the year. The illumination effects might be linked to the solstices and the equinoxes, as well as to the Easter Sunday of the foundation year (Herea, 2020), underpinning the power of the light in medieval architecture, guiding the viewers throughout the day and the year and focusing them on specific scenes. The study and reproduction of these effects is however limited by the necessity of being there in-person. As such 3D modelling of the church's interior enables a systematic and in-depth study of this illumination by using sky simulators for the period the church was built. Evidence also points to illumination effects in other churches from the same period. As a result this provides a baseline for detailed studies based on 3D models of churches loaded in tools like Stellarium. In this talk we present preliminary results on 2 churches showcasing several scanning techniques outlying their pros and cons. In addition we investigate the potential of 3D reconstruction techniques based on architectural models of churches that are no longer standing.

1225. From Ambient Light to Partial Pressures: Photogrammetric Documentation in the Submerged Cave Systems of Quintana Roo, Mexico

Authors: Loren Clark (Scripps Center for Marine Archaeology, UCSD | Cultural Heritage Engineering Initiative, UCSD) – Julien Fortin (CINDAQ) – Dominique Rissolo (Scripps Center for Marine Archaeology, UCSD | Cultural Heritage Engineering Initiative, UCSD) – Andreas Rosland – Samuel Meacham (CINDAQ)
Format: Oral

The extensive network of cave systems and cenotes across the Yucatan Peninsula preserve a wealth of archaeological and paleontological evidence. Burn features, human and faunal remains, mining pits, pottery, and structural modifications in the caves across cultural time periods make these sites attractive for research due to the fact that preservation of traditional archaeological sites on the surface is not guaranteed. These now-submerged landscapes offer scientists the unique opportunity to observe and sample features in stable, low energy settings with little to no modern disturbance. However, the same conditions that are ideal for the preservation of delicate archaeological and paleontological features, make documentation and access less optimal. Variable light conditions and complex morphology in the cave entrances, subsurface dry cave sections, and underwater cave passages make collecting, aligning, and visualizing these datasets challenging. This paper will focus on the ongoing solutions tested as part of the Human and Faunal Access project, which focuses on select submerged and partially submerged cave systems along the eastern coast of Quintana Roo and aims to tackle questions about human and faunal access and use of the caves during the Late Pleistocene/Early Holocene. In order to understand how humans and animals moved through the then-dry caves, our team has focused on creating continuous multimodal, multiresolution 3D models of the cave systems, primarily through the use of surface and subsurface photogrammetry. Due to the challenging environment, our team has created sets of optimal workflows for documenting each section of the cave environment. Beyond changing lighting and camera settings, these workflows prioritize the physical logistics involved in data collection in each area, which involve a wide range of time and equipment considerations. The challenges of working in these environments reminds us, as scientists and practitioners, the importance of evaluating our methods and datasets before beginning interpretation.

2569. Between Documentation, Visualisation and Analysis: Matching Simple Solutions to Simple Questions — Some Reflections from a Polish Perspective

Authors: Maksym Mackiewicz (Archeolodzy.org Foundation, Świdnica)
Format: Oral

The rapid development of digital imaging methods in recent decades has made three-dimensional digitisation of cultural heritage widely accessible. Photogrammetry and 3D scanning are now commonly regarded as standard archaeological tools rather than technological novelties. The growing availability of relatively inexpensive and user-friendly devices has significantly improved documentation efficiency and opened new areas of application. At the same time, 3D data are often reduced to visually appealing representations and exhibition content, while the analytical potential is frequently pushed into the background. Then applications of this techniques is justified more in terms of "modern methodology" than actual research value. The paper presents a synthesis of the author's collaboration with academics and museum professionals, based on projects conducted in Poland, in which the author - an archaeologist working with digital recording methods - was responsible for the acquisition and processing of 3D documentation. An important aspect of this cooperation was an effort to emphasise the analytical value of 3D documentation and to develop research questions that could benefit from three-dimensional data. The case studies presented in the paper include material of varied chronology and character, ranging from prehistoric stone tools analysed through comparisons of morphometric parameters to cast bronze objects examined for traces of production in the same moulds and for deformations related to use. Another important aspect concerns the enhancement of poorly visible details on objects of different scales, from the reconstruction of fine ornamentation and traces of processing to the reading of faint inscriptions. Such tasks rarely follow universal protocols and require case-specific methodological choices combined with critical assessment of the obtained results. They therefore also provide an opportunity to evaluate the methods and tools applied and to raise broader questions about possible alternative approaches to the research problems addressed.

669. Different Materials, Different Techniques, Different Algorithms — Comparable Results?

Authors: Marcin Maciejewski – Aleksander Mazurek – Patryk Maruszczak (Institute of Archaeology of Maria Curie-Skłodowska University)
Format: Poster

During the 3D digitisation of artefacts held in the collections of the Institute of Archaeology of Maria Curie-Skłodowska University, conducted to test the archaeological research data repository RADOGOST, two principal methods were employed: photogrammetry (Structure from Motion, SfM) and Structured Light Scanning (SLS). Specific advantages and limitations characterise each of these approaches. Importantly, the SLS scanner used in this project is metrologically certified, which allows not only the production of digital surrogates suitable for a wide range of analytical applications but also their use as reference models. This makes it possible to compare 3D models generated using different software packages and workflows and to assess their geometric accuracy and level of detail. The poster focuses on a direct comparison of 3D models produced using SLS and SfM. The analysis is based on artefacts manufactured from different, most frequently used raw materials, allowing us to evaluate how material properties influence the outcomes of each digitisation technique. Rather than relying on subjective visual assessment, the comparison emphasises quantitative analyses of meshes using CloudCompare software. While every digital copy of an artefact constitutes a valuable research resource—particularly given its potential for reuse across diverse analytical contexts, ease of dissemination, and the risk of damage or loss of the original object—we aim to move beyond general statements about usefulness. The results of our analyses are intended to support more informed methodological choices, taking into account specific research objectives, collection characteristics, and the financial resources available to individual research teams. This poster is part of the DARIAH-PL Digital Research Infrastructure for the Arts and Humanities (KPOD.01.18-IW.03-0013/23) project funded by the European Union NextGenerationEU, Poland's National Recovery and Resilience Plan A2.4.1 Investment in the development of research capacities Scheme A: Research Infrastructure - projects from the Polish Map of Research Infrastructure (PMIB).

2659. The world under our feet: photogrammetry record of the two restricted access tombs from ancient Naissus

Authors: Jugoslav Pendic (Institute BioSense)
Format: Poster

The site dubbed Jagodin Mala is located within urban areal of the city of Niš and represents a host of burials that have been explored since 1887/1888. They are dated to period from 313 AD to first decades of the VII century. Due to complex environment, many of the tombs are either closed off to public or made inaccessible even for expert assessment (sealed by concrete slabs or by other means). Those that are not sealed or of restricted access, are exposed to a variety of harmful effects, including water drainage, unregulated and unauthorized waste disposal and general negative effects of changing environmental conditions. The tombs that are closed off to the public are likely to fare better by a margin but remain out of reach to any interested party. There is a great need to conduct a thorough survey of all the endangered tombs, to be followed by extensive conservation activity. This poster presents results of 3D scanning process applied in low light, spatially constrained conditions of the two tombs (Sever - jug and tomb with painted figural representation of st.Peter and Paul). It makes a short resume on the conditions of the tombs and constraints encountered and delivers a more detailed representation of the solutions applied to achieve optimal reconstruction quality, ending it with discussion of the potential positive outcomes of the effort invested.

129 CULTURAL REFLECTIONS IN ARCHITECTURE AND CULTURAL HERITAGE: UNDERSTANDING THE NEW THROUGH THE OLD

Theme: 1. Widening perspectives in material culture studies
Organisers: Leif Östman (Novia, University of Applied Sciences) – Magnus Rönn (Kulturlandskapet) – Helena Teräväinen (Aalto University) – Athanasios Kouzelis (Technological Educational Institute of Athens)
Keywords: Heritage Impact Assessment, Cross cultural-analysis, Redesign, Tourist culture, Documentation of cultural heritage
Format: Regular session

SESSION ABSTRACT

This session explores how knowledge of the built environment forms a cornerstone for development related to architecture, urban design, and archaeology. By examining style, function, context, and the creation of meaning, we deepen our understanding of the values, qualities, and identities embedded in the past as means to explore issues about heritage as sustainable development. We particularly welcome perspectives that bridge theory and practice, and that address the session's core questions through comparative or cross-regional analysis. The themes for the session: 1. Use and misuse of the concept of classic design: There is growing criticism of modern architecture, with calls for a return to and reproduction of classic design. What does 'classic' mean in architecture and archaeology? Which ideologies drive the demand for classic design, and how can professionals navigate diverging values in this debate? 2. Re-design of qualities and reconstruction of historic values: There is growing criticism of modern architecture, with calls for a return to and reproduction of classic design. What does 'classic' mean in architecture, urban design, and archaeology? Which ideologies drive the demand for classic design, and how can professionals navigate diverging values in this debate? 3. Preservation and reuse: Long-term sustainability in the built environment requires preservation, maintenance, adaptation, and reuse. The session addresses how professionals can balance the tension between preservation, transformation, and sustainability,

and how to find equilibrium between renewal and conservation. 4. Heritage management and cultural tourism: Cultural heritage attracts tourism, but also brings demands for space and leisure cultures that may be foreign to the existing fabric. What constitutes authentic heritage in a changing world? How do key actors legitimize exploitation and manage cultural losses? How can Heritage Impact Assessment (HIA) provide support in legislative, operational and stakeholder dialogues.

CONTRIBUTION ABSTRACTS

155. Use and misuse of the concept 'classic' in architecture and archaeology

Authors: Athanasios Kouzelis (professor emeritus)
Format: Oral

The paper aims to investigate the origin and use of the concept 'classic' in architecture and archaeology based on the assumption that the relationship between the origin and application of the term has been a subject of theoretical antinomy. The main research question concerns what kind of morphological language characterized the so-called 'classic architecture' and how it was defined by specific technical methods and aesthetic perceptions in the era in it was created. Based on this approach, the use and misuse of the term both in architectural practice and in archaeological research work on architectural monuments of the classical era is then investigated under the light of historical criticism. The anticipated outcome of this research is a) to highlight the importance of 'classic' as a cultural resource and a factor of symbolism of architectural works b) to interpret its use in the historical evolution of architectural morphology and the archaeological research of monuments of the classical era and c) to conclusively demonstrate its misuse by hybrid approaches to classical architectural morphology, both in theory and in practice.

39. The rise and fall of modernism: The return of classicism in architecture

Authors: Magnus Rönn (Kulturlandskapet)
Format: Oral

The objective is to show how classism is reborn and replaces modernism. The story has two parts. The first part presents the rise of modernism in architecture as a response to new needs and interests expanding from the collapse of classicism through the First World War, followed by a new design. The theory assumes that architecture can be understood in a historical scheme: emergence-development-decay-disappearance. Modernism is seen as a lifespan of one hundred years in a nature cycle such as spring, summer, autumn, and winter or biologically oriented as childhood, youth, middle age, and old age. Architecture as art and technology cannot escape its recycling destiny (von Wright, 1994) The return of classicism in architecture coincides with the disappearance of modernism as a dominant pattern of thinking. The driving forces behind this cyclical process are the ability of industrialism to transform cultures through capitalist forms of production and a deeply rooted notion of architecture as expression and visualization of its contemporary society. The second part is a case study showing how place, space, and form are expressed in the transformation of modernism into a new type of classicism in architecture. Three design developer competitions in Sweden for new housing are selected as illustrative examples. The competition is future-oriented by nature and produces knowledge through design proposals. They are models illustrating how the future will look on the site if the winning solution is implemented as a built environment. For this reason, competitions in architecture can be assumed to be able to shed light on cyclical processes in society. An initial review indicates that politicians have had a dominant role in selected competitions. At the heart of the transformation is the complex relationship between politics and architecture as culture, profession, and expression of societal interests.

925. The attitude towards urban design and its shift from the International Style to Post Modernism

Authors: Urban Nilsson (Nyréns Arkitektkontor in Stockholm | In cooperation with University of Gothenburg)
Format: Oral

The International style was seen as the architectural answer to the needs of modern society. The private and public sectors joined forces during these years of modernisation. The driving narrative was progress through the shaping of a new city fabric. As the International Style reached its peak in the 1970s, in Sweden the increasing scale of the projects and a drop in artistic level, led to a debate on city planning. The pendulum of public opinion and politics swung from consensus enhancing the modern project to challenging the erasing of heritage. As a reflection of this sentiment the Swedish parliament moved back to its old building. From focusing on objects fulfilling different needs, a change can be noted towards a width in perspective where the city is seen as an organism. This postmodern attitude was reflected and spread by the Internationale Bauaustellung in Berlin in the 1980s, which was a testbed for renovating and adding within an existing city fabric. A railway yard – Södra station - was turned into a part of the city, thus overcoming barriers. The Berlin experiences echoes – street-grid, blocks, squares and parks. At present the market hall in the area is undergoing revitalisation. Klarahuset exemplifies a time where the cultural values were seen as secondary while use and image were primary, resulting in a varied exterior combining old and new. The shift of attitude in the urban design is evident in these Stockholm-cases, from 1980 -95, reflecting a rich variation of expressions. Scholars and critics would argue that the diverse landscape of urban design still is under the influence of a postmodern diversity. Yet, due to undercurrent conservative tendencies of society: are we now facing a shift to contemporary classicism?

237. Memory, authenticity, and the design tool of cultural heritage

Authors: Su Yin (UCL)
Format: Oral

Memory is a vital component in heritage conservation. It connects the past with the present, guiding efforts to sustain the heritage places. Memories of how places once looked or were used inspire current preservation actions, ensuring that the essence of these sites is retained. Heritage discourse often emphasises these memories, helping to shape the vision for future conservation. In this research, the Chinese Traditional Village— Shaozhuang Village in Shandong Province will be applied as the case study. The ponds in the village, part of the heritage management project, serve as a node to examine how very different things where the memory about the past, ponds project taken at present and expectation about future entangle together. The document analysis, interview, participant observation will be applied as methods. By valuing and incorporating collective memories, heritage management can create a more authentic and meaningful connection to the past, ensuring that cultural and historical significance is conserved for future generations.

1548. The 'classic' courtyard: a missed opportunity for the construction of modern times Athens

Authors: Antigoni Katsakou (Oxford Brookes University)
Format: Oral

The domestic architecture of classical antiquity in the city-state of Athens was based on the central courtyard. This space provided a suitable setting for the typical household's collective life, securing privacy while allowing everyday activities to unravel in the open air. Can the classical courtyard be framed as an asset for the design of contemporary collective housing in the Greek metropolis? The much-debated polykatoikia – the typical multi-storey residential building which became increasingly popular in the aftermath of World War II, and marked the rapid urbanisation of Greece's built environment – offers little opportunity for meaningful social interaction, particularly with regard to shared outdoor spaces. Nevertheless, there have been a few enlightened examples of early polykatoikias, especially from the interwar period, which utilised the courtyard as a design device to effectively organise the residents' communal life, by providing easily accessible space for respite. This paper examines a few, selected case studies of early polykatoikias, as well as relevant, more recent examples to better understand the potential of courtyards for more humane manifestations of collective housing buildings. Using typomorphological analysis and graphic diagrams, the paper reflects on the ecological and social benefits that the courtyard upholds for the effective reuse of the limited open spaces within existing polykatoikias, as well as for the future development of collective housing typologies. Ultimately, the study seeks to explore potential avenues for reconsidering well-established practices of the housing stock, using the courtyard as a design feature of 'classic' quality, while questioning the properties of what can be understood as 'classical' design.

616. Dwelling at the Margins: Meaning Making Through Building Traditions in Mwanza, Tanzania

Authors: Leif Östman (Novia, University of Applied Sciences)
Format: Oral

This paper investigates building and dwelling as existential practices in informal settlements in Mwanza, Tanzania. It argues that building traditions should not be understood as fixed cultural forms, but as lived, adaptive, and continually evolving modes of meaning making. These practices unfold in contexts marked by uncertainty and scarcity and are juxtaposed here with a comparable case from a middle class neighbourhood in Mwanza and with an emerging development in metropolitan Finland. Drawing on a phenomenological framework, the study conceptualizes building as a form of dwelling—a way in which people orient themselves in the world through constructing, reusing, and caring for their homes and neighbourhoods. This perspective highlights how the meaning of place emerges through embodied action, shared routines, and collective traditions rather than through formal representation. Building appears as an ongoing negotiation between humans, materials, and urban conditions, where heritage is understood as a dynamic process rather than an object of preservation. A reflexive discussion addresses the positionality of the European researcher and the epistemological tensions that arise when marginal building practices are interpreted through Western professional lenses. The analysis also considers the risk, from a Heideggerian standpoint, that Gestell—a techno economic mode—obscures the poetic dimensions of dwelling that persist even in precarious environments. The empirical material consists of analyses of emerging neighbourhoods, timed participatory observations along selected spatial stretches, interviews, and examinations of formal planning documents. The study facilitates the unconcealment of world making—to allow different traditions and practices to appear by placing them in dialogue with other, with thematically related environments. Ultimately, the paper demonstrates how building at the margins offers insights into human meaning making that exceed the economic rational logics dominating contemporary Western construction traditions.

1129. Crowing Tourism Extending Threats and Possibilities on Cultural Heritage Sites

Authors: Helena Teräväinen (Aalto University, School of Arts, Design and Architecture, Dep. of Architecture)
Format: Oral

Cultural heritage (cultural environment or built heritage and archaeological sites) includes objects for conservation but also interesting places to be visited, to learn about and in other responsible ways to be used. The maintenance needs financial contribution, where the local forces are not sufficient, instead visitors are usually today welcome. But obviously the attractiveness is sometimes too powerful, and cities like Venice or Rome, according to the news, would like to prevent or at least rather limit the number of tourists. The attractions on World Heritage list are benchmarking many well investigated targets, which can be used as examples also on more local cases. The UNESCO Sustainable Tourism Programme (from 2011) represents an approach based on dialogue and stakeholder cooperation where planning for tourism and heritage management is integrated at a destination level, the natural and cultural assets are valued and protected, and appropriate tourism developed. Cultural and social rights are included in the 2030 Agenda, but how is cultural heritage – evidence of human culture and history – taken account? Is cultural heritage included only part of the environmental assessments accordingly sustainable development and when is the Heritage Impact Assessment (HIA) in use? The aim of this paper is to investigate the usability of Heritage Impact Assessment in handling cultural heritage places and the tourist impacts. The research method in the first part of the study is the literature review in international scientific journals and data bases. The second part is presenting some ephemeral case studies done in recent years in places listed as UNESCO World Heritage, in those where the author has conducted field research. The places are presumably Ouro Preto in Brazil, Sassi Di Matera and Venice in Italy. The literal findings of HIA will facilitate the analysis of the development of the example cases.

651. Archaeological Data in the Study of the Spatial and Functional Structure of Lithuanian Manors

Authors: Virginija Ostasenkoviene (Klaipeda University Institute of Baltic History and Archaeology | Daugyvene Cultural History Museum–Reserve)
Format: Oral

Archaeological research on Lithuanian manor estates is still a relatively recent phenomenon. It began in the final decade of the 20th century and has intensified primarily over the past two decades. By 2023, archaeological investigations had been carried out at 247 manor estates and manor sites, accounting for nearly 40% of all protected manors. One of the key aspects of studying manor estates is their location within the landscape and their built environment, including the spatial arrangement of manor buildings, their layout, construction techniques, building materials, and functional purposes. The formation of the structural layout, development patterns, and functional zones of most manor estates extended over more than one century: some buildings deteriorated naturally, others were demolished, while still others were rebuilt or newly constructed. Certain aspects of these transformations are documented in surviving manor inventories and, more rarely, in plans. Therefore, as with other Early Modern period (16th–18th centuries) sites investigated using archaeological methods, data obtained from manor excavations must be correlated with historical information, surviving inventories, and other written and iconographic sources. Another important aspect of archaeological research is the analysis of finds recovered from the cultural layers of manor estates, such as construction ceramics (bricks, roof tiles, stove tiles, and floor tiles), plaster, window glass, and iron fasteners (nails, hinges, loops, etc.). These materials provide an opportunity to discuss, at least in part, the equipment, decoration, and interior features of manor buildings. Archaeological data thus constitute a crucial source for identifying former manor sites, investigating the development of lost manor estates, and reconstructing the characteristics and functions of their buildings. The aim of this presentation is to highlight the role of archaeological data in reconstructing the spatial structure of manor estates.

91. Reusing the Past: Early Christian Architecture and Meaning-Making in Late Antique Dardania

Authors: Zana Hoxha (Institute of Albanology - Prishtina)
Format: Poster

This poster explores how early Christian architecture in Late Antique Dardania transformed existing Roman urban and funerary landscapes through processes of reuse, reinterpretation, and continuity. Rather than representing a radical break with the Roman past, the appearance of Christian sacred spaces is examined as a negotiated dialogue between inherited architectural forms, local traditions, and emerging religious identities. Drawing on selected case studies from Dardania, including urban centres and fortified landscapes, the poster highlights how churches, martyria, and burial-related structures were embedded within pre-existing civic fabrics, necropolises, and earlier defensive sites. Architectural elements associated with Roman public, domestic, and funerary contexts were selectively appropriated and re-signified, allowing continuity in material culture while enabling new theological and communal meanings. Through spatial organization, placement, and material reuse, architecture functioned as a key medium through which the "new" Christian order was legitimized and anchored in the "old." The poster also reflects on the relevance of these ancient practices for contemporary heritage discourse. The layered character of early Christian sites in Dardania raises questions about authenticity, preservation, and sustainable reuse, particularly in regions where heritage is closely linked to identity and memory. By combining archaeological evidence with interpretative perspectives from heritage studies, the contribution demonstrates how long-term architectural transformations can inform present-day approaches to cultural sustainability. Overall, the poster emphasizes that continuity and change are not opposing forces, but interconnected processes through which societies construct meaning across time.

130 WHEN ARCHAEOLOGISTS MEET CONTEMPORARY ARTISANS: CONTRIBUTIONS AND DIFFICULTIES OF A PARTICIPATORY EXPERIMENTAL APPROACH

Theme: 1. Widening perspectives in material culture studies
Organisers: Sarah Georgel-Debedde (UMR 7041 Archéologies et Sciences de l'Antiquité) – Valentine Martin (Université Paris 1 Panthéon-Sorbonne | UMR 7041 Archéologies et Sciences de l'Antiquité | Freie Universität Von Berlin) – Elisa Eschenlauer (Université de Genève, Laboratoire d'archéologie préhistorique et anthropologie)
Keywords: Experimental archaeology, Artisan, Craftspeople, Collaboration, Participatory approach
Format: Regular session

SESSION ABSTRACT

Experimental archaeology has proven to be a valuable approach for widening perspectives in material culture studies, particularly for reconstructing chaînes opératoires. But the question of who conducts the experiments remains a methodological problem. The degree of skill exhibited by the experimenters is a pivotal factor in the formation of traces and must be considered when interpreting experimental data. Consequently, numerous scholars have emphasised the value of collaboration with expert artisans, as this allows for the construction of an experiment grounded in practiced skills. However, this approach raises critical questions about the artisan's role and the dynamics of the archaeologist-artisan partnership, which this session aims to explore. What role should artisans play in the experimental process, from the development of the protocol to the interpretation of data? Are they mere executants or active collaborators? How do they engage with archaeological questions? How does their involvement influence the outcome of experiments? For craftspeople practicing in accordance with their technical traditions, adapting to a predefined experimental framework can prove challenging, particularly when required to diverge from their routine. To what extent do the practices of artisans affect the progress of the experiment and the resulting data? At the same time, craftspeople can bring experience-based solutions that raise new hypotheses or reshape archaeological interpretations (e.g., solutions to a technical constraint, choice and adaptation of tools, organization of craft space, etc.). How can the experimental protocol exigencies be combined with the autonomy of artisans, and how can a productive dialogue be developed between archaeologists and craftspeople? Contributions reflecting on these methodological and practical issues are welcome. Submissions may focus on past, ongoing, or forthcoming projects and are encouraged to address the process of establishing collaborative protocol, the level of artisan involvement, the choice of technical context, and the lessons learned from such interdisciplinary exchanges.

CONTRIBUTION ABSTRACTS

346. Between archaeologists and artisans – universal expertise and localised skills in historical perspective

Authors: Nathan Schlanger (Ecole nationale des chartes, Paris)
Format: Oral

Western science is notably characterised by multiple encounters (often asymmetrical and occasionally coercive) between those who systematically search for explicit knowledge and those who tacitly or even unwittingly possess it – that is, between scientific "seekers" of expertise and native "purveyors" of skills. In the archaeological domain, and specifically in the study of ancient material culture and technologies, this tension connects scientific experimenters, with their explicit protocols and universalizing agendas, and craftfull artisans, engaged as part of their livelihood in materially creative activities. As it developed since the early 19th century, archaeology drew on several such encounters where "native skills", whether "primitive" (ethnography) or "vernacular" (folklore), were sought after and valued by a gradually professionalised and methodical discipline. This was the case with prehistoric stone tools and their initially controversial recognition, through artisanal insights, as genuine artificial human productions. Examples drawn from both Europe and sub-Saharan Africa will serve me to highlight some of the cognitive and ideological challenges implicated in the expert appropriation of skills.

1034. Experimental archaeology of goldsmithing and blade shapening: hand intelligence in Bronze Age Eastern Mediterranean metalwork

Authors: Romain Prévalet – Nathalie Thomas (Laboratoire ArScAn, CNRS UMR 7041)
Format: Oral

Experimental archaeology of craftsmanship and manual skills involves very close collaboration with contemporary artisans, following a strict protocol structured around a multidisciplinary methodology. Indeed, the reality of experimental studies in an artisanal context demonstrates both the ease of undertaking enriching work in the short, medium, and long term. These studies guide the protocols and results of experimental tests towards comparisons and creative hypotheses that are interesting to explore in both scientific and creative contexts. Through several examples of the reconstruction of techniques, gestures, and tools related to metalworking (gold jewelry and cutlery) in the eastern Mediterranean during the Bronze Age, our aim is to show how the experience of today's craftsmen, who do not practice their trade under the same conditions, do not perform the same gestures identically, and do not use the tools of the past, has been able to enrich our knowledge and our vision of the hand in relation to raw materials, technical

constraints, and the choice of one tool over another. Overall, it is the intelligence of the hand that we wish to highlight through the craft professions selected and presented in this study. The approach to the experience of the profession draws on a variety of methods, as well as multiple specialties and collaborations. Thus, data is obtained from a range of methods: observations at different scales and expert analysis of the designed object and the tools used at very high magnification, studies of wear and tear, recording and integration of friction, measurements and comparisons of surfaces, anthropogenic (and natural) modifications of the material, use of ancient historical literature and the work of past experimenters, such as Renaissance alchemists, and ethnographic exploration in various contexts of production and use.

1873. Collaborating with a cutler through a use-wear lens: Beaker armplates and copper daggers at the core of a participatory experiment

Authors: Julien Vitani (University of Paris 1 Panthéon-Sorbonne | UMR 8215 Trajectoires | UMR 7041 ArScAn)
Format: Oral

The function of Bell Beaker stone armplates remains debated among three main hypotheses : mere ornaments, archer's wristguards, or portable whetstones for copper blades. My doctoral research contributes to this functional debate through a traceological analysis of a French sample. To support the interpretation of the archaeological wear patterns, I conducted three experiments designed to provide traceological referential frames that may be characteristic of the three above-mentioned functional hypotheses : manufacturing stone armplates, employing them as wristguards, employing them as arm-whetstones for copper daggers. In this paper, I present the third arm-whetstone experiment, which involved the collaboration with a modern French cutler through a participatory approach. To generate sharpening traces that correspond to the archaeological possibilities, this experiment was carried out in two key stages: making a Bell Beaker-like copper dagger, then sharpening its cutting edges using Bell Beaker stone armplates replicas as arm-whetstones. Given my limited know-how in the related techniques, substantial collaborations were required, including the active contribution of a professionnal cutler. This participatory experiment is outlined here following a twofold structure. For each stage, I present the archaeological issue, experimental objectives and methodology, and the inevitably incomplete protocol I introduced to my craftsman partner. I then report how he responded to my initial inputs, addressing archaeologically-based constraints while completing the forging and sharpening protocols through his craftsmanship. Certain « unrealistic » adaptations that arose during our discussions, particularly those designed to aid the traceological reading of experimental specimens, are also highlighted. In conclusion, I reflect on the lessons learned from this two-voiced experiment. I assess the archaeological compatibility of the experimental outcomes and their relevance for the traceological analyses of the study corpus.

1202. Making and repairing a Mycenaean copper cauldron: understanding the techniques of the past with modern coppersmith

Authors: Morgane Monnier (Paris 1 Panthéon-Sorbonne | UMR 7041, ArScAn)
Format: Oral

Experimental studies specifically addressing the production of metal artefacts are being developed within research on ancient metallurgical practices. However, key questions persist regarding copper-based containers, such as the manufacture of copper and bronze sheets, the gestures and techniques used to shape and assemble them, the repair methods employed, and the criteria for distinguishing manufacturing marks from traces of use. This communication will present my experimental programme conducted collaboratively by participants with different levels of expertise: a novice, a mediator experienced in public metallurgy demonstrations, and a master coppersmith. The objective is to reproduce a Mycenaean copper cauldron from a repository of traces observed on archaeological artefacts. The experimentation pursues several aims: providing practical training in copperworking to improve understanding of the artefacts, and testing hypotheses derived from archaeological observation or formulated during the experimentation. The protocol is deliberately broad, enabling hypotheses and ideas to be explored and verified directly. This approach enables the confirmation or rejection of proposed manufacturing and repair techniques for Bronze Age copper cauldrons. My presentation will expose the initial findings and, above all, how an expert craftsman's eye looks at and interprets traces on archaeological objects. However, conducting this work in a modern workshop necessarily involves contemporary tools, which may influence the traces observed on the experimental vases. The involvement of a modern coppersmith can also shape the results, both through his material expertise and because he brings his own working methods and has to adapt them to the constraints of the experiment to reconstruct Bronze Age techniques. Discussing the approach taken in my study of copper cauldrons will offer an opportunity to examine the profits and limitations of combining modern expertise, practical experience and macroscopic observational data in defining and understanding ancient copper-alloy working techniques.

1929. The experimental approach of the AJC in Bélesta (Pyrénées-Orientales, France): methodological issues and contributions of an initial exploratory phase

Authors: Joséphine Caro (association pour les journées de la céramique | umr 5608 traces | acter) – Méline Cattiaux (association pour les journées de la céramique | umr 5608 traces) – Claire Gazaniol – Emily Hainsworth (association pour les journées de la céramique) – Manon Géraud (association pour les journées de la céramique | umr 5608 traces | inrap) – Guillaume Roguet (association pour les journées de la céramique | acter)
Format: Oral

The "Association pour les Journées de la Céramique" (AJC) was created in 1994 through a partnership between professional potters (J.-M. Giorgio and B. Bonafous) and museum curators (V. Porra and J. Pernaud). Its aim is to experiment with different techniques for shaping and firing pottery based on archaeological and even ethnographic documentation. The technological and chronological themes addressed have varied over the years. Currently, the association has around thirty members, including professional and amateur potters, archaeologists, ceramologists, geologists and museum curators. In 2025, a new cycle of experiments began on the subject of Early Neolithic productions in southern France. More specifically, the aim is to address shaping with Spiralled Patchwork Technique (SPT), recently defined on the basis of specific macro-traces observed on archaeological artefacts (Gomart et al. 2017). Within this framework, an initial exploratory approach was carried out, reproducing types of pottery and decorations characteristic of the Early Neolithic period according to specific chaînes opératoires, from the gathering of raw materials to firing (Bonafous et al. 2026). This phase, which required several working sessions spread over a year, appears crucial in the experimentation process as it establishes a dialogue between pottery artisans and archaeologists. During this phase, the archaeologist conveys the scientific issues and the available archaeological data and documents the technical gestures performed. The potter guides the technical choices at each stage of the chaîne opératoire and reports his observations, which often generate new questions. The results obtained are discussed collectively in order to improve methodological tools and further the investigations. Gradually, these exchanges lead to the development of an analysis grid based on a common language and shared knowledge. Thus, the exploratory phase lays the foundations for a protocol that can be adapted to the various research themes carried out within the framework of the AJC.

1741. Artisans and Archaeologists actively collaborating: Insights from the TERRACOT Project

Authors: Mireia López-Bertran (Universitat de València) – Jaime Vives-Ferrándiz (Museu de Prehistòria de València) – Patricia Varea-Milan (Independent scholar/artisan) – Dario Perez Vidal (Universitat de València)
Format: Oral

Focused on the study of terracotta figurines from eastern Iberia dated between the 3rd and 2nd centuries BC, the TERRACOT project aims to reconstruct technical gestures through the analysis of chaînes opératoires and embodied technological knowledge. In this context, the participation of a trained craftsperson is essential. The TERRACOT project offers a productive framework for examining the dynamics of collaboration between contemporary artisans and archaeologists. Our collaboration with a local potter and artisan allows us to test and refine hypotheses regarding the operative sequences identified in the figurines. Throughout the project, the artisan has reproduced a selected group of figurines by following the technical procedures documented during the analytical phase. The dual expertise as both an artisan and an archaeologist enables the craftwoman to engage critically with the research questions and to contribute actively to the interpretation of technical choices, gesture variability, and tool-use evidence. This partnership has significantly enriched our understanding of the repertoire of gestures involved in figurine production and has highlighted a greater complexity in the identification of tool marks.

1191. Rebuilding the Missing Dome: Experimental and Ethnoarchaeological Insights into Iron Age Earthen Ovens

Authors: Maria Carme Belarte (Institut Català d'Arqueologia Clàssica | Institució Catalana de Recerca i Estudis Avançats) – Maria Anguera – Marta Mateu (Institut Català d'Arqueologia Clàssica) – María Pastor Quiles (Universitat d'Alacant) – Marta Portillo (Institució Milà i Fontanals / Spanish National Research Council)
Format: Oral

The partial preservation of certain architectural features in the archaeological record —particularly earthen constructions— poses challenges for understanding building techniques as well as the functions and uses of these structures. This paper examines a specific category of features interpreted as domestic ovens (i.e., closed combustion structures) at Iron Age sites in the Western Mediterranean. We assume that these installations were once covered by earthen domes that are now completely or macroscopically missing. As a result, we lack information about both the construction of these domes and the ways in which food and fuel were handled inside the ovens. To reconstruct and interpret this missing knowledge, we employed experimental and ethnographic approaches. We built replicas of different types of combustion structures (hearths and ovens) based on data from Iron Age sites in the Mediterranean area of the Iberian Peninsula, complemented by ethnographic parallels. These replicas were tested through repeated firings, allowing us to evaluate their performance and their potential use for cooking. For the ovens in particular, we were able to compare the archaeological remains with contemporary structures still built and used in the Rif region, northern Morocco. The research included informal interviews and discussions with both users and craftswomen specialized in constructing these ovens, whose technical knowledge informed our understanding of construction and use. We subsequently integrated their knowledge into our experimental programme. Although the women interviewed did not take part directly in the experiments, the information obtained from discussions with them—as well as our own observations of how these ovens are used—proved essential. While we are aware of the limitations inherent in using ethnographic analogies to interpret the archaeological record, the information gathered has been invaluable for understanding how Iron Age ovens may have functioned, especially regarding fuel management and cooking processes.

2576. Joining Timber, Joining Forces: Collaborative Experimental Work in Minoan Construction

Authors: Valentin Loescher (Paris 1 Panthéon-Sorbonne University) – Paul Bacoup (UC Louvain) – Niki Apostolou (University Paris-Est Créteil | University of Thessaly) – Elena Maragoudaki (independent researcher) – Nikos

Daroukakis (independent carpenter) – Eleftheria Tsakanika (National Technical University of Athens)
Format: Oral

Wood played a fundamental role in the architecture of the Bronze Age in Greece, serving both structural elements (timber reinforcements, polythyra, windows frames, etc.) and non-load bearing elements (door leafs). One of the key issues raised by the study of Minoan architecture concerns the level of skilled craftsmanship and the technical expertise required for the design, production, and assembly of these elements. Within the framework of the ANR TiMMA project (funded by the French National Research Agency, ANR 21-CE27-0029), an interdisciplinary and experimental approach was conducted on Minoan timber structural systems (timber reinforcements in masonry, roof, door and window frames and a door leaf), incorporated in the reconstruction of a Minoan mudbrick Protopalatial building in Malia, Crete (EFA project), using Bronze Age tools. This paper presents the collaborative and interdisciplinary dimensions of the experiment. The protocol was built involving archaeologists, architects, civil engineers and craftspeople. The manual labor was carried out by archaeologists with diverse skill levels in woodworking. On site, the work was done under the guidance of a professional carpenter, whose know-how proved crucial in addressing technical solutions to material constraints, construction procedure, tools maintenance and use. Constant dialogue with civil engineers and architects also helped to adapt to the different challenges that arose during the design and construction (raw timber material, wood dryness, construction system, joints, assemblage procedure, etc.). This hands-on methodology offered a framework for learning through making. The collaborative process provided valuable insights into the scale of labor, time investment, toolkits, and woodworking techniques involved in manufacturing such architectural elements. At the same time, the interdisciplinary dialogue proved demanding, as differing professional perspectives occasionally led to long discussions, regarding procedures, methods, and expected outcomes. Drawing on this experience, the paper will try to reflect on the dynamics and value of collaborative and interdisciplinary experimental work.

1783. Acts of Art(e)Facts: Objects acting as Subjects

Authors: Annika Larsson (TexArk - The Society of Textile Archaeology & Culture Studies | Uppsala University)
Format: Oral

I have a double doctorate in archaeology and textile science. Academic competence in both disciplines is necessary for transdisciplinary knowledge about history as well as current research fronts, but also to ask relevant questions in this mixed area. However, theoretical knowledge is not enough when it comes to craft-/artistic-based research. At least one more competence must be required: practical skills. But, craft/art skills based on criteria in our own society are not always relevant for historical research. To understand foreign cultural heritage, researchers must have ability to discover and analyze latent stories hidden in different human expressions (Gadamer 1997). When meeting objects as subjects, hidden stories appear. A fourth aspect is thus demanded: cultural familiarity. Once, I had to make comparisons between expressions in Viking Age textiles and Central Asian brick-work/ceramics. Knowing almost nothing in pottery – let alone working with foreign clays, pigments, glazes, firing, and least of all when it came to high-developed Persian ceramic art compared to simple Scandinavian pots. Should I ask an Iranian ceramicist skilled in Persian techniques, although hardly familiar with Viking textile culture? Instead: From taking throwing courses supervised by well-trained craftsmen and parallel consultation with historically oriented Persian artists – who guided me through an almost endless training in copying bowl shapes, colors and pattern designs from the actual area – I began my own journey until techniques, shapes and decorations were incorporated into my own body language. After years of processing, I considered myself prepared to conduct a scientific-based dialogue with the foreign artefacts. New knowledge was now created also about the expressions in Viking textiles. Not to mention what was finally revealed when the acts-of-art(e)facts-method was integrated into a case study at Abbegg-Stiftung (Switzerland). Conclusion: Craft research laboratories for personal learning/anayzing in cultural craft/art acts is far underestimated by archaeologists.

131 PATHWAYS THROUGH THE PAST: REASSESSING SOUTH CAUCASUS ARCHAEOLOGY FROM THE NEOLITHIC TO THE EARLY IRON AGE

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Mariam Eloshvili (Ilia State University | Society of Young Archaeologists) – Ana Davitashvili (University of Warsaw | Society of Young Archaeologists)
Keywords: Caucasus Archaeology, Migration and Mobility, Trade and Exchange, Chaîne Opératoire, Environment and Landscape
Format: Regular session

SESSION ABSTRACT

The Caucasus remains one of the most dynamic and diverse regions for archaeological investigation. Despite more than a century of research, many fundamental questions about human adaptation, interaction, and cultural transformation across this complex landscape remain open. Building on the discussions initiated in our previous EAA session (#924), "Roads, Passes and Valleys? Recent Discoveries and Perspectives in Caucasus Archaeology," this continuation seeks to broaden the chronological scope from the Neolithic and Bronze Ages to include the Early Iron Age, thereby enabling a more comprehensive understanding of long-term socio-economic and cultural developments in the region. During the past year, numerous new studies have been conducted across these periods, and many of the researchers involved have expressed their willingness to present their latest results. Several participants from the previous session also encouraged the chronological extension, emphasising the need for comparative dialogue between Bronze and Early Iron Age developments. The session invites contributions that present discoveries, methodological innovations, and reinterpretations of earlier materials. We encourage interdisciplinary approaches that integrate archaeological, bioarcheological, environmental, and technological data to illuminate the connections between local developments and interregional dynamics. • Migration and Mobility – purposes, mechanisms, and consequences of movement across and beyond the Caucasus; • Trade and Exchange – raw materials, production networks, and evolving patterns of connectivity; • Chaîne Opératoire – technological practices and the life cycles of materials from acquisition to discard; • Ecology, Environment, and Landscape – human–environment interactions and adaptive strategies; • Household and Community – perceptions of domestic and social spaces in different cultural contexts; • Bioarchaeology – zooarchaeological, palaeobotanical, palynological, and human osteological perspectives. Through this expanded temporal framework and renewed focus on interdisciplinary collaboration, the session aims to foster dialogue among researchers exploring the diverse cultural trajectories of the Caucasus.

CONTRIBUTION ABSTRACTS

2463. Materialising Belief: Architecture, Ritual, and Identity at Khramis Didi Gora

Authors: Mariam Eloshvili (Ilia State University | Society of Young Archaeologists)
Format: Oral

The Late Neolithic settlement of Khramis Didi Gora, the largest known hill settlement of the Shomu–Shulaveri cultural complex in the South Caucasus, offers important evidence for exploring symbolic practices and belief systems embedded within domestic and communal space. This paper examines how ritual behaviour and symbolic meanings were materially expressed at the site, drawing on a comprehensive reanalysis of legacy excavation data from nine successive building horizons. Particular attention is devoted to architectural features and spatial arrangements that transcend purely functional interpretations. The repeated reconstruction of stable household complexes suggests the persistence of socially meaningful units closely tied to place, memory, and lineage identity. Within this framework, symbolic practices appear to have been deeply integrated into everyday domestic life rather than segregated into exclusively communal or monumental contexts. A key focus of the paper is a distinctive structure interpreted as a possible ritual building, characterised by the incorporation of ox horns into its walls, an element widely recognised as symbolically charged in Neolithic societies. The spatial entanglement of this structure with adjacent household complexes suggests that ritual activities operated at an intermediate social level, likely serving related households or lineage groups rather than the entire community. This architectural configuration points to belief systems centred on shared ancestry, household continuity, and collective identity. By situating the evidence from Khramis Didi Gora within broader discussions of Neolithic symbolism and ritual practice in the South Caucasus, this paper argues that belief systems were materially negotiated through domestic architecture, spatial continuity, and repetitive ritual acts. The site thus provides valuable insight into the ways symbolic meaning and social identity were constructed and maintained within Late Neolithic communities.

2437. The "Life Cycle" of Sickle Inserts from Khramis Didi Gora: Results of Technological and Use-Wear Analysis

Authors: Nikolozi Kakabadze (Sokhumi State University) – Mariam Eloshvili (Ilia State University) – Aleko Zavradashvili (Ivane Javakhishvili Tbilisi State University)
Format: Oral

Khramis Didi Gora is an important Late Neolithic archaeological site in the Southern Caucasus, where a wide range of stone tools reflects diverse aspects of economic activities. This poster focuses on the study of sickle inserts recovered from the site and aims to reconstruct their "life cycle," from raw material selection to final use. The technological study of the sickle inserts shows that the assemblage includes Shomutepe-type inserts, characterized by specific manufacturing traits and relatively stable forms. The treatment of the working edges and overall morphological features indicates a purposeful production process. Traceological analysis revealed use-wear traces related to the processing of plant materials, as well as residues of adhesive substances. These data confirm the intensive use of sickle inserts in agricultural activities. The quantitative distribution of the sickle inserts and the observed use-wear patterns highlight their significant functional role within the economic system of the site. The results contribute to a better understanding of Late Neolithic agricultural practices in the Southern Caucasus.

1111. Human-Animal Relationships during the Chalcolithic: Evidence from Yeghegis-1 Rock Shelter, Armenia

Authors: Satenik Mkrtchyan (Institute of Molecular Biology, National Academy of Sciences, Armenia | Max Planck Institute of Geoanthropology) – Gayane Nazaryan (Institute of Molecular Biology, National Academy of Sciences, Armenia) – Noel Amano (Max Planck Institute of Geoanthropology) – Mariam Saribekyan (Institute of Archaeology and Ethnography, National Academy of Sciences, Armenia) – Levon Yepiskoposyan (Institute of Molecular Biology, National Academy of Sciences, Armenia) – Patrick Roberts – Mariya Antonosyan (Max Planck Institute of Geoanthropology)
Format: Oral

The Chalcolithic period in the South Caucasus (c. 5500–3500 BCE) was marked by changing social organization, increased mobility, and growing economic complexity. While recent research has significantly expanded our knowledge of this period, key questions remain regarding subsistence systems, herding practices, animal exploitation strategies, the use of secondary animal products, and human adaptation to diverse environmental settings. Faunal remains from Yeghegis-1, a rock shelter in southern Armenia occupied during the late 5th and 4th millennia BCE, are examined to explore Chalcolithic lifeways in the region. By integrating taphonomic assessment, morphological analysis, and collagen fingerprinting (ZooMS), the study reconstructs patterns of bone accumulation, biodiversity, and human-animal interactions. The assemblage is well preserved, with clear evidence of anthropogenic modification to bone surfaces. Caprines dominate the faunal spectrum throughout the occupation sequence, underscoring their central role in local subsistence practices. Age-at-death distributions and culling profiles indicate mixed herd management strategies geared toward the exploitation of multiple animal products, including wool, hair, and milk. In contrast, cattle herding and hunting appear to have played a limited role in the animal economy at Yeghegis-1. These results contribute to a broader understanding of Chalcolithic subsistence and herding strategies in the Lesser Caucasus and highlight the value of combining zooarchaeological and biomolecular approaches in regional studies.

1. Tracing Prehistoric Journeys: Rock Art, Mobility, and Cultural Interaction in the Kura-Araxes Basin

Authors: Levan Losaberidze (Flinders University)
Format: Oral

The Kura-Araxes basin, located in the Southern Caucasus and often referred to archaeologically as the Kura-Araxes oikumene, has long served as a core settlement and interaction zone throughout the Holocene. Characterized by diverse landscapes – ranging from highlands to lowlands – and rich natural resources, including obsidian, copper, gold, and salt, the region played a pivotal role in the emergence and development of archaeological cultures during Late Prehistory. Beyond its archaeological significance and resource-rich landscapes, the basin preserves a substantial yet understudied corpus of rock art that offers direct insight into prehistoric lifeways. The dense network of internal rivers within the Kura-Araxes basin, shaped by past volcanic activity, created natural communication corridors along valleys that were effectively used by prehistoric communities. Within these highly interacted landscapes, local groups practiced rock art traditions depicting hunting scenes, rituals, and transport, which likely reflect aspects of their daily life, such as seasonal movements to pasturelands and long-distance journeys undertaken to access obsidian or other valuable resources. A new spatial analysis of this overlooked yet significant phenomenon suggests that rock art may represent a missing link in understanding social behaviour, cultural dynamics, and mobility networks across the region.

1215. Studying architecture through a microscope: the case of Aradetis Orgora in the Early Bronze Age

Authors: Sebastiano Claut (Università di Torino) – Giovanni Boschian (Università di Pisa) – Elena Rova (Ca' Foscari University)
Format: Oral

Aradetis Orgora is a multiperiod settlement in the Shida-Kartli region of Georgia, located on a natural hill overlooking the Kura River. Between 2013 and 2016 it was excavated by a Georgian-Italian joint expedition that revealed occupational phases spanning from the Early Bronze Age to the Hellenistic period. The Kura-Araxes period (corresponding to the KA 2 phase in the traditional tripartite periodization) is particularly significant for the architectural evidence excavated in Sector B. In spite of the limited excavated surface, this was characterised by a high heterogeneity in terms of building plans, materials and techniques unearthed in the different levels. Samples for soil-micromorphological analysis were collected from buildings, floors and different types of installations of the different phases of Kura-Araxes occupation at the site. The paper will present the results of this microscopic approach to the study of building materials, which reveals interesting otherwise not visible features and sheds light on the building processes, use and life of the analysed structures.

1336. Function and Use of Lithic Projectile Points in the Kura–Araxes Culture: Evidence from the Irmis Rka and Chobareti settlements

Authors: Aleko Zavradashvili (Ivane Javakhishvili Tbilisi State University)
Format: Oral

The Kura-Araxes culture existed during the 4th and 3rd millennium BCE and covered the territories of the South Caucasus, northwestern Iran, and eastern Türkiye. This primarily agropastoral society is characterized by a variety of lithic projectile points. Since the discovery of this culture, numerous excavations have been conducted, resulting in the discovery of a substantial number of projectile points. Based on the morphological characteristics, they are divided into three groups: tanged, concave-based, and flat-based points. The study aims to analyse projectile points from the Irmis Rka and Chobareti settlements in southwest Georgia. In addition to typological and technological assessment, the artifacts were analysed under the optical microscope in order to determine their function. As a result, several pieces show a combination of macro and micro wear traces, which is expressed in tip fractures, notching, edge scars, bright spots, and polish lines on the surfaces. According to the experimental series conducted by researchers, the use-wear traces detected on the samples are diagnostic for projectile points. However, some of the pieces show evidence of secondary use. Moreover, for source determination purposes, X-ray Fluorescence (XRF) analysis was performed on two obsidian samples, one from each site. Both of the artifacts were traced to the Chikiani source in Georgia. The results indicate

that the projectile points served both primary and secondary functions within the Kura-Araxes communities at the Irmis Rka and Chobareti settlements. Nevertheless, it remains difficult to determine whether these tools were primarily used for hunting or for intercommunal conflicts. The scarcity of wild animal remains at both sites suggests that hunting played only a minor role in the subsistence practices. In addition, the XRF analysis provides insight into patterns of raw material procurement and possible territorial movement of these populations.

1830. Dating survey sites through surface pottery. A Working Typology for the Gardabani Region of Southern Georgia

Authors: Michela Ferracin – Joel Lovat – Francesco Bianchi – Elena Rova (Ca' Foscari University)
Format: Oral

The paper will present and discuss the preliminary list of diagnostic ceramic features used by the Georgian-Italian GIGAP project for dating the sites of the 2023-2025 Gardabani survey. Although Gardabani region is strategically located in the Middle Kura valley between Georgia, Azerbaijan and Armenia, it was until recently the object of few archaeological investigations, making it, from an archaeological point of view, a poorly known area. A first chronological framework for local pottery, to be implemented and anchored to absolute dates by means of future excavations in the area, was established by focusing on visually identified fabric types, as well as on selected diagnostic items with parallels in excavated sites in the neighbouring regions. Pottery collected thus far on the field was identified as spanning from the Late Chalcolithic (?) to the Medieval/post-Medieval period, with the Late Bronze/Early Iron Age standing out as an especially well-represented phase. The later Iron Age/Hellenistic to Late Antiquity period is apparently also well represented, but needs to be further specified and internally better subdivided. Possible reasons for the absence (or non-identification) of pottery belonging to other periods (Neolithic, Early/Middle Bronze Age, etc.) will also be discussed.

1734. Dating survey sites through surface pottery. From Field Challenges to Methodological Strategies in Gardabani (Southern Georgia)

Authors: Francesco Bianchi (Ca' Foscari University) – Stefania Fiori (Kiel University) – Michela Ferracin – Elena Rova (Ca' Foscari University)
Format: Oral

Based on the experience of the 2023-2025 survey carried out in the southern part of the Gardabani district of Georgia by the GIGAP project of Ca' Foscari University of Venice in collaboration with Ilia State University of Tbilisi and Gardabani Local Museum, the paper offers a reflection on the challenges and limits posed by dating survey sites through pottery collected on the surface in areas where visibility is limited, modern disturbances pervasive, collected material scanty and mostly extremely fragmentary, and pottery sequences quite rough due to the dearth of excavated sites. Pending future excavations in the area, the association of visual fabric inspection with a preliminary list of selected, very diagnostic items derived from previous literature provided a first reference framework for dating the Gardabani survey material. One has to be aware, however, that the length of the chronological intervals that can be identified in this way is so great, and visibility and sampling problems on the field so high, that any result should be considered as a mere working hypothesis. The paper aims to spark a discussion among experts of archaeological science about the feasibility of quantitative approaches in such a context. Will they supplement our results or the methodological challenges and limits that hindered our study will also affect them?

2487. Genetic Structure and Population Dynamics of Bronze Age Communities in the South Caucasus

Authors: Cecilia Paradiso (University of Roma Tor Vergata) – Ruzan Mkrtchyan – Hasmik Simonyan (Yerevan State University) – Liana Bitadze (Ivane Javakhishvili Institute of History and Ethnology, TSU) – David Gagoshidze (The University of Georgia) – Nikoloz Gobejishvili (European University, Tbilisi and Georgian National Museum) – Revaz Papuashvili – Kristine Shavlakadze – Nino Kobalia (Georgian National Museum) – Ashot Piliposyan (Armenian State Pedagogical University)
Format: Oral

The South Caucasus played a central role in human evolution and mobility since the Upper Palaeolithic, facilitating Neolithic agricultural dispersals from Anatolia and later interactions with northern Caucasus populations contributing to Steppe-related ancestries. During the Bronze Age, it acted as a crossroads between Anatolia, the Levant, Iran, and the Eurasian steppe. Here, we present new ancient DNA data from 80 Bronze Age individuals, including 51 individuals from Armenia dating to the 3rd–2nd millennium BCE, and 29 from Georgia from 2nd–1st millennium BCE. Armenian individuals derive from five collective burials located along the shores of Lake Sevan, while Georgian individuals originate from five sites in central and western Georgia, extending to areas close to the Black Sea coast. Our aims are to characterize genetic structure and kinship relationships, shedding light on social organization and population dynamics, and to reconstruct past demographic events and ancestral genetic contributions. DNA was extracted from teeth and petrous bones and consequently sequenced using Illumina technology. Preliminary results indicate generally good DNA preservation, with endogenous DNA contents ranging from ~20% to 75%. Authenticity was supported by characteristic ancient DNA damage patterns, as well as low contamination estimates. Preliminary population genetic analyses indicate that Bronze Age Armenian individuals cluster with previously published Middle–Late Bronze Age and Chalcolithic individuals in a genetic cline from Anatolian Neolithic and Steppe ancestry, reflecting the high genetic complexity of the South Caucasus.

Ongoing work focuses on increasing genome-wide coverage beyond 0.5× to enable genotype imputation. Acknowledgment The last five authors that contributed to the preparation of this paper are: Samantha Rossini (University of Rome Tor Vergata), Paolo Abondio (University of Rome Tor Vergata), Francesca Bertoldi (University of Venice Ca' Foscari), Pier Francesco Fabbri (Florentine Museum and Institute of Prehistory) and Gabriele Scorrano (University of Rome Tor Vergata).

1377. Clay stamp seals as markers of intercultural connectivity in the South Caucasus (late 2nd and early 1st millennium BCE)

Authors: Tamar Chogovadze (Tbilisi State University)
Format: Oral

During the Late Bronze-Early Iron Age, the South Caucasus was characterized by intense cultural changes and the emergence of the different yet interconnected archaeological traditions. While intercultural interaction in this period has mostly been discussed through metal artifacts, pottery, and burials, clay stamp seals represent an understudied but highly informative type of material. This research reconsiders clay stamp seals as an alternative pathway for investigating cultural connectivity in the South Caucasus during the period of the second half of the 2nd millennium BCE and the first half of the 1st millennium BCE. The study is based on a comparative typological and stylistic analysis of clay stamp seals from Georgia, Armenia, and Azerbaijan. These objects, predominantly decorated with geometric motifs such as swastikas, spirals, crosses, concentric circles, became widespread across the region from the late 2nd millennium BCE onwards. Two main morphological groups can be distinguished. The first group is primarily associated with the Samtavro culture in Shida Kartli and includes stamp seals from Kvemo Kartli, Western Georgia, and Armenia. The second group is concentrated in Eastern Georgia - Kakheti Region and North-Western Azerbaijan (including Ganja–Gazakh and Shaki–Zagatala regions). Although both groups share general formal and ornamental characteristics, they differ in size, handle morphology, base thickness, carving depth, and motif execution. These differences point to regionally specific production traditions and suggest that clay stamp seals can be used to trace cultural boundaries in the South Caucasus. Petrographic analysis of seals from Georgia (conducted by A. Rogava, Georgian National Museum) indicates that while most seals were produced locally, occasional interregional movement of such objects did occur. By combining all the above-mentioned, this study offers a new perspective on Late Bronze–Early Iron Age connectivity and highlights the importance of the clay stamp seals in the archaeology of the South Caucasus.

1264. Assessing mobility at the Beshtasheni (Georgia), Late Bronze-Early Iron Age cemetery, through strontium stable isotope analysis

Authors: Ana Davitashvili (Department of Bioarchaeology, University of Warsaw) – Jacek Hamburg (Krukowski Polish-Georgian Interdisciplinary Research Center) – Arkadiusz Sołtysiak (Department of Bioarchaeology, University of Warsaw)
Format: Oral

This study examines patterns of human mobility at the Beshtasheni cemetery in the Tsalka region of southern Georgia. Excavations conducted between 2012 and 2016 documented 45 graves dating predominantly to the Late Bronze–Early Iron Age (second half of the 2nd millennium BCE to the beginning of the 1st millennium BCE), providing an important context for exploring population dynamics in the region. The aim of the study is to assess whether individuals buried at Beshtasheni were local to the area or originated from geologically distinct regions. Strontium isotope (87Sr/86Sr) analysis was conducted on human dental enamel, which reflects environmental signatures during tooth formation time. The study integrates isotopic data with archaeological, osteological, and radiocarbon evidence. A total of 17 human and 2 animal (sus scrofa) teeth were analysed and compared with a locally established bioavailable strontium baseline derived from modern plant samples. The results show that most individuals exhibit strontium isotope ratios consistent with the local baseline. Human values closely overlap with those obtained from pigs, assumed to reflect local feeding conditions, indicating predominantly local childhood origins. Although some isotopic variability is present, only four individuals fall outside the main human–faunal cluster. Three of them are still within the local bioavailable 87Sr/86Sr range, suggesting limited individual mobility rather than large-scale migration. Overall, the strontium isotope evidence indicates a largely local population at the Beshtasheni cemetery, with minor variation reflecting movement within the broader local landscape or the presence of a small number of non-local individuals.

1234. Archaeological excavations at the Bronze Age sites of Doghlauri and Berikldeebi (Central Georgia): Preliminary Results of the 2025 field season

Authors: Nikoloz Gobejishvili (European University | Georgian National Museum) – David Gagoshidze (The University of Georgia) – Kristine Shavlakadze (Georgian National Museum)
Format: Oral

The 2025 field season at Doghlauri and Berikldeebi, located in the Shida Kartli region of Central Georgia, revealed burials dating from the Early Bronze to the Late Bronze-Early Iron Age. These excavations are part of an ongoing three-year interdisciplinary project investigating population dynamics and cultural developments in the South Caucasus between the 4th and 1st millennia BCE. At Doghlauri, nine burials representing several chronological phases were excavated (five EBA, one MBA, two LBA, and one transitional LBA–EIA). These include a number of burial types, such as simple pit graves, stone-covered burials and a stone-lined chamber tomb containing multiple individuals. Variability is evident both in the disposition of the dead and in the associated grave goods - pottery, weaponry and jewelry, reflecting diverse social structure. Furthermore, several burials show evidence of disturbance and re-use, suggesting complex and long-term funerary practices. At Berikldeebi, excavations focused on a small Middle Bronze Age kurgan with a dromos. The structure contained limited human remains but substantial animal deposits and associated artifacts, suggesting ritualized practices and the secondary treatment of the dead. The kurgan intersected two Chalcolithic and one Early Bronze Age pits. This presentation outlines the excavation method, stratigraphy, burial typology, and preliminary artifact analysis from both sites. Current interdisciplinary studies include radiocarbon dating, ancient DNA, stable isotope analysis, physical anthropology, and palynological research. These approaches aim to reconstruct patterns of mobility, diet, health, and the environment to contextualize cultural transformations between the Bronze and Iron Ages within broader regional processes. The 2025 fieldwork provides a significant new dataset for Shida Kartli and establishes a foundation for integrated bioarchaeological research on long-term cultural and demographic processes in the South Caucasus.

701. Chemical and Multivariate Analysis of Ceramic Materials from the Chovdar Necropolis (Late Bronze–Early Iron Age)

Authors: Lola Ekber (Institute of Archaeology and Anthropology, ANAS)
Format: Oral

This study focuses on the investigation of the chemical composition and technological characteristics of ceramic materials dating to the Late Bronze–Early Iron Age (12th–8th centuries BC) from the Chovdar necropolis, located in western Azerbaijan. Within the scope of the research, 17 ceramic samples representing five archaeological sites were analysed using the PED-XRF method. The distribution of major oxides and selected trace elements was evaluated in order to assess raw material provenance and production technologies. The analytical results indicate that all samples are generally aluminosilicate-based materials. The dominance of SiO_2 and Al_2O_3 confirms that the raw materials primarily consisted of clay minerals and quartz components. Elevated MgO and CaO contents observed in several samples suggest the use of carbonate- and magnesium-rich additives, which likely influenced the thermal behaviour and firing properties of the ceramics. The relatively stable distribution of Fe_2O_3 reflects the use of locally available, iron-rich raw materials. The behaviour of trace elements (including Ni, Cr, Sr, Ba, Zr, Pb, Sb, Sn, among others) reveals both shared geochemical signatures and local anomalies. Conceptual PCA and cluster-based interpretations demonstrate that the samples can be broadly divided into two principal geochemical groups: one representing typical aluminosilicate-based ceramics, and the other characterised by carbonate–magnesium influence. A pronounced enrichment in Pb, Sb, and Sn observed in one specific sample suggests a functional or technological context associated with metal-related activities.Overall, the results indicate that ceramic production at the Chovdar necropolis was not based on a single, uniform technological tradition but rather involved diverse raw material choices and production strategies. This variability reflects the technological complexity and specialised production practices characteristic of the Late Bronze–Early Iron Age communities in the region.

748. Models of Temples Found in Armenia and Their Archaeological Context

Authors: Astgh Poghosyan (History Museum of Armenia)
Format: Oral

Beginning in the 12th century BCE, the significance of temples and the economic systems that developed around them increased markedly in the Armenian Highlands. The temple, understood as a "sacred space," was conceived as the foundational structure upon which urban life could emerge. One of the clearest expressions of this growing importance is the appearance of temple models dating to the 1st millennium BCE. Although their number is relatively limited, notable examples have been uncovered in the northern regions of Armenia - particularly Tavush and Lori - as well as finds from Gavar (Gegharkunik). The majority of these models are crafted from metal, primarily bronze, with one clay specimen discovered at the Astghi Blur site near Yenokavan (Tavush). Based on their form, the models can be classified into two main categories: enclosed structures and open-air sanctuaries. The latter depict ritual scenes in which human figures are shown engaged in ceremonial acts. Whether made of metal or clay, these models provide valuable insights into the architectural features of temples of the period. In some cases, they even reveal aspects of internal design, which, when compared with archaeological data and known temple complexes, allow for partial reconstruction of the spiritual concepts, rituals, and practices of the era.

980. Fortified settlement networks on Mount Aragats' northwestern slopes: Lernakert in the Late Bronze and Early Iron Ages (15th–8th centuries BCE)

Authors: Benik Vardanyan (Institute of Archaeology and Ethnography, Armenian Academy of Sciences | Shirak Armenology Research Center, Armenian Academy of Sciences) – Sabine Reinhold (German Archaeological Institute) – Mariam Saribekyan (Institute of Archaeology and Ethnography, Armenian Academy of Sciences) – Dirk Mariashk (German Archaeological Institute) – Noushig Zarikian (Institute of Archaeology and Ethnography, Armenian Academy of Sciences)
Format: Oral

In the 2nd half of the 2nd millennium BCE, the Armenian Highland and surrounding areas underwent major socio-political transformations. It is marked by the rise of fortified settlements and strongholds, often accompanied by large cemeteries. Recent archaeological research at the northern and northeastern slopes of Mount Aragats in Armenia has shed light on settlement patterns,

land use, and the regional community hierarchy. In this context, the Lernakert archaeological sites, situated at the northwestern slopes of Mount Aragats, provide valuable insights into the socio-economic structures and defensive systems of the Late Bronze and Early Iron Ages (15th–8th/7th centuries BCE). This talk presents discoveries from Armenian–German excavations to explore the interconnected system comprising the fortresses 'Veri Berd' and 'Vari Berd', their neighboring cemeteries, and related archaeological features. The research includes (a) an analysis of the architectural and defensive components of the fortresses, (b) a review of the stratigraphic layers and material remains, (c) an accurate timeline using radiocarbon dating, and (d) present how the fortresses are embedded in the local archaeological landscape by mapping graves and other landscape features, supported by GIS-based analysis. By combining the Lernakert evidence with neighboring settlement clusters, we will examine how the fortresses fit within the wider local settlement structure, their possible interconnections, and the rationale for their cemetery locations, and compare these patterns with the results of the Project ArAGATS investigations. Initial findings suggest continuous habitation and cultural evolution, reinforcing the significance of the Lernakert complex in broader discussions of the Late Bronze-Early Iron Age transition in the South Caucasus.

1584. Tracing Cultural and Trade Networks: Colchis in the Late Bronze and Early Iron Age

Authors: Gvantsa Vachadze (Georgian National Museum)
Format: Oral

This study investigates glass artifacts, including beads, pendants, and small sculptures, distributed in the Colchian culture from the Late Bronze to Early Iron Ages. Combining stylistic analysis with non-destructive laboratory methods, including LA-ICP-MS (Laser Ablation Inductively Coupled Plasma Mass Spectrometry), in collaboration with the IRAMAT CEB, University of Orleans/CNRS, our research aims to explore the role, diversity, and production recipies of glass items while tracing the cultural affiliations and potential origins of some raw glass groups. Our findings are based on data gathered from the laboratory examination of approximately 140 glass beads and fragments discovered in the collective cemeteries of Tsaishi, Ergeta, Paluri, and Mukhurcha, located in the central part of Colchis. The study not only highlights the uniqueness of certain glass artifacts but also sheds light on the economic and social interactions within Colchis and its neighboring regions. It emphasizes the exchange between Eastern and Western cultures, particularly with regions such as Iran, Mesopotamia, Syro-Palestine, and Egypt, demonstrating the far-reaching trade and cultural ties during this period.

1370. Hidden within the Colchian Marshes: New Discoveries on the Settlement System of the Kutaisi Zone

Authors: Jacek Hamburg (Krukowski Polish-Georgian Interdisciplinary Research Center) – Roland Isakadze (Kutaisi Historical-Architectural Museum-Reserve | Akake Tsereteli State University | Georgian National Museum in Tbilisi) – Shalva Buadze (Kutaisi Historical-Architectural Museum-Reserve | Akake Tsereteli State University | Niko Berdzenishvili Kutaisi State Historical Museum) – Teona Bubuteishvili (Kutaisi Historical-Architectural Museum-Reserve | Akake Tsereteli State University)
Format: Oral

Colchian settlement mounds, characteristic of western Georgia during the Bronze Age and Early Iron Age, are traditionally grouped into three major zones: the Black Sea coastal area, the extensive lowlands between the Inguri and Ghubistskali rivers, and the Kutaisi zone, which has been investigated by a Polish–Georgian team since 2021 as part of the Kutaisi Archaeological Landscape Project (KALP). These surveys have identified settlement sites to the west, south, and south-east of the city, as well as within Kutaisi itself. Sites across all three zones are classified into three principal types: (A) artificial hilltop settlements fortified with moats and embankments; (B) settlements situated on natural rock hills; and (C) unfortified dune settlements located near rivers or along the seashore. Preliminary dating indicates a chronological range from the Middle Bronze Age to the Early Iron Age. A nucleated pattern of settlement expansion, along with a hierarchical system of larger settlements surrounded by smaller ones, has been observed, reflecting the development of this settlement system. The research team has documented archaeological and interdisciplinary evidence within Kutaisi (e.g., Dateshidze Hill, Gabashvili Hill, and the immediate environs of the Bagrati Cathedral) as well as in areas around the city (e.g., Sakulia, Patriketi, Meskheti, Maghlaki, etc.). The data confirm the presence of a vibrant Colchian settlement during the Late Bronze–Early Iron Age period within the city of Kutaisi. Excavations conducted within the city have uncovered remains of an extraordinary canal system, as well as houses constructed using the wattle-and-daub technique, some of which employed river stones as foundations. While no excavations have yet been carried out at sites outside the city, surface surveys, pottery analysis, geoarchaeological drilling, core sampling, and radiocarbon dating of materials recovered during coring have provided valuable insights into local settlement patterns and a preliminary chronology.

874. Typology and Technology of Neolithic Mud-Brick Architecture in the South Caucasus

Authors: Nana Dalakishvili (Sokhumi State University) – Mariam Eloshvili (Ilia State University, School of Art and Sciences) – Emmanuel Baudouin (Maître de conférences, Université Paris Nanterre)
Format: Oral

Mud-brick was one of the principal construction materials in Neolithic architecture across the South Caucasus; however, its typological diversity and technological characteristics have not yet been systematically examined. This presentation offers a synthetic analysis of published archaeological data from Neolithic settlements in the region, focusing on brick morphology, dimensional

variation, tempering materials, manufacturing techniques, and surface treatment. Through a comparative evaluation of excavation reports, the study identifies both shared technological traditions and localized construction practices. These differences reflect adaptations to environmental conditions, the availability of raw materials, and functional requirements within Neolithic domestic architecture. Variations in brick composition and production techniques also provide insights into architectural decision-making related to structural stability, durability, and the organization of living space. The presentation proposes a preliminary typological framework for Neolithic mud-bricks in the South Caucasus, enabling systematic comparison between sites and contributing to a more nuanced understanding of regional architectural traditions. By integrating typological and technological perspectives, the study aims to provide a methodological basis for future research on earthen architecture and prehistoric building practices in the South Caucasus.

132 LANDSCAPES OF INTERACTION: HUMANS, ENVIRONMENT, AND TERRITORY IN THE ANCIENT MEDITERRANEAN THROUGH DIGITAL PERSPECTIVES

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Niccolò Cecconi (Sapienza. Università di Roma. Dipartimento di Scienze dell'Antichità) – Lauren Malkoun (New York University Institute for the Study of the Ancient World) – Claudia Moricca (Sapienza università di Roma. Dipartimento di Biologia Ambientale)
Keywords: Landscape Archaeology, Digital Archaeology, Bioarchaeology, Mediterranean Archaeology
Format: Regular session

SESSION ABSTRACT

This session explores the dynamic relationships between humans and their environments in the ancient Mediterranean, highlighting how digital methodologies can deepen our understanding of these interactions. It aims to reconstruct and interpret ancient landscapes as evolving spaces shaped by both natural processes and human agency by integrating archaeological, environmental, and digital data. Digital tools such as relational databases, GIS platforms, and spatial modeling play a crucial role in transforming fragmented evidence into structured systems of knowledge. Therefore, this session hopes to encourage discussion that addresses shared methodologies and infrastructures for managing heterogeneous datasets (textual, cartographic, iconographic, architectural, environmental, three-dimensional, paleo-/archaeobotanical, and bioarcheological) within coherent spatial and chronological frameworks. We invite contributions that investigate the spatial dimension of human experience and the long-term processes linking cultural and ecological change. Particular attention is given to multi-layered and diachronic contexts ranging from the Protohistoric to the Medieval periods where environmental and historical reconstructions shed light on settlement dynamics, resource management, and the transformation of territorial systems. Case studies addressing diverse Mediterranean settings, i.e. mountains and plains, rivers and lakes, coasts and islands, deserts and valleys, are especially encouraged, as are papers exploring how communities adapted to and reshaped their surroundings over time. We particularly welcome research grounded in paleoenvironmental reconstructions and studies that examine how geographical and ecological factors influenced social organization, landscape perception, and the evolution of territories in the ancient world. In line with the FAIR principles, the session promotes open, interoperable, and reusable research practices. By fostering shared and sustainable models of data management and analysis, it seeks to advance collaborative and interdisciplinary approaches to the study of human–environment interactions across the ancient Mediterranean.

CONTRIBUTION ABSTRACTS

1987. Open-Access Remote Sensing for Monitoring and Multi-Hazard Assessment of Cultural Heritage Sites

Authors: Kyriakos Michaelides – Stylianos Hadjipetrou – Stavros Patsalides – Marinos Ioannides – Athos Agapiou (Cyprus University of Technology)
Format: Oral

Remote cultural heritage sites are increasingly affected by environmental and human-related pressures that threaten their preservation and long-term stability. Soil erosion, flooding, landslides, urban expansion, and uncontrolled tourism are among the main factors contributing to site degradation, while climate change further intensifies these processes through changing environmental conditions and more frequent extreme events. Although remote sensing and geospatial technologies have advanced significantly, many existing monitoring approaches remain fragmented and difficult to apply consistently across large or remote areas. This research is developed within the framework of the ARGUS project (Non-destructive, scalable, smart monitoring of remote cultural treasures), funded by the European Union under the Horizon Europe programme (Grant Agreement No. 101132308). ARGUS aims to advance preventive preservation strategies for remote built heritage by developing digital tools for effective monitoring that combine advanced digitisation approaches, non-destructive monitoring methods, artificial intelligence technologies, and decision-support tools for risk assessment and mitigation. Within this framework, the present study focuses on the use of open-access remote sensing datasets and complementary geoenvironmental information for the monitoring and assessment of threats affecting

remote heritage sites. The proposed methodology combines satellite and aerial data analysis with GIS-based modelling and temporal analysis to identify and evaluate multiple hazard factors affecting cultural heritage landscapes. The integration of heterogeneous datasets within a multi-hazard framework enables continuous observation of site conditions and supports a better understanding of how risks evolve over time. The results demonstrate that open-access remote sensing data can support efficient, repeatable, and scalable monitoring strategies, offering practical tools for heritage management and conservation planning, and highlighting the added value of interdisciplinary digital approaches for protecting cultural heritage amid ongoing environmental and societal change.

1729. Laying the Foundations: A Preliminary Analysis of the Character and Landscape Context of Urbanising Communities in the Iron Age Mediterranean

Authors: Dominic Pollard (University of Cambridge) – Manolis Mavromatis (New York Univeristy) – Christina Stefanou (New York University)
Format: Oral

The middle centuries of the first millennium BCE witnessed the widespread development of urban and urbanising political communities across the Mediterranean. While the regional manifestations of this trend have been variously discussed and compared, few attempts have been made to systematically collate, digitise and comparatively analyse data on Iron Age urban sites in their landscape contexts across the Mediterranean basin. The result is that much remains implicit about our understanding of the fundamental dimensions (scale, population, density, territorial extent etc.) of urbanisation in the Iron Age Mediterranean, and the degree of variability in these metrics within and between regions. In this paper, we present the preliminary analyses of a large, GIS-based dataset of urban sites from across the Mediterranean world in the mid-first millennium BCE, incorporating Iberia, the Central Mediterranean, the Aegean, Cyprus, and the Levant. We examine the distributions of indices of urban development across these sites, to better establish their range and variability, as well as the environmental correlates of site locations (elevation, topography, distance to coasts, cultivability etc.) to draw out commonalities and contrasts in how such communities were oriented in relation to their local landscapes. Finally, based on a second, higher-resolution dataset of digitised archaeological surveys from three case study regions, we situate the development of these urban centres within their regional demographic and settlement histories, to illustrate the diachronic processes by which urban communities emerge via the opportunities and constraints of their local landscapes. Inspired by similar comparative studies of urban sites in the Bronze Age (e.g. Whitelaw 2017), our aim is to better clarify the characteristics, variability, and regional distinctiveness of urbanisation in the Iron Age Mediterranean.

912. Modelling the impacts of the deep mythic past on the historical Mediterranean with MANTO

Authors: Greta Hawes (Macquarie University)
Format: Oral

MANTO (https://manto.unh.edu/viewer) is a born-digital LOD resource that models the spatial dynamics of Greek myth through the data collected from heterogeneous ancient sources (texts, material artifacts, inscriptions, and papyri). Its data adhere to FAIR principles and are available for reuse under a cc-by-nc licence. In this paper, I describe the ways in which MANTO offers new perspectives on how the physical landscape of the historical present was conceptualised in antiquity as shaped by mythic events in the deep past. These connections encompass a range of formally separate phenomena, including physical survivals (the preservation of mythic relics), local cultic and artistic practices, onomastic assertions (eponymic and etymological traditions) and disputes over the 'real' locations of mythic events. In systematising and capturing these connections, MANTO's ontology surfaces phenomena that had been largely ignored in analogue resources dedicated to ancient storytelling. Building a resource using digital tools allowed us to both reconceptualize the nature of Greek mythic knowledge, and to structure this knowledge using networks and maps, rather than the linear lists of past encyclopedias. This technological shift facilitates new possibilities for analysing and visualising the deep past of the Mediterranean, as well as the historical contingencies that supported the storytelling that created these stories. MANTO thus encourages a deeper and more nuanced understanding of the cultural landscape of antiquity.

816. A River, Hills, and the City: Long-Term Transformation of the Southeastern Athenian Landscape (from Neolithic to the Byzantine period)

Authors: Lauren Malkoun (New York University - Institute for the Study of the Ancient World) – Niccolò Cecconi (Sapienza Università di Roma) – Anthi Konstantakopoulou (Independent researcher)
Format: Oral

The southeastern sector of Athens - encompassing the Olympieion, the Ilissos Valley, Cynosarges, the suburb of Agrai, and the area of the present-day National Garden - offers a key case study for examining long-term interactions between human communities and their environment. This part of the city is defined by a complex geomorphological setting, consisting of a coastal fluvial plain associated with the Ilissos river basin, punctuated by limestone hills such as the Acropolis and Mount Lycabettus, and by continuous human occupation since the Neolithic period. These characteristics have generated a stratified landscape in which natural processes and human agency have been closely intertwined over time. This paper proposes an interdisciplinary methodological framework aimed at reconstructing the paleoenvironment and historical landscape of this area through the integration of topographic and territorial analyses with the systematic organization of heterogeneous datasets. Archaeological, geomorphological, and paleoenvironmental evidence are examined in conjunction with historical, literary, epigraphic, geographical, and cartographic sources,

allowing for a critical assessment of both the physical evolution of the terrain and the social and cultural practices that shaped its use. Literary and epigraphic sources provide insights into cultic, social, and administrative activities linked to specific places; geographical and cartographic evidence contributes to the reconstruction of territorial organization and landscape change; geomorphological and environmental data clarify fluvial dynamics and natural transformations; and archaeological remains document settlement patterns, infrastructure, and material interventions in the landscape. Relational databases, GIS platforms, and spatial modeling techniques are employed to manage, correlate, and analyze these diverse datasets within a coherent spatial and chronological framework. Through this integrated approach, the landscape is interpreted as a dynamic and adaptive system, continuously reshaped by the interaction between environmental processes and human strategies of occupation, exploitation, and territorial transformation.

1533. Settlement Strategies, Land Use Choices, and Human Agencies: A Comparative Case Study from the Island of Kos, Dodecanese, Greece

Authors: Calla Mcnamee (University of Calgary) – Salvatore Vitale (University of Pisa) – Toula Marketou (Archaeologist of Dodecanese, retired) – Maria Michailidou (Honorary Director of Antiquities)
Format: Oral

This paper utilizes survey data to explore the environmental and social factors that impacted land use choices through the Bronze Age (BA) on Kos, Dodecanese, Greece. Between 2018-2023, the Kos Archaeological Survey Project (KASP) conducted an intensive and fine-grained pedestrian survey covering over ca. 1000 hectares of the northeastern sector of the island and incorporating artifact counts and surface collection at 10m intervals. Through this work and its documentation in an integrated database linked to ArcGIS, we examine how the spatial distribution and intensity of land use changed through time. We combine our archaeological spatial information with coarse and fine grained digital data on landscape and environmental characteristics, such as landform, slope, and vegetation, while addressing the difficulties of obtaining and integrating environmental and archaeological data of different scales. Despite these methodological questions, our work suggests that environmental characteristics, particularly those directly related to subsistence practices, such as proximity to arable land and grazing habitats, factored into the patterns of land use and settlement choices through time. At the same time, we propose that human agency, as well as demographic and socio-cultural changes, including population expansions and contractions, regional interactions, and increasing social stratification, also contributed significantly to land use decisions. While our paper focuses on the Koan BA, evidence from two other major chronological phases, the Hellenistic to Late Roman and the Byzantine periods, provide comparative case studies that further illustrate the diversity of factors contributing to settlement dynamics on the island.

2361. Tracing the ancient in contemporary landscape: a multidisciplinary diachronic study of the hinterland of the Greek colony of Abdera (Greece)

Authors: Isabel Mattuzzi – Josep Maria Palet Martínez (ICAC - Catalan Institute of Classical Archaeology) – Eurydice Kefalidou (National and Kapodistrian University of Athens) – Merkouris Georgiadis (University of Crete) – Maria Chrysafi (Ephorate of Antiquities of Xanthe) – Constantina Kallintzi (Emeritus Ephor of Antiquities of Xanthe) – Alfredo Mayoral Pascual – Arnau Garcia-Molsosa (ICAC - Catalan Institute of Classical Archaeology)
Format: Oral

This work focuses on long-term human occupation and landscape transformations in the hinterland of the Greek colony of Abdera since its foundation by Ionian settlers in the seventh c. BC. Its aim is to discuss the diachronic evolution of settlement organization and territorial structuration, by analyzing the relationships between settlements, mobility networks and physical context, considering taphonomic biases and evaluating the role of environmental and historical factors. The research adopts a multidisciplinary approach combining: 1) chrono-typological quantification of sites using legacy datasets, remote sensing and extensive survey; 2) detection of historical landscape features (road networks, field systems and geomorphological features) preserved in contemporary landscape or visible in historical cartography and aerial photographs, followed by their classification and regressive analysis, based on morphology, written sources, relations with sites, and radiocarbon dating; 3) integration of archaeological and geomorphological data, enriched with the study of pedo-sedimentary sequences. Extensive survey allowed to confirm the information about 73% of previously known sites surveyed, identify new chronological phases in at least 2 cases, and locate about 20 new sites. A dense network of roads, paths and tracks have been detected, highlighting superimposed radial and orthogonal systems from different periods and distinct developmental stages of the main communication axes. Several elements of the historical road network have also been documented in the field (e.g. remains of stone paving and entrenched paths). GIS analyses further contribute to assessing the relationships between settlements, mobility networks and physical environment. These results significantly improve previous knowledge of settlement systems and communication networks, while highlighting the relevant, but not exclusive, role of topography and geomorphological processes in landscape structuration. This study illustrates how multidisciplinary approaches, supported by GIS-based digital tools, enable the integration of heterogeneous data, contributing to a deeper understanding of human-environment interactions and long-term landscape shaping processes in ancient Mediterranean.

718. Digital Archaeobotany for Ancient Landscape Reconstruction: the ARBOREA Database

Authors: Claudia Moricca – Rachele Nicolini (Sapienza University of Rome) – Erasmo Di Fonso (University of Bari Aldo Moro) – Laura Sadori (Sapienza University of Rome)
Format: Oral

Archaeobotanical data are essential for reconstructing long-term human-environment interactions, yet plant macro-remains remain unevenly integrated into digital landscape studies of the ancient Mediterranean. This paper presents ARBOREA – ArchaeoBOtanical geoReferenced rEcords of Ancient Italy, a relational and GIS-enabled database developed to collect, standardize, and compare published archaeobotanical data on plant macro-remains from central Italy, spanning Protohistoric to Modern contexts. The contribution is framed within the broader research activities of Spoke 8 of the NRRP project CHANGES, which aim to bridge critical gaps in the state of the art of Italian archaeobotany through two complementary strategies: the study of plant remains from previously unpublished archaeological contexts and the digitalization of archaeobotanical heritage. Digitalization efforts include the production of systematic high-quality photographic documentation of selected archaeobotanical collections and the development of shared digital infrastructures for data organization and reuse. Within this framework, ARBOREA was conceived as a dedicated platform to address the fragmentation and limited accessibility of archaeobotanical legacy data, which are often dispersed across publications and grey literature. The database integrates taxonomic, chronological, and spatial information within a coherent structure and offers a web-GIS interface for exploring assemblages across different ecological settings and archaeological contexts, including settlements, sanctuaries, and fortified sites. This enables multi-scalar and diachronic analyses of plant use, vegetation dynamics, and resource management practices, contributing to the reconstruction of ancient landscapes and territorial systems. Designed according to FAIR principles and interoperable with national initiatives such as BRAIN (Botanical Records of Archaeobotany Italian Network), GNA (Geoportale Nazionale Archaeologia), and ArcheoSITAR (Sistema Informativo Territoriale Archeologico di Roma), ARBOREA demonstrates how structured digital approaches can enhance the role of archaeobotany in interdisciplinary research on human–environment interactions in the ancient Mediterranean.

2316. Beyond Otium and Negotium: a multi-proxy study of the Villa of Titus and its environmental context (Rieti, Lazio)

Authors: Erika Zane – Erica Rowan – Simon Blockley (Royal Holloway University of London) – Myles Mccallum (Saint Mary's University)
Format: Oral

Roman luxury villas set within visually striking landscapes are often simplistically interpreted as spaces of otium, framed through models that privilege leisure and display while neglecting production. Such interpretations have contributed to a separation between residential and productive spheres, frequently rejecting the concept of the villa as an integrated economic unit. This paper challenges these assumptions through a multi-proxy investigation of the Villa of Titus (Lazio, Italy), a 1st-century CE villa overlooking Lake Paterno, near the ancient Via Salaria. By situating the villa within its wider environmental and territorial context, the study reassesses the relationship between elite residences, agricultural production, and landscape exploitation. Since 2018, the site has been excavated by a joint research team from Saint Mary's and McMaster Universities. Within this broader project, an interdisciplinary collaboration between the Classics and Geography departments at Royal Holloway University has undertaken extensive environmental sampling. Archaeobotanical data (plant macrofossils, charcoal, pollen, and fungal spores) from both the archaeological site and Lake Paterno were analysed. Furthermore, environmental variables of the surrounding landscape were modelled using a GIS platform to produce agricultural potential maps of the studied areas, reconstruct land use, and evaluate locational choices linked to environmental aspects. The results indicate a central role for agriculture across the villa's Roman phases and throughout successive occupation periods (1st century BCE–9th century CE), suggesting that productive activities were significant to the villa's economy. This case study demonstrates that elite residential display and agricultural production were not mutually exclusive but often deeply intertwined. By questioning the enduring otium/negotium dichotomy, this paper highlights the value of multi-proxy and digitally integrated approaches for revealing often-overlooked aspects of the Roman landscape and for advancing more nuanced interpretations of human–environment interactions in Roman Italy.

703. Reconstructing the Ancient Landscape of Southern Umbria. An Integrated Digital and Interdisciplinary Framework

Authors: Niccolò Cecconi (Sapienza. Università di Roma. Dipartimento di Scienze dell'Antichità)
Format: Oral

This paper presents an interdisciplinary methodological framework for the analysis and interpretation of ancient landscapes, aimed at reconstructing long-term processes that shaped the relationships between human communities and their environments. The proposed approach combines territorial analysis with the systematic organization and integration of heterogeneous datasets, including archaeological, historical, cartographic, environmental, and topographical evidence. Digital tools play a central role in this framework, particularly relational databases, GIS platforms, and spatial modeling techniques, which enable the correlation, visualization, and interpretation of data within a coherent spatial and chronological structure. The methodology is applied to a case study in central Italy, focusing on southern Umbria and specifically on the lower Valnerina area, encompassing the municipalities of Terni, Arrone, Montefranco, Ferentillo, and Polino. This region is characterized by a complex geomorphological setting and a long-term continuity of human occupation from the Protohistoric period through the Middle Ages. By integrating archaeological records, paleoenvironmental indicators, and historical sources, the landscape is interpreted as a dynamic system continuously reshaped by the interaction between natural processes and human agency. A diachronic perspective allows for the identification of settlement strategies, patterns of resource exploitation, transformations in territorial organization, and adaptive responses of local communities to the opportunities and constraints posed by fluvial and mountainous environments. Particular attention is given to the role of river systems, communication routes, and marginal zones in structuring settlement dynamics over time. Ultimately, the paper aims to contribute both to the historical reconstruction of the lower Valnerina landscape and to a broader methodological discussion on the role of digital technologies in the study of long-term human–environment interactions, supporting interdisciplinary research, heritage protection, and landscape management strategies.

525. LiDAR and landscape archaeology: a case-study from Sellano (PG) between prehistory and the Middle Ages

Authors: Matelda Albanesi – Maria Romana Picuti (Independent Researcher) – Andrea Conte (Sapienza University of Rome)
Format: Oral

This paper presents the preliminary results of a landscape archaeology project focusing on the territory of Sellano (PG), with particular emphasis on the integration of existing archaeological records and remote sensing data, especially LiDAR. The study area, situated between the Umbra Valley and the Nera Valley, remains relatively underexplored archaeologically and is characterised by considerable morphometric and morphological complexity. As such, it provides a suitable framework for a systematic assessment of long-term settlement dynamics from prehistory to the medieval period. The research began with the identification and mapping of known archaeological sites based on bibliographic and archival sources, alongside data from previous field surveys. In parallel, the examination of LiDAR datasets — currently only partially available for the area — enabled an evaluation of the detectability of recorded sites and the identification of topographic anomalies potentially indicative of previously undocumented archaeological features. On this basis, broad chronological phase maps were developed to outline general trends in patterns of territorial occupation. Particular attention is also given to the morphometric properties of settlements, with the aim of identifying recurring locational preferences and settlement patterns between prehistory and the Middle Ages. The study ultimately aims to assess the value of LiDAR not only as a tool for site detection, but also as an instrument for territorial analysis capable of integrating diverse datasets and offering new interpretative perspectives on the historical development of the Umbrian landscape.

2052. Deep Connectivity at Abellinum: Integrated GPR and UAS Approaches in Mediterranean Archaeology

Authors: Alessandro Visconti (Università degli studi di Salerno)
Format: Oral

Recent advances in non-invasive methodologies are profoundly reshaping landscape archaeology, particularly in complex Mediterranean hilly inland contexts where accessibility, vegetation cover and deep stratigraphy constrain traditional fieldwork. This study presents an integrated, multi-scalar framework combining low-frequency Ground-Penetrating Radar (GPR) and high-resolution Uncrewed Aerial Systems (UAS) photogrammetry to investigate buried and exposed archaeological remains within a unified spatial model. The approach is illustrated through the case study of Abellinum, a Roman urban settlement developed on a volcaniclastic terrace overlooking a major valley corridor, where topography and human agency jointly shaped an evolving territorial system. The site, already occupied in the Samnite period, underwent significant architectural developments in the Roman period, evolving as an urban center and retaining its role in the landscape into Late Antiquity. Low-frequency GPR (<100 MHz), integrated with Real-Time Kinematic Global Navigation Satellite System (GNSS RTK) positioning and high-resolution surface models, enabled deep subsurface imaging and precise spatial correlation between buried structures and topographic features. The analytical integration of geophysical anomalies, elevation data and stratigraphic evidence, within a GIS- based framework, situates subsurface patterns within a coherent urban system adapted to the terraced morphology of the plateau, clarifying the dynamic relationship between human occupation and environmental constraints. This integrated approach reconstructs the orthogonal organization of the urban layout within the investigated sectors, confirming the continuity of the decumanus and cardo, the internal articulation of insulae and the adaptation of built structures to the morphology of the plateau. The integrated archaeological map, based on excavation records, stratigraphic and standing architectural evidence, refines the interpretation of settlement organization and movement corridors extending beyond the currently exposed remains, demonstrating how interoperable digital and geophysical frameworks enhance analytical resolution and support sustainable, non-invasive heritage management.

1947. Reconstructing the Roman Landscape Between Tilurium and Aequum Through LIDAR Data Analysis

Authors: Jelena Lapić – Miroslav Vuković (University of Zagreb, Faculty of Humanities and Social Sciences)
Format: Oral

The Roman military fortress Tilurium (present day Gardun, Dalmatian hinterland, Croatia) was most likely built at the beginning of the 1st century. Following the suppression of the Batonian revolt, two legions were permanently stationed in Dalmatia: legio XI at Burnum and legio VII at Tilurium, both receiving honorary title Claudia Pia Fidelis in 42. Legio VII remained at Tilurium until the latter half of the 1st century, when it was redeployed to the Danubian frontier in Moesia. During the first half of the 1st century, a detachment of legio XI was likewise present at Tilurium. Auxiliary units are also attested at the site. Following the departure of the VIII voluntariorum civium Romanorum, Tilurium continued to function as a beneficiarii station. Following the departure of legio VII, no further legionary units were stationed at Tilurium. Nevertheless, numerous veterans remained in the surrounding area, many of whom settled there prior to the legion's transfer to Moesia. In the aftermath of the Scribonian revolt, veterans were also settled in the newly founded colony of Aequum (present day Čitluk, Dalmatian hinterland, Croatia), which Emperor Claudius

founded after the year 45 through a land grant discharge (missio agraria). As the only colonial settlement in the interior of Dalmatia, Aequum was built on a hilltop plateau with its urban layout following a deliberately planned orthogonal layout. This study investigates the boundaries and the spatial characteristics of the legionary territory (prata legionis) as well as Roman land division system (centuriatio) using LIDAR and historical data to reconstruct the Roman period landscape between the military camp of Tilurium and the colony of Aequum. LIDAR data analysis provided evidence of the preservation of the Roman centuriation system as well as indications of the extent of the legionary territory (prata legionis) and associated structures within the specified area.

2327. Landscapes of Power: A GIS-Based Study of Hospitaller Commanderies in the Medieval Crown of Aragon (12th–14th c.)

Authors: Bet Mallofré López (Universitat de Barcelona)
Format: Oral

This paper examines the landscapes shaped by the Order of Saint John of Jerusalem within the Crown of Aragon between the twelfth and early fourteenth centuries, offering a spatial and diachronic contribution to the study of frontier societies in the medieval Western Mediterranean. While the Hospitallers have long benefited from a robust historiographical tradition, their territorial organisation—particularly the configuration of both male and female commanderies—remains insufficiently understood from a landscape archaeological perspective. This study integrates evidence from textual sources, cartographic materials, and archaeological and architectural remains with digital tools such as relational databases and Geographic Information Systems (GIS), enabling the localisation, characterisation, and diachronic analysis of Hospitaller commanderies. The resulting dataset supports the creation of an open access catalogue and facilitates spatial, chronological, and territorial analyses, including the Order's interaction with other military institutions across the Crown of Aragon. Spatial and chronological assessments further allow the examination of commanderies in relation to settlement patterns, communication routes, agricultural potential, and their relationships with other powers operating within the Crown. The results highlight how the Hospitallers' organization of the surrounding landscape enabled them to consolidate territorial power, develop their institution, and interact with a fluctuating border. By presenting the methods employed for data extraction and spatial modelling, alongside the results obtained, this contribution demonstrates how digital infrastructures and landscape-based approaches can enhance our understanding of the long term dynamics linking institutional organisation and territorial development.

1961. From cursus publicus to barīd: change and persistency of the terrestrial communication routes in the Levant

Authors: Adam Pažout (Universitat Autònoma de Barcelona)
Format: Oral

Pre-modern land-based empires relied on an intricate system of state post, comprised of roads, relay stations, road stations, inns and messengers to exercise control in the provinces and to project power from the imperial centre. Despite differences in the organisation of the systems, the role of the state communication system and the material infrastructure requirements (roads and stations) remained essentially the same throughout the ages. This opens an opportunity for a diachronic analysis of various communication systems to evaluate their functionality, performance in relaying information between different places, environmental and social circumstances and interactions that shaped them, and persistency of the routes and nodal points in time and space. The principal goal of this contribution is to unravel patterns of change and persistency of the physical infrastructure of the network(s) – roads and nodal points – in the ancient and Medieval Levant. Three different communication networks are analysed and compared: Roman cursus publicus, Early Islamic (Abbasid) and Middle Islamic (Mamluk) barīd. The data for Roman network was collected by the project Itiner-e, while data on the cursus publicus were inferred from Roman itineraries listing various mansiones and mutationes. The Early and Middle Islamic road network and barīd, digitized by the VIA-TARIQ project, is based on Arabic Medieval geographers. Spatial analysis in GIS is employed to explore a) persistency of the layout of the communication routes, b) clustering of road stations and nodal points across periods, c) coincidence of routes and natural movement corridors. Network science methods are used to explore d) change and persistence of the important nodal points using degree and betweenness centrality, and e) effectivity of the network in transmitting information using edge betweenness and closeness metrics. The interdisciplinary approach allows to evaluate the multi-faceted environmental, historical, and social factors that shaped the pre-modern communication networks in question.

557. Mapping Settlement Location Patterns through pseudo-stochastic Least-Cost Analysis

Authors: Stefano Apra (Institute for the Study of the Ancient World - New York University)
Format: Oral

FETE (From-Everywhere-to-Everywhere) was theorized by White and Barber (2012) as an advanced framework for least-cost analysis. While traditional Least-Cost Path Analysis deterministically connects predefined points, FETE models potential mobility across an entire landscape. By computing cost-based trajectories between all possible locations, FETE simulates movement patterns without aprioristic assumptions about routes or endpoints, thus overcoming some of the main limitations of LCPA. The potential of FETE in archeology is significant, as it allows us to study ancient landscapes in hitherto unseen ways, exploring the interaction between mobility, settlement patterns, and terrain morphology. Until now, no openly available software has been able to process

the amount of data generated by FETE without unrealistic computing time. This paper introduces Trajecta, a new open-source and free-to-use software developed specifically to overcome these challenges. To illustrate its capabilities and its potential in the study of the Ancient World, a trial study is at the core of the presentation. Specifically, FETE was conducted for northern Transjordan to model mobility across the region during the LBA and IA. The case study is not random: thanks to its favorable position and morphology, Transjordan is known to have been a prominent commercial crossroads. In these periods, the region was traversed by a major, yet unidentified route – the 'King's Road' – which allowed for a commercial continuum within the eastern Levant. Trade allowed Jordanian settlements to prosper. These observations lead us to ask to what extent the morphology and mobility of the territory may have influenced local settlement patterns. Thus, Trajecta allows us to address these specific questions, while also providing new and far-reaching insights into large-scale movement dynamics and their role in the interaction between humans and the landscape. White, D.A., Barber, S.B. 2012. Geospatial modeling of pedestrian transportation networks: a case study from precolumbian Oaxaca, Mexico. JAS39:2684-2696.

1484. From Text to Terrain: A FAIR, Spatial Evidence Graph for Ancient Mediterranean Ecologies (500 BCE–300 CE)

Authors: Federico Di Pasqua (University of Zurich)
Format: Oral

Understanding human–environment interactions in the ancient Mediterranean requires methods that can integrate heterogeneous evidence—texts, archaeological observations, spatial authorities, and environmental datasets—within shared spatial and chronological frameworks. This paper presents Ecologies of the Ancient Mediterranean, a spatially-aware AI research platform designed to connect place-linked ecological knowledge in ancient sources to landscapes, material evidence, and environmental reconstructions, while preserving auditability and scholarly control. The platform combines three components. First, it implements an explicit, versioned Ancient Ecology Vocabulary (e.g., water infrastructure, land-use practice, hazard event, storage/provisioning, institutional action, and crisis framing) to ensure that extraction and annotation are conceptually stable and interoperable. Second, it builds a place-anchored knowledge graph that links textual attestations (literary, epigraphic, papyrological) and archaeological records to persistent gazetteer identifiers (e.g., Pleiades) and to time-bounded entities (events, practices, interventions). Third, it layers graph-augmented retrieval over semantic search to support map-based querying and citation-driven exploration, enabling users to move systematically between (a) attested passages, (b) inferred practices/events, and (c) interpretive framings (e.g., divine causation, mismanagement, natural cycles) without collapsing these evidentiary layers into a single "fact." A case study on water management and risk in the Nile Valley demonstrates how the system aligns textual claims about infrastructure, shortage, and repair with spatial distributions of hydraulic features and selected environmental datasets, and how it can diagnose systematic divergences attributable to genre, elite bias, or uneven preservation. By foregrounding FAIR-aligned identifiers, provenance and licensing metadata, and reusable semantic layers, the platform offers a sustainable model for collaborative digital landscape research and for integrating ecological, cultural, and historical signals across the ancient Mediterranean.

1590. Archaeobotany at Carthage (Tunisia): plant use and social-cultural change during the Punic period

Authors: Cecilia Armenio (Department of Science of Antiquities, Sapienza University of Rome | Department of Environmental Biology, Sapienza University of Rome) – Lorenzo Nigro – Federico Cappella (Department of Oriental Studies, Sapienza University of Rome) – Mounir Fantar – Moez Achour (Institut National du Patrimoine, Tunis) – Laura Sadori (Department of Environmental Biology, Sapienza University of Rome)
Format: Oral

This study focuses on the analysis of plant macro-remains recovered from the Phoenician-Punic site of Carthage (Tunisia), conducted within the framework of the Archaeological Mission to Carthage, under the scientific cooperation agreement between the Institut National du Patrimoine de la Tunisie (INP) and Sapienza University of Rome. Specifically, the botanical remains were recovered through flotation from two distinct areas: the southern sector of the Dermech necropolis, within the Antonin's thermal bath complex, and the Odeon Hill, which hosts Punic tombs, two of which were sampled. The study aims to use archaeobotanical evidence from the city of Carthage to support interpretation of social, cultural, urban change through the reconstruction of plant use. In particular, this study highlights the importance of integrating archaeobotany, together with other specialized approaches, as an active component of archaeological excavations and missions. The archaeobotanical evidence from Dermech contributes to the interpretation of the reuse of the archaic funerary area, which was transformed into an artisanal zone during the 5th century BC, where plants may have played a role as raw material in industrial and craft activities. Conversely, data from the Punic tombs on the Odeon Hill provide insights into the role of plants in funerary and sacred practices, broadening our understanding of ritual behavious and mortuary traditions at Carthage. Data from Carthage will enrich a large catalogue of archaeobotanical evidence from archaeological sites of the Mediterranean basin.

1041. Satellite Imagery as an Effective Tool for Identifying and Documenting Submerged Coastal Archaeological Sites

Authors: Eliška Chimalová (University of South Bohemia in České Budějovice)
Format: Poster

Mediterranean coastal zones harbor numerous archaeological sites that have been submerged due to rising sea levels and coastal erosion. These sites are increasingly endangered, as both processes are expected to intensify in the coming decades. The documentation and protection of this cultural heritage are often complicated, since underwater archaeological research is constrained by high costs, logistical demands, and, in some cases, limited accessibility of fieldwork environments. This study demonstrates the potential of freely available satellite and aerial imagery as a low-cost, non-invasive tool for the preliminary identification and assessment of shallow submerged archaeological remains along Mediterranean coastlines. The presented methodology evaluates a structured analytical workflow based on the visual analysis of satellite imagery and its comparison with published geophysical case studies from selected Mediterranean sites. The results indicate that, under favourable environmental conditions, submerged structures such as harbours, villas, breakwaters, and other architectural remains can be identified and documented in the form of georeferenced imagery. In several cases, the results are comparable to those obtained through significantly more resource-intensive techniques, including sonar surveys and airborne laser bathymetry. The poster discusses the main advantages and limitations of satellite-based approaches and outlines potential directions for future development, including the automation of detection processes. It also highlights the effectiveness and accessibility of the proposed workflow as a tool for the monitoring of endangered submerged coastal archaeological sites.

1141. Late Chalcolithic Plant Exploitation and Agricultural Practices at Arslantepe (Türkiye)

Authors: Silvia Cristofoli – Francesca Balossi Restelli – Cristiano Vignola – Laura Sadori – Alessia Masi (Sapienza University of Rome)
Format: Poster

This study focuses on charred botanical macro-remains (seeds, fruits, and wood) recovered at Arslantepe (Türkiye), one of the earliest primary states in Southwestern Asia. The site is characterized by continuous human occupation from at least the 5th millennium BCE to the Roman-Byzantine period. This research examines plant remains from the Late Chalcolithic 2 (Period VIII in the site, 4400-4300 BCE), the earliest phases excavated so far at the site. The main objective is to reconstruct the interaction between population and the surrounding environment by investigating agricultural practices, diet, and wood exploitation. The archaeobotanical analyses were carried out on 152 samples from 17 domestic contexts. Charcoals provide information about past woodland cover and the use of wood resources. These remains, deriving from fuel and timber materials in different dwellings, indicate the presence of mainly Quercus dec. (deciduous oak), Pistacia (pistachio), Alnus (alder), and Ulmus (elm). Other taxa are Juniperus (juniper), Rosaceae Maloideae and Prunoideae (including apple, service, plum trees), Populus (poplar), Tamarix (tamarisk), and Fraxinus (ash). The identification of carpological assemblage includes a variety of seeds, fruits, and other plant parts. Cereals are dominant and are mainly represented by Triticum turgidum subsp. dicoccon (emmer), T. monococcum (einkorn), T. aestivum subsp. aestivum/T. turgidum subsp. durum (bread/durum wheat), Hordeum vulgare (barley), with minor taxa such as T. spelta (spelt), Avena (oat), and Secale (rye). Legumes are present but in lower proportions and include Lathyrus oleraceus (pea), Vicia faba (broad bean), Cicer arietinum (chickpea), and Vicia lens (lentil). Weedy plants associated to cultivated taxa are rare (Aegilops, Bromus, Galium). These results enhance the archaeobotanical research at the UNESCO site of Arslantepe and contribute to reconstruct socio-economic dynamics in a crucial period that formed the basis of the proto-state development in Türkiye.

2196. Sustenance to Ritual in Monte Cimino: an archaeobotanical perspective

Authors: Danica Desilva – Andrea Cardarelli – Lorenzo Cardarelli – Cristiano Vignola – Alessia Masi (Sapienza Università di Roma)
Format: Poster

This study investigates the Final Bronze Age archaeological site located on Monte Cimino (Soriano nel Cimino), a volcanic massif in Southern Etruria in central Italy, approximately 70 km north of Rome. The site has been extensively investigated from an archaeological perspective, allowing it to be identified as a fortified settlement with an elevated area that, due to its location and archaeological evidence, can be regarded as an acropolis, within which a monumental cult area has been excavated. This study increases that knowledge through the investigation of archaeobotanical remains that were retrieved during the excavation campaigns, thereby providing a better understanding of past human-plant relationships, with particular attention to the activities testified in the site. The analysed samples, including carpological and anthracological remains, are attributed to settlement phases 1B, 2A, 2B and 3B, all of which date to the Final Bronze Age (Protovillanovan culture, 12th-10th centuries BC), and were retrieved from contexts within the acropolis. The archaeobotanical assemblage is rich (57 taxa), mainly consisting of charcoals, charred seeds and caryopsis. The most represented taxa is Fagus sylvatica (beech) among charcoal fragments and Triticum turgidum ssp. dicoccon (emmer) and Hordeum vulgare (barley) within cereal grains. Across the investigated phases, a considerable variety of woody taxa has been identified suggesting that wood resources were exploited for different purposes, including construction and fuel. Considering the cultivated and edible plants, a change in agricultural and dietary habits has been evidenced with a shift from a mixture of wild fruits, oil and medicinal plants to a specific collection of cereal species. The plant assemblage studied hence provided valuable insight into the activities of the local community, displaying in particular how a mixed woodland dominated by mesophilous taxa had played a significant role in ritual practices.

2398. Eight years of integrated archaeological research at Vilavella del Castellet: digital documentation of pastoral adaptation in a Medieval mountain settlement

Authors: Sabina Batlle Baró (Departament de Biblioteconomia i Documentació, Universitat de Barcelona | Laboratori d'Arqueologia Medieval, Universitat de Barcelona) – Xavier Costa Badia (Departament d'Història i Arqueologia, Universitat de Barcelona | Laboratori d'Arqueologia Medieval, Universitat de Barcelona) – Júlia Coso Álvarez (Departament d'Humanitats, Universitat Pompeu Fabra | Laboratori d'Arqueologia Medieval, Universitat de Barcelona) – Walter Alegría Tejedor (Departament d'Història i Arqueologia, Universitat de Barcelona | Laboratori d'Arqueologia Medieval, Universitat de Barcelona) – Marina Fernández Liarte – Paula Melero Pérez (Laboratori d'Arqueologia Medieval, Universitat de Barcelona)
Format: Poster

This poster presents the results of eight years of archaeological research (2016-2023) at Vilavella del Castellet, a medieval rural settlement (11th-13th centuries) located in La Terreta, a valley in the Pallars Prepyrenees (Catalonia, Spain). The site exemplifies human adaptation to mountainous environments through a husbandry-based economy, challenging conventional models of medieval agricultural settlement. Strategically positioned along a transhumance route, Vilavella del Castellet demonstrates how communities reshaped their territorial engagement in response to geographical and ecological constraints. Our methodological approach integrates digital tools to document and analyze the complex relationship between settlement organization and environmental affordances. Photogrammetry provides three-dimensional documentation of structures and stratigraphic sequences, while total station surveys capture precise spatial data. All archaeological and topographic information is managed through GIS platforms, enabling multi-layered analysis and visualization of settlement patterns and architectural features. Key findings include distinctive building techniques utilizing large rocks collected from nearby scree slopes, reflecting direct material adaptation to the mountain landscape, and evidence of ovine-centered economic strategies rather than typical agrarian models. The project piloted a portable PostGIS database deployed on tablets for real-time field data collection, streamlining the recording of contextual information, photography, and preliminary spatial data. In accordance with the FAIR principles, excavation reports are openly shared via the Zenodo repository, with datasets planned for open dissemination. This research demonstrates how integrated digital methodologies can illuminate the dynamic interplay between environmental conditions, resource management, and territorial organization in marginal Mediterranean landscapes.

2408. A GIS Survey of the Sanctuary of Eukleia, Aigai: Mapping Coins and Lamp Fragments

Authors: Seraphina Vasilodimitrakis-Hart (Aristotle University of Thessaloniki)
Format: Poster

This project is part of a continuing collaboration with the lead archaeologists in charge of excavation at the Sanctuary of Eukleia at Aigai. The first objective of the project was to create a dynamic catalogue of the coins and lamp fragments found during excavations of the main terrace of the sanctuary plotted on a map of the site that can then be updated and changed as more artifacts are discovered. The initial focus for this project was on building up layers that could be useful for the future work and additions of the archaeologists working at the site. Mapping the lamp fragments and coins found at Aigai with GIS contributes to the understanding of the chronological relationships between the structures and stratigraphy at the Sanctuary. This database approach reveals the areas of the Sanctuary most in use in different time periods. Using the QGIS mapping software, this work forms the starting point of a wider mapping project. As a free and open-source application, QGIS is an accessible mapping tool, with an extensive and easy to navigate online manual and instruction videos. This beginner-friendly aspect makes GIS the ideal software for a collaborative project like this one, since future work at the site may not necessarily be done by people knowledgeable in GIS-use. Future work mapping the site will help elucidate the chronological relationships of the structures and finds at the site and contribute to the understanding of the ancient site of Aigai. This project displays the spatial and chronological relationships between the structures and artifacts at the site, amongst other criteria. A QField interactive field project was used in 2025 to map the new findings at the site as they were unearthed. The static and interactive maps produced from this work are resources for future exhibitions and reports.

2613. Exploring Sacred Landscapes. A Preliminary Case Study of Valnerina's Sanctuaries and their Natural Contexts.

Authors: Niccolò Cecconi (Sapienza. Università di Roma. Dipartimento di Scienze dell'Antichità) – Lauren Malkoun (New York University Institute for the Study of the Ancient World) – Marta Flati – Anna Bontempi (Università degli Studi di Perugia)
Format: Poster

The Valnerina region, in southern Umbria, preserves a network of high-altitude sanctuaries that illuminate the interplay between sacred space and natural landscape from the pre-Roman to Roman periods. This spatial analysis focuses on Monte Torre Maggiore (Terni), Monte Moro (Montefranco), and Monte di Arrone (Arrone), investigating how their placement reflects both environmental and cultural considerations. These sanctuaries are strategically located near prominent peaks, dense woodlands, and watercourses, integrating panoramic visibility, access to resources, and symbolic associations with water into their ritual function. Importantly, these sacred sites occupy a transitional zone at the interface of multiple cultural spheres (Umbrian, Sabine and Latine) highlighting their role as mediators in a contested and culturally dynamic territory. Their proximity to significant urban centers such as Carsulae

and Interamna Nahars further underscores the connection between ritual landscapes and socio-political networks, suggesting that these sanctuaries functioned both as focal points of local cultic activity and as nodes linking broader regional interactions. The combined spatial, environmental, and cultural analysis reveals that high-altitude sanctuaries in the Valnerina were not isolated religious sites but integral components of a complex territorial system, where natural morphology, access to key resources, and interregional cultural dynamics intersected to shape enduring sacred landscapes.

133 LATE BRONZE AND IRON AGE ENCLOSURES BETWEEN THE DANUBE AND THE DON

Theme: 7. Interaction, connectivity and mobility
Organisers: Oleh Bilynskyi (National University of Kyiv Mohyla-Academy) – Joanna Markiewicz (Jagiellonian University in Cracow) – Alisa Demina (National University of Kyiv Mohyla-Academy) – Barbora Danielová (Orava museum of P. O. Hviezdoslav) – Alexandru Berzovan (Iaşi Institute of Archaeology)
Keywords: enclosure, hillfrot, Late Bronze - Iron Age, Carpathian region, Pontic forest-steppe, nomads
Format: Regular session

SESSION ABSTRACT

The settlement landscape of Central and Eastern Europe underwent significant changes in the Late Bronze - Iron Age. The widespread emergence of diverse forms of enclosures marked new approaches to territorial control, defense and regional interaction. Alongside the growing number of hillforts, many sites developed into agglomerations with nearby settlements, forming more complex spatial patterns. Yet while some of these centres flourished and developed, others faced decline, destruction, and abandonment. At the same time, another major factor influenced developments in both the Pontic and Carpathian regions: the appearance of nomadic groups associated with the historical Cimmerians and Scythians. While nomadic aggression is apparent, as shown by the destruction of hillforts across Central and Eastern Europe, the relations between nomadic and settled populations were more complex. Could these contacts, connected with trade, political change, and relations with the Mediterranean world, have contributed to new regional dynamics? The tightening of interregional networks may have contributed to the growing complexity of societies. Climate changes in the first millennium BC could be seen as another factor driving diversification in local and regional economies. What role did enclosures play in these processes? Does the variety of designations: natural or artificial, hillfort or stronghold - represent the actual diversity of strategies in managing resources, securing territories and sustaining livelihoods? This session invites contributions that address these questions and topics, such as: Cimmerians, Scythians and "nomadic factor": conflict, coexistence, and hybrid frontiers between steppe and forest-steppe; Origin of the fortification tradition and its development; Regional case studies from the Carpathian territory to the Pontic forest-steppe; Technological choices in enclosure construction and maintenance; Symbolic and landscape dimensions of enclosure and visibility; Environmental and climatic factors influencing enclosure strategies and settlement hierarchies; Changing functions of enclosures: from refuge and military strongholds to economic, trade and religious centres.

CONTRIBUTION ABSTRACTS

126. The Beginning of the Iron Age on the Border of Forest and Forest-Steppe in Eastern Europe

Authors: Evelina Kravchenko (Institute of Archaeology of the NAS of Ukraine) – Nataliya Bilas (Ivan Franko's Lviv National University) – Zoya Ilchyshyn (Preventive Archaeological Service of the NAS of Ukraine) – Denys Slusar (Ivan Franko's Lviv National University)
Format: Oral

The presentation examines the archaeological sites of the Early Iron Age in Eastern Europe and northern Pontus, namely the formation of groups of archaeological sites of the northern Forest-Steppe, southern Polissya and Roztochchya in Ukraine and eastern Poland. The issue of the emergence of hillforts, fortified settlements and settlements with natural protection is considered, modern conceptual generalizations and the latest research on the mentioned sites are analyzed. Attention is focused on the study of groups of sites in their connection with large fortified settlements and agglomerations. The issue of the formation of a contact zone along the border of forest and forest-steppe sites along the tributaries of the Dnieper - Pripyat`, Psel, Sula, Seim, Supoy, Vorskla and the emergence of a trade route, which was later marked by archaeological finds of items imported from Greek centers, is considered. Research in recent decades shows that the Carpathian and Roztochchia regions were not aloof from the general processes of socio-economic development of Central and Eastern Europe. The population of these regions was a link in the general historical and natural processes of the beginning of the Iron Age, one of the most important of which was the formation of a system of trade routes, the intensification of contacts between rather distant regions. Climatic changes and increased precipitation in the north improved the conditions for movement by waterways.

1060. Early Iron Age hillforts of the 7th-6th centuries BCE in Eastern Podolia

Authors: Oleksandr Shelekhan (Institute of Archaeology NAS of Ukraine) – Oksana Lifantii (National Museum of the History of Ukraine)
Format: Oral

The Early-Scythian culture area lay between the Dniester and Vorskla rivers, while the steppe remained depopulated mainly in the 7th–6th centuries BCE. However, a vast settlement structure is seen to the north of the steppe region. The most recognisable local groups are the Dnieper and Vorskla groups, for which large-scale excavations have been conducted for more than a hundred years. East Podolia is the least studied region. Today, the low level of regional exploration, stemming from a shortcoming, could become a positive feature. We can now obtain new information by studying the local monuments at a higher methodological level. For example, here we can see an area of the East-Podolian group outlined after the archaeological surveys. There are two main Early-Scythian sites of the region – Nemyriv and Severynivka hillforts, which are grouped with the open settlements. The local farmers tended to settle on the high plateau between the Dniester–Buh watershed and the Sob River. It is the area of the grey forest soils, while the black chornozem soils with the Steppe landscape remained unpopulated. Monuments such as Trahtemyriv and Severynivka are clear evidence of the diverse character of Early Scythian culture. The local population and nomadic peoples created a recognisable culture in the middle of the 7th century BCE. Later, Severynivka, together with Chotynies and Wicina, became evidence that, at some point in the 6th century BCE, the Scythians conducted a series of raids into Central Europe, causing destruction and shifts in the cultural landscape. Perhaps they contributed to the decline of the Lusatian culture, thereby allowing tribes of the Pomeranian culture to assume a leading role in the region. Maybe some part of the Podolian population participated in those campaigns, and after their conclusion, they migrated east, where they occupied the new eastern frontier of Scythia.

1048. Settlement Structure of the Scythian-Period in the Basin of the Siverskyi Donets River as Component of the Eastern European Space

Authors: Vitalii Okatenko (Institute of Archaeology of the National Academy of Sciences of Ukraine) – Roman Tymoshevskyi (Central European University)
Format: Oral

The Siverskyi Donets Forest-Steppe occupied an important strategic position within the Eastern European forest-steppe zone. During the Scythian period, this was determined by its immediate proximity to several densely populated regions of both the Steppe and the Forest-Steppe. This physico-geographical zonality is clearly reflected in the economic and cultural differences of the populations inhabiting these regions. In the 6th–4th/3rd centuries BCE, the basin of the Siverskyi Donets River was one of the most densely populated areas of the forest-steppe zone of Eastern Europe. Over recent decades, through the use of modern GIS technologies and remote sensing methods, we have identified and investigated new settlement structures, including 9 fortified settlements (hillforts). At present, a total of 27 fortified settlements are known within the region. Settlement structures tend to gravitate toward the ancient Muravskyi Trail, which began functioning in the 6th century BCE. This ancient route of communication with other regions was intersected by the so-called Perekipskyi Rampart, located along the boundary between the steppe and forest-steppe zones. Fortified settlements appeared in the region under the influence of specific socio-political and economic processes in the mid-6th century BCE and differ in their topography, internal layout, and defensive structures. This variation may reflect both their original functions (such as settlement centers of defined territories, refuge forts, or enclosures for livestock) and correspond to changes in societal needs. In selecting locations for fortifications intended for economic and military purposes, considerable importance was attached to the natural relief, soil characteristics, and the availability of water sources. Local population group of the Siverskyi Donets region represented a socio-economic unity of two different modes of life: semi-nomadic and sedentary agricultural populations. The most important source base for the study of these issues is the comprehensive investigation of habitation sites.

1090. Spatial analysis of the Scythian period Trakhtemyriv agglomeration

Authors: Sviatoslav Syrotiuk – Oleh Bilynskyi – Valerii Moroz (Archaeology department, National university of Kyiv-Mohyla academy)
Format: Oral

The Trakhtemyriv Peninsula is one of the most densely populated areas with Scythian-period sites in the Forest-Steppe zone. Among the reasons for this are the location of a probable crossing over the Dnipro River and a specific, clearly delimited landscape which, on the one hand, was highly productive economically and, on the other, provided a degree of isolation from neighbouring territories. At present, more than 30 settlement sites and several barrow cemeteries dating to the Scythian period are known from this area. The settlement sites include three hillforts: Chernyshi, Vikha, and Trakhtemyriv. The latter is a giant hillfort with an area of around 600 hectares and includes its own acropolis, Mali Valky. All these sites are linked not only by their attribution to the same period, but also by their interconnections, which make it possible to regard them as a distinct Trakhtemyriv agglomeration. A comparable situation is known, for example, at the Bilsk hillfort. In such a context, methods of spatial analysis are particularly effective, as they allow the identification of resource zones, zones of visibility, and specific routes of communication among sites. Our research also includes the reconstruction of the paleoecological environment, which supports the results of the spatial analysis.

2388. Geophysical investigations of the Chernyshi hillfort (V-IV BC)

Authors: Alisa Demina (National University of Kyiv-Mohyla Academy) – Marcin Przybyła (Jagiellonian University) – Marcin

Przybyła (Independent Researcher)
Format: Oral

Scythian hillforts are a widespread phenomenon in the forest-steppe zone of the Northern Pontic region. Although defensive interpretations are predominant, substantial variation in size and internal organisation suggests a broader range of functions. At the same time, data on the internal layout of these sites remain limited due to their scale and the constraints of excavation. This makes non-invasive approaches particularly valuable. This paper presents the results of a geomagnetic survey conducted in 2025–2026 at the Chernyshi hillfort, located on the right bank of the Dnipro River, by the archaeological expedition of Kyiv-Mohyla Academy. The survey identified a dense concentration of subsurface anomalies interpreted as structural remains, together with clearly defined ditch and embankment. Spot excavations were carried out to validate the geophysical data and enabled a preliminary classification of the recorded anomalies. The results show that structural remains are concentrated in the central part of the hillfort, while areas adjacent to the embankment are largely free of structures. Analysis of surface finds also supports this pattern. The assemblage includes a significant proportion of imported ceramics, mainly Greek amphorae, which date the main occupation of the site to the 5th–4th centuries BC. These findings contribute to discussions on the function of Scythian hillforts and their role in long-distance exchange networks.

2007. Metal Pins of the Forest-Steppe Scythia as an Indicator of Production Centres: Case Study on Bilsk Hillfort

Authors: Yuliia Khodukina (National University of Kyiv-Mohyla Academy) – Iryna Shramko (V. N. Karazin Kharkiv National University)
Format: Oral

Pins are among the most numerous categories of metal ornaments of the Early Iron Age and, at the same time, an important source for reconstructing production practices and socio-economic processes within the population of the Forest-Steppe Scythia. This presentation examines the assemblage of pins from the Bilsk hillfort — one of the largest centres in the region, well known for its concentration of craft and metallurgical finds. The total analyzed material comprises 273 metal pins (bronze, iron, and bimetallic). The collection includes complete ornaments, pieces with broken ends, specimens without heads, as well as blanks and defective items. In combination with finds of slag, bronze droplets, casting moulds, and bronze-casting furnaces, this material allows pins to be interpreted not only as elements of personal adornment but also as products of local craft production. A detailed analysis of their find contexts (pits, dwellings, and cultural layers) further allows reconstruction of their use, deposition, and potential production areas. To this point, particular attention is given to the phenomenon of typological uniformity and similarity: a significant portion of the pins displays repeated forms and proportions, indicating standardization and an organized mode of production. Considering pins in this context provides a new perspective on the role of ornaments as indicators of production and economic activities on the hillforts of Forest-Steppe Scythia.

923. Kapulivske Hillfort on the Lower Dnipro: the Central Settlement Structure of Scythia

Authors: Oleksandr Kariaka – Yurii Boltryk (NASU Institute of Archaeology)
Format: Oral

The lands surrounding the Lower Dnipro constitute one of the most bioproductive parts of the Eurasian Steppe. From Herodotus to the present day, numerous authors have compared the Dnipro to the world's greatest rivers, regarding it as one of the cradles of the earliest civilizations. The area of modern Nikopol, Kapulivka, Kamianka-Dniprovska, and Znamianka represents a zone of high concentration of Scythian settlement structures and kurgan necropolises, as well as world-renowned royal burial mounds. In addition to the well-known sites, the poorly studied Kapulivske hillfort played a significant role in the region. It became known through numerous collections of artifacts. One of the authors, using aerial photographs and a series of satellite images, managed to identify a partially preserved system of defensive structures—ramparts and ditches. The main one, the outer defensive rampart, has been traced over a length of 5.37 km. The area of the right-bank plateau enclosed by this rampart, covering 730 hectares, represents the core territory of the hillfort that has survived to the present day. Its significance as a powerful settlement structure is emphasized by chains of numerous kurgans and ancient hollow ways radiating from the hillfort to the north and west. Kapulivske, together with the agglomeration of the Kamianske and Znamianske hillforts, played a major role in the formation of the central core of the Scythian state in the 5th–3rd centuries BCE. Key overland communication routes converged on these hillforts, leading through numerous kurgan necropolises from the ancient cities of the Pontic coast to the hillforts of the forest-steppe zone of Eastern Europe.

1346. Late Scythian Hillforts: Origin and Development

Authors: Oleksandr Symonenko (Institute of Archaeology of NAS of Ukraine) – Denys Sikoza (Kherson Regional Inspectorate for the Protection of Sites) – Olena Dzneladze (Institute of Archaeology of NAS of Ukraine)
Format: Oral

The Lower Dnieper Late Scythian subculture was formed by migrated people of Dniester region's Scythian culture of the late 4th - 3rd century BC. Hillforts under discussion are dated to the mid-2nd century BC – mid-3rd century AD and placed on the banks of Lower Dnieper: twelve on the right bank and five on the left. They were founded on strategic positions on high shore, towering up the water edge from 11 to 48 m. The area of hillforts is from 8 to 35 hectares. Two types of hillforts could be classified: cape (on headland of bedrock shore, formed by ravines) and coastal (on rectangular or square section of bedrock shore). Defensive structures of cape hillforts were built across the cape, separating the acropolis or contour the cape. The ramparts and moats of the coastal fortifications were closing the area from three sides and were confined by ravines. There are six cape and eleven coastal hillforts. Hillforts were fortified by two lines of defense. The outer line consisted of a rampart with moat of ca. 1.4-4.5 m deep and 4.5-11 m wide in front of it. Inside the outer line of defense was a second rampart forming a square (coastal hillforts) or triangular (cape hillforts) acropolis. Stone wall ran along the ridge of rampart. The area of acropolis ranged from 1.3 to 3.6 hectares. The walls of 2 to 4.5 m thick were laid from quarry stone in the opus incertum technique and filled with crushed stones on clay solution. The reconstructed height is from 3 to 5 m. The inner core of earthen ramparts was laid from large limestone blocks, arranged randomly but with signs of regular masonry. Thus, Late Scythian fortification is of local origin with some features of antique tradition.

878. Urbanisation Processes in the Early Iron Age Pontic Forest-Steppe Region

Authors: Oleh Bilynskyi (Department of Archaeology, National University of Kyiv-Mohyla Academy) – Manuel Fernández-Götz (School of Archaeology, University of Oxford)
Format: Oral

This paper will examine the processes of urbanisation that took place among so-called "Scythian" societies of the Eastern European forest-steppe zone during the Early Iron Age. The evidence from this region will be placed within the framework of recent studies on urbanisation in Iron Age temperate Europe, as well as within wider theoretical and methodological discussions on early urbanisation. Our study employs a context-dependent definition of urbanism, allowing this phenomenon to be evaluated within its specific social and environmental settings. Previously proposed criteria are systematically compared with archaeological evidence from the territory of Forest-Steppe Scythia. Settlements are analysed through several interrelated parameters. Particular attention is paid to the number and size of the fortified sites and to their potential demographic capacity, including a discussion of the phenomenon of megasites, which in this region is represented by "gigantic-hillforts". The emergence of elites and patterns of social inequality are examined on the basis of burial evidence and its spatial relation to settlement structures. Production activities at the sites are discussed in terms of both the quantity of known artefacts and the technologies employed, with special emphasis on technological innovations. Internal and external trade networks are also addressed, with a primary focus on contacts with Greek poleis along the northern coast of the Black Sea. Potential collective gathering places are analysed through the presence of "empty spaces" within hillforts, group ritual practices associated with the construction of ashmounds, and other cultic features. Finally, we will also address the evidence for collective work as represented by the construction of large-scale fortifications.

1359. Ditch, rampart, pallisade. Reflections regarding the defensive systems of Late Iron Age hillforts between the Eastern Carpathians and Prut

Authors: Alexandru Berzovan (Iași Institute of Archaeology)
Format: Oral

Between the 5th and 3rd centuries BC, on the territory located between the Eastern Carpathians and the Dniester, a very large number of hillforts were built, approx. 130 according to the most recent estimates. They bear witness not only to large-scale collective efforts, but also to significant social and political developments. Through this presentation we have set out to discuss the issue of the defensive systems of the fortifications located between the Eastern Carpathians and the Prut, on the nowadays territory of Romania. The most commonly used defensive system consists of a simple „dump" rampart, with an adjacent ditch and a wooden palisade on the top. Despite its (apparent) simplicity, the construction of such a defensive system involves, among other things, certain empirical knowledge of geotechnics, used to build structures that are as durable and efficient as possible. Another type of defensive system was the stone "wall", represented in the present case (the Cotnari-Cătălina fortress) of two stone paraments, reinforced with wooden beams, the interior space being filled with earth and stones. It is a fortification system amply attested in Central and Eastern Europe in Bronze and Iron Ages - so-called „Pfostenschlitzmauer". The „timber-box" ramparts, well attested in contemporary fortifications located in the space between the Prut and the Dniester, are less present west of the Prut. The defensive system of the Brăhășești hillfort raises significant questions, since in the area of the rampart, a significant amount of soil with traces of burning is visible. In conclusion, the communities that built the hillforts located between the Eastern Carpathians and Prut used various types of defensive systems, this diversity reflecting their different social and military needs and posibilities.

228. Tracing Mounted Nomads in Eastern Central Europe: Material Evidence for Conflict at Fortified Hallstatt Settlements in the 7th Century BC

Authors: Anja Hellmuth Kramberger (Alma Mater Europaea University)
Format: Oral

Archaeological interpretations of the so-called "Scythian invasions" in eastern Central Europe have long relied on a combination of historical sources and selected artefact categories, most prominently bronze arrowheads, elements of horse equipment, and destruction horizons documented at fortified Hallstatt-period settlements. While episodes of violence in the 7th century BC are widely acknowledged, their scale, organization, and social context can now be reassessed in greater detail through recent high-resolution documentation methods, including LiDAR and GPS-based spatial mapping. This presentation offers an evidence-based reassessment

of material indicators for conflict associated with mounted nomadic groups, focusing on the systematic analysis of arrowhead typologies, spatial distributions, and impact traces from well-documented fortified sites such as Smolenice-Molpír (south-western Slovakia) and Dédestapolcsány-Verebce-bérc (north-eastern Hungary). Large assemblages of arrowheads recovered in direct association with gates, fortification walls, and destruction layers allow for a detailed reconstruction of conflict-related processes, including firing directions, areas of concentrated activity, and structurally vulnerable zones within the fortifications. Deformation patterns and concentrations of arrowheads embedded in masonry provide direct physical evidence for organized episodes of armed confrontation rather than sporadic or incidental violence. A comparative typological analysis demonstrates that the arrowhead assemblages are not uniform. This variability suggests that the material record cannot be attributed to a single, homogeneous group, but instead reflects the involvement of multiple mounted nomadic groups with different regional backgrounds. By integrating artefact typology, spatial analysis, and contextual evidence from fortified settlements, this presentation revisits invasion models and situates them within a more nuanced and empirically grounded interpretative framework.

746. Fire, Fortresses, and Mobility: Scythian Raids in a Comparative Perspective

Authors: Nikita Kurbal (National University of Kyiv-Mohyla Academy)
Format: Oral

The phenomenon of Scythian raids in Central and Eastern Europe was, until recently, poorly studied and highly mythologised, and existing research did not allow for well-founded conclusions to be drawn. Over time, however, our understanding of this process has gradually expanded. Today, several radiocarbon analyses are available from major hillforts that were attacked by the nomads. In addition, a growing body of evidence comes from other settlements, where traces of fires and weapons associated with Early Nomads have been identified within cultural layers. Nevertheless, the renewed interest in this topic has generated as many questions as answers. At the same time, Early Nomads did not expand exclusively westwards. Ancient Greek and Assyrian written sources clearly document Scythian campaigns in Asia Minor, and this evidence is supported by a substantial archaeological record. Urartian fortresses such as Ayanis, Bastam, and several others provide clear testimony to attacks carried out by Early Nomads. The subsequent decline of the Urartian state may indicate that nomadic incursions and the devastation they caused were among the decisive factors shaping the fate of this region. A comparative analysis of these two processes, despite their chronological distance and differing regional contexts, offers significant potential for new insights. Such a comparison makes it possible to identify both shared and distinctive features, to better understand the tactics of Early Nomads, and to examine how they adapted their strategies to different conditions of warfare, particularly given the fundamentally different types of fortifications encountered in these regions. Beyond episodes of violence, other forms of interaction must also be considered, including trade and cultural exchange. Comparing the interactions between Early Nomads and sedentary populations in Central and Eastern Europe and in Asia Minor can therefore contribute substantially to a more nuanced understanding of nomadic–sedentary relations.

1400. Mirrors between hillforts and graves of the Iron Age in the Danube region

Authors: Denis Topal (National Museum of History of Moldova | Institute of Cultural Heritage of Moldova)
Format: Oral

Across the Danube region (from the Dniester basin to the eastern Alpine zone), at least 152 mirrors dating between c. 700 and 100 BC have been recorded. Most derive from funerary contexts (76%), while 21% are stray finds and only 3% come from settlements. Half originate from burial mounds and about a quarter from flat cemeteries, with marked regional differences: in Bukovina, mirrors occur exclusively in barrows, whereas in Transylvania and Pannonia, they are typical of flat cemeteries. Nearly two-thirds of all finds concentrate in the Lower Danube and Carpathian–Dniester regions, underscoring their role as key corridors of interaction. The earliest mirrors appear in the Carpathian–Dniester area in the mid-7th century BC and belong to Early Scythian types of Caucasian and Siberian origin. From the mid-6th century BC, Greek imports (especially Olbian-Borysthenite and Argive types, later Peloponnesian forms) entered the region. During the Classical and Hellenistic periods, locally produced mirrors increasingly adapted Greek prototypes, reflecting cultural entanglement between nomadic groups, Greek centres, and sedentary communities. Although predominantly funerary, mirrors are closely linked to settlement systems, particularly hillforts and fortified central places. Several stray finds cluster in the hinterlands of major settlement agglomerations, suggesting circulation within landscapes structured by fortified sites, route control, and seasonal congregation areas rather than accidental loss. The few settlement finds reinforce this interpretation, indicating that hillforts functioned as hubs where mirrors circulated as personal or prestige items before deposition in graves. Over time, mirrors shifted from gender-neutral objects in the Early Scythian period to exclusively female grave goods from the Middle Scythian period onward. Their persistence into the Late Scythian period highlights their enduring symbolic role in connecting burial practice, settlement dynamics, and gendered identities.

806. Every valley tells a story: Early Iron Age hillforts in the heart of the Western Carpathians

Authors: Joanna Markiewicz (Jagiellonian University in Cracow)
Format: Oral

The Early Iron Age around the Western Carpathians was a time of turbulent cultural transformations, associated, i.a., with the development of the Eastern Hallstatt world, nomadic invasions in the Central Europe, and the transformation of the Lusatian cultural circle. At that time, the mountains constituted a frontier of these phenomena, and simultaneously, a zone of interpenetration of

diverse influences – people and ideas flowing through the valleys in different directions. In the traditional approach, one of the manifestations of these external influences – Lusatian in the north, Hallstatt in the west, and nomadic in the east – was the emergence of defensive settlements. Available archaeological data from several intramontane regions of the Western Carpathians were subjected to comprehensive analyses, encompassing settlement patterns and dynamics, alongside the typochronological and stylistic diversity of material culture. The results suggest that, deep in this mountain range, the development of the Early Iron Age hillforts – and upland settlements in general – was more complex and largely related to local environmental and communication conditions. Significant variations can be observed in the size and internal layout of the 'defensive' settlements, as well as their position and function within local settlement networks. Particularly noteworthy are the secondary nature of the fortifications, relative to the natural defensive features of the mountain landscape, and the late appearance of Pfostenschlitz-type structures in the region. Archaeological sources from Western Carpathian hillforts also indicate that the influence of 'nomads' on local communities was diverse – not necessarily military – in nature.

1326. 'Settlement complexes' of upland sites in the NW Slovakia from the Late Bronze Age to the Hallstatt period

Authors: Barbora Lofajová Danielová (Orava museum of P. O. H. in Slovakia)
Format: Oral

A change in settlement strategies occurred in north-western Slovakia, in the Western Carpathian Mountains, during the Late Bronze Age and Early Hallstatt Period. This paper aims to highlight changes to mountain settlements in the Orava microregion (NW Slovakia), where the author is conducting archaeological excavations. The changes mainly concern the use of the mountains for everyday activities, as well as for communication and defence purposes. There is a high density of upland settlements surrounding the dominant hillforts ('settlement complexes' of upland sites'). These settlement complexe date back to the Late Bronze Age or the Early Iron age, and most of them were still in use until the end of the Early La Tène period. The paper also discusses the presence of 'eastern type' artefacts at upland sites, particularly at hillforts, which can be linked to the theory that local elites were fascinated by equestrian elites from the East (for example, we can see this in horse fittings).

1362. Mapping Complexity: Late Bronze and Early Iron Age Enclosures and Upland Landscapes in the Western Carpathians

Authors: Martin Mino (Monument Board of Slovak Republic) – Tibor Lieskovský (Slovak University of Technology in Bratislava, Faculty of Civil Engineering)
Format: Oral

Enclosed hilltop sites constitute some of the most conspicuous archaeological features within the mountainous landscape of Central Slovakia. The majority of documented sites are attributed to the Late Bronze Age (LBA), with many reaching their floruit in the Early Iron Age (EIA). The nationwide implementation of airborne laser scanning (ALS) has fundamentally transformed research on these sites, not merely by facilitating the identification of previously unknown locations, but by enabling their analysis within a broader landscape framework. As most of these sites are situated in densely forested terrain, traditional methods—such as aerial or satellite photography—have proven insufficient for reconstructing their wider spatial context. ALS provides a new analytical perspective: beyond revealing the morphology of enclosure systems, modelling intervisibility with surrounding hinterlands, or quantifying habitation terraces, it permits an integrated examination of the surrounding cultural landscape. The demographic expansion of the LBA/EIA resulted in the extension of agro-pastoral land use into higher elevations to an extent unparalleled before or after this period. Significantly, it is precisely within these upland zones that hillforts and associated landscape features have been preserved, largely protected from the destructive effects of large-scale agricultural collectivisation during the communist era. ALS data reveal a complex prehistoric landscape comprising communication routes, barrows, lynchets, and field and pasture boundaries. This evidence enables the study of landscape stratigraphy and the spatial relationships among individual features. On the basis of these results, it becomes possible to assess the potential centrality of individual sites and to model their hierarchical organisation within regional settlement systems. The paper presents initial results from selected mountain ranges within the volcanic zone of the Western Carpathians: the Štiavnické vrchy, Kremnické vrchy, and Poľana.

553. Settlements Referred to as Defensive in the Cultural Landscape: Selected Examples from the Oder and Vistula River Basins

Authors: Marcin Maciejewski (Institute of Archaeology of Maria Curie-Skłodowska University) – Kamil Nowak (Austrian Archaeological Institute Austrian Academy of Sciences Vienna)
Format: Oral

Processes of settlement transformation, including the emergence of various forms of enclosures at the transition from the Bronze Age to the Iron Age, have long been the subject of extensive scholarly debate. In our paper, we aim to shed new light on this issue through five case studies from areas generally associated with the Lusatian Urnfield cultures, yet located in markedly different regions within this broad horizon: Wicina, Grzybiany, Kamieniec (Upper Silesia), Stołężyn, and Tarławki. Rather than treating these places in isolation, we examine their spatial setting, surrounding settlement patterns, and natural landscapes to better understand the processes that led to enclosure. The region under consideration lies outside the core geographical focus of the present session.

Nevertheless, its relevance is underscored by long-standing discussions concerning interregional connections and the influence of groups described as "steppe populations" on cultural change and the increasing tendency towards enclosed settlement forms. One of the analysed sites was destroyed during an incursion by a group representing a Scythian cultural model, allowing the area to be interpreted as part of a broad frontier zone affected by interactions with the Pontic area. The paper addresses two principal questions: -whether the processes leading to the formation of enclosed sites followed similar trajectories? -whether the enclosure can, in every case, be directly linked to the militarisation of the surrounding world? These issues are explored through detailed case studies, which are also situated within wider cultural processes observable at the Bronze–Iron Age transition. The paper has been prepared within the framework of the research projects "Characteristics of Selected Metallurgical Regions in Poland" (2021/40/C/HS3/00097) and "A Biography of Late Bronze and Early Iron Ages Hoards. A Multi-Faceted Analysis of Metal Objects Related to Monumental Constructions in Poland" (2021/41/B/HS3/00038), funded by the National Science Centre, Poland.

2750. Following a blueprint – strategies for achieving population aggregation in Early Iron Age Smuszewo (Poland)

Authors: Robert Staniuk – Jan Romaniszyn (Faculty of Archaeology, Adam Mickiewicz University) – Jutta Kneisel – Johanna Brinkmann – Hendrik Raese (Institut for Ur- und Frühgeschichte, Kiel University) – Mateusz Drewicz – Oliwia Kubiak – Mateusz Jaeger – Jakub NiebieszczańSki (Faculty of Archaeology, Adam Mickiewicz University)
Format: Oral

The Early Iron Age in North-Central Poland (800-600 cal BCE) is a period of dynamic population aggregation in a previously marginal area. This process culminated in the emergence of Biskupin-type fortified settlements, which are unique examples of planned spatial organization with limited evidence of social inequality. The novelty of this settlement system relied on the successful design of settlement infrastructure (pathways and gangways, gates, ramparts, breakwaters) and living quarters, which required careful planning, and execution in a highly waterlogged environment. Last but not least, the restricted storage conditions had to be organized around surplus redistribution. In our paper we present new results from non-invasive prospection (geomagnetic and georadar), population estimations, and re-evaluation of legacy data from a Biskupin-type fortified settlement in Smuszewo to provide a first high-resolution characterization of this settlement system. The discussion of the results will explore the socio-environmental impact of this community on the landscape and how a new aggregation was designed in an area previously devoid of large populations. The results will be used to conceptualize strategies used to establish and maintain these types of settlements.

173. The Tsirkuni hillfort: three stages of formation and functioning

Authors: Kostiantyn Peliashenko (The Museum of Archaeology of V. N. Karazin Kharkiv National University)
Format: Poster

The Tsirkuni hillfort is an archaeological site located in the forest-steppe zone of the Siverskyi Donets River basin (a tributary of the Don River). The total area of the site is 3.6 hectares. Fortifications divide it into three parts, two of which contain a cultural layer, and one is an additional uninhabited fortification. The results of the long-term excavations made it possible to identify several stages of the site's development and functioning. The first stage (late 6th–5th centuries BC). The construction of the hillfort`s first fortifications is dated to the late 6th–early 5th centuries BC. This was the time of mass construction of hillforts in the forest-steppe zone between the Dnipro and Siverskyi Donets Rivers. In the early stage, the fortification area was small, covering 1.1 hectares. An early cultural layer was discovered only in the southern part of the site. The second stage (4th century BC). The old fortifications were leveled, new ones were built, and the settlement's size more than doubled. Excavations of the fortifications revealed that the settlement's inhabitants radically altered the fortress's entrance system, fortifying them with additional barriers. Another fortification was added to the existing one, and the previous wall on the northern side lost its functional significance. The residents built an additional fortification – a small rampart and a ditch on the approaches to the main defensive walls. Third stage (3rd–1st centuries BC). To date, the Tsirkuni hillfort in the Siverskyi Donets basin is the only archaeological site where traces of life from the early Sarmatian period have been recorded. At the same time, only individual artifacts are presented here, and there are no dwellings or utility buildings from this period. This suggests that the site of the previously built settlement was used as a temporary fortification.

2559. Hillforts of the Black Sea Iron Age: the case of Stânceşti

Authors: Alexandru Berzovan (Iași Institute of Archaeology) – Owen Doonan (California State University Northridge) – Nicole Rose (Northern Arizona University) – Suleyman Berk (University of Pennsylvania)
Format: Poster

The Early Iron Age (ca. 1000 -600 BCE) in the lands around the Black Sea is characterized by the appearance of larger fortified settlements (hillforts) that signal a regional scale phenomenon. Hillforts of the early Iron Age exhibit impressive evidence of community mobilization in the apparent absence of strong hierarchical organization. The introduction of Black Sea trade with colonial outsiders exposed local communities to novel political and cultural formations. By the early fourth century BCE, large political entities (kingdoms) emerged across the Black Sea zone. Hillforts of the Black Sea examines the transition from more egalitarian to more hierarchical social systems and the level of social and economic integration in and around these hillforts. The Prut drainage is an ideal space for such an investigation based on existing knowledge of major sites, extensive agricultural exposing smaller ephemeral sites, and a cluster of hillforts, small sites and cemeteries that are already partially documented. Our initial season (June 2025) of systematic archaeological survey around Stânceşti documented 15 archaeological sites in a radius of approximately 10 km around the main hillfort. Surface scatters were mapped and representative ceramic ware types were taken for further analysis. Technological and geochemical compositional analysis of a sub-sample of 30 daub and 105 ceramics labeled in the field as likely dating to the period based on consistencies with Late Hallstatt and Greek wares demonstrate primarily local-scale production of a generally shared but not homogenous tradition. Together, these are signals of traditions adopted through legitimate peripheral participation in a community of practice reflective of social networks rather than centralization A second season (June-July 2026) proposes to fill in outstanding gaps not yet surveyed and to expand geophysical and excavation programs at Stânceşti and other key sites already initiated by the Iași Institute of Archaeology.

134 THE CONTRIBUTION OF HERITAGE IMPACT ASSESSMENT TO SUSTAINABLE HERITAGE DEVELOPMENT

Theme: 2. Crossing the divide. Archaeology and the open world
Organisers: Gertrudes Branco (CHAIA/Universidade de Évora) – Gábor Virágos (Independent researcher I EAA Heritage Advisory Board)
Keywords: Environmental Impact Assessment, Cultural resources, Archaeology
Format: Regular session

SESSION ABSTRACT

Through the Sustainable Development Goals, the United Nations has positioned cultural heritage at the core of human-centred and sustainable development (Goal 11.4), which frames culture as both an intrinsic value and a driver of social, environmental and economic sustainability. Yet, as daily practice demonstrates, the relationship between cultural value preservation and developmental pressures remains fraught with tension. Projects in infrastructure, energy transition, housing, tourism or urban regeneration often expose structural conflicts between safeguarding the past and constructing the future, leading to missed opportunities for inclusive and holistic development. This session focuses on how Heritage Impact Assessment (HIA) – conducted either within or independently from Environmental Impact Assessment systems – can practically address these tensions. We are particularly interested in contributions that analyse or exemplify: • Key conflict zones where cultural values are challenged by development needs (e.g. renewable energy projects, transport corridors, urban densification...). • How HIA methodologies identify, weigh and negotiate cultural values, especially where values are plural, contested or embedded in diverse stakeholder communities. • Legislative and operational gaps that hinder effective protection or balanced decision-making. • Stakeholder engagement practices that enable (or fail to enable) meaningful participation, including Indigenous, local, resident and expert communities. • Mechanisms for reconciling "preserving the past" with "building the future" through mitigation, design adaptation, alternatives analysis or long-term management frameworks. The session aims to examine how HIA can serve not only as a technical tool, but also as a dialogical and decision-support mechanism for resolving value conflicts and guiding sustainable heritage-inclusive development. The presentations will be followed by a discussion that will synthesise recurring challenges, effective practices and conceptual advances across cases. The goal is to formulate concrete recommendations to be shared with international bodies engaged in Environmental and Heritage Impact Assessment, contributing to improved standards and more culturally responsive impact governance.

CONTRIBUTION ABSTRACTS

1097. Impact Assessment – The Hidden Aspects of Decision-Making

Authors: Gábor Virágos (independent researcher)
Format: Oral

Impact Assessment (IA) has become an essential decision-support tool in heritage management and development-led archaeology, yet its practical application often remains narrowly framed. This paper critically examines the hidden and underexplored dimensions of impact assessment through the lens of the Hungarian regulatory and professional context, while drawing broader conclusions relevant at the European and global scale. The presentation first outlines the historical evolution of impact assessment practice in Hungary, from optional heritage impact studies, through formally mandatory but substantively flexible documentation, to the current system of compulsory assessments with prescribed content. Building on this trajectory, a future-oriented proposal is introduced, advocating for mandatory impact assessment combined with professionally selective, context-sensitive content requirements. The paper then addresses key structural questions embedded in IA practice: who is affected by heritage-related decisions, how "affected communities" are defined in practice, and what exactly is being assessed. Particular attention is given to the one-directional nature of current assessments, which typically examine the impact of development on archaeological sites, while neglecting the reciprocal effects of heritage constraints on development processes, including timeframes, costs, design modifications, and economic viability. Further neglected aspects include global and systemic effects, such as impacts on multinational investment ecosystems, political environments as part of the broader context, and the long-term usability of archaeological outcomes in relation to storage, data management, processing and dissemination capacities. The paper also introduces concepts from financial valuation, such as discounting and present value calculation, to explore alternative values of archaeological sites beyond mitigation logic, including tourism, wellbeing and non-market benefits. Finally, emerging connections between impact assessment and AI-based analytical

tools are briefly discussed. The paper argues that more holistic, reciprocal and multi-scalar impact assessments – linking local and global perspectives – would lead to more balanced, transparent and effective decision-making in heritage-led development contexts.

1757. The preventive assessment of archaeological impact in Italy between Cultural Heritage and Landscape Code, Public Contracts Code and Ministerial Guidelines

Authors: Maria Taloni (National Research Council of Italy - Institute of Heritage Science)
Format: Oral

The preventive assessment of archaeological impact, also known as preliminary verification of archaeological interest and abbreviated as VPIA or VIARCH, or more commonly abbreviated with the not entirely correct expression "preventive archaeology", stems from a conceptual extension of the environmental impact assessment (acronym VIA) and, starting with the 2004 Code of Cultural Heritage and Landscape (Legislative Decree no. 42/2004) and the 2006 Public Procurement Code (no. 163/2006), in compliance with the European environmental principle of "polluter pays", characterises the procedures for issuing authorisations for public works in Italy. Since 2006, the relevant legislation has been expanded and amended several times, although not in the Code on Cultural Heritage and Landscape, which should constitute its primary legal basis. The purpose of this contribution, therefore, is, on the one hand, to provide an overview of the current legislative references that span the Cultural Heritage and Landscape Code, the last Public Contracts Code (Legislative Decree no. 36/2023, which abolished and replaced the previous 50/2016) and ministerial guidelines (no. 53/2022 updated to the new Public Contracts Code with no. 32/2023) approved by decree of the President of the Council of Ministers (DPCM 14 February 2022), highlighting their peculiarities compared to other European countries. On the other hand, we will attempt to assess its actual impact on archaeological practice and analyse the reasons behind the continuous attempts to modify, or even abolish, all or part of the current legislation. Finally, we will examine the training path, which is not always linear and unambiguous, that a professional must follow in order to be able to draw up and sign the archaeological impact assessment document in light of the current regulatory framework (Ministerial Decrees no. 60/2009 e no. 244/2019) which, again, is not always consistent with itself.

697. Two Systems, One Heritage? Legal Boundaries in Luxembourg's Heritage Management

Authors: Heike Posche (Institut national de recherches archéologiques)
Format: Oral

The revision of the Luxembourg Heritage Protection Act in 2022 introduced, for the first time, two distinct procedures for the protection of architectural and archaeological heritage. While architectural heritage is subject to a detailed set of evaluation criteria and a formalised designation process, the classification of archaeological sites is regulated in a considerably less stringent manner. In practice, this legal separation has led to a range of challenges at the interface between built heritage and archaeological heritage management, requiring pragmatic, preservation-oriented solutions by the responsible authorities. Based on the current legislative framework, this paper explores approaches to a pragmatic management of heritage assets located at the intersection of architectural and archaeological heritage. It identifies key areas of tension, addresses unresolved questions arising from the dual system, and discusses potential avenues for legal and procedural adaptation. Two case studies currently under debate serve as illustrative examples: medieval and (early) modern cemeteries, where questions arise concerning the protection of entire burial grounds versus individual grave monuments; and medieval city walls that have been incorporated into later, non-listed buildings. In both cases, effective heritage management necessitates an integrated consideration of both archaeological and architectural perspectives, an approach that is not adequately reflected in the existing legal framework. The paper aims to contribute to the development of coherent, interdisciplinary management strategies and to provide a basis for discussion of comparable challenges faced by heritage authorities in other European contexts.

1855. Balancing Development and Heritage Preservation: A Case Study from South-West England

Authors: Alexandra Latham (Arcadis Consulting UK Limited)
Format: Oral

As consultants, the need to balance the client's wishes and respect for the preservation of heritage assets can often be in conflict. With each new proposed development, there will always be a risk of causing harm to heritage assets. This harm could be caused by physical change to an asset or to its setting. As part of a large development in the south-west of England, Arcadis Consultancy (UK) Ltd was tasked with undertaking three heritage impact assessments. These were for a scheduled monument, a Grade II listed building, and a non-designated asset that encompassed the whole of the new development area. It was vital that each asset's heritage value and significance was investigated, recognised, and then any proposed harm to the assets was examined. One of the reports recognised that the Grade II listed building would benefit from the development. The asset had been altered in the past and would now be put back in its original location. Elsewhere the HIAs identified potential risks that would have caused substantial harm to two of the assets. One such risk was that the development impacts had not been given sufficient priority, which would have substantially changed the historical character of the area. These risks created tensions between the community and the developers. We were able to make recommendations that address these risks which were accepted by the client and community, enabling the development to go ahead whilst preserving the integrity and character of the assets.

1966. Integrating Heritage Values into Climate-Related Impact Assessment: A Participatory Approach for Museums

Authors: Maria Shehade – Panagiotis Ntzeremes (CYENS Centre of Excellence)
Format: Oral

Climate change poses long-term risks to cultural heritage, including museums, through physical impacts and pressures arising from adaptation/mitigation measures. These climate-related consequences are often addressed through hazard-based risk assessments that inadequately capture cultural values, and socially embedded significance. Climate-related interventions prioritising environmental performance can overlook cultural, social, and institutional meanings, which constrains informed decision-making and risks reproducing tensions between safeguarding heritage and pursuing future-oriented development. While Heritage Impact Assessment (HIA) offers a value-based framework, museums remain largely absent from climate change impact assessments, which predominantly focus on heritage sites. Therefore, museums' specific vulnerabilities, roles, and values in climate crisis are often neglected. Participatory approaches to value elicitation are also rarely translated into systematic assessment criteria capable of informing governance and planning. Drawing on the ClimAid research project on museums and climate change in Cyprus, the paper addresses this gap by proposing a participatory, value-based approach to assessing climate-related consequences for museums. The approach combines focus groups with museum professionals and a survey with the general public, enabling exploration of how different stakeholder groups perceive climate-related risks, and acceptable responses. The presentation critically discusses how such participatory engagements can elicit heritage values for specific climate-related risk parameters and how these values can be analytically incorporated into the evaluation of climate-related consequences, moving beyond risk identification toward value-informed impact assessment. By involving both expert communities and the public—who are rarely included in such decision-making processes—the research illustrates how participatory approaches can support more inclusive and culturally responsive impact assessments. This approach provides an example of how impact assessments can be meaningfully applied to museum contexts, and how HIA can function as a dialogical tool for embedding heritage values into climate adaptation and mitigation planning, highlighting the relevance of such approaches for advancing sustainable, heritage-inclusive development, informing future impact assessment standards.

1510. The "Fragile Heritage" Project in the Context of Sustainable Development Policy: A Case Study of Archaeological Sites in South-Western Poland

Authors: Jedrzej Hordecki – Paweł Konczewski (Wroclaw University of Environmental and Life Sciences) – Joanna Wojnicz (State Office for Archaeology Saxony) – Anna Wierzgoń – Mateusz Krupski – Monika Ziemiańska – Cezary Kabała – Aleksander Misiurny – Gracjan Mielczarek – Barbara Kwiatkowska (Wroclaw University of Environmental and Life Sciences)
Format: Oral

Policies of sustainable development fundamentally reshape the relationship between people and archaeological heritage. This interaction becomes particularly visible in the case of archaeological sites located in areas of intensive human interest and use, where tensions between safeguarding heritage for future generations and the contemporary exploitation of space are especially pronounced. The international Polish–German research project Fragile Heritage addresses these challenges in the context of changing climatic conditions. Archaeological sites are increasingly exposed to multiple and overlapping risks, resulting both from climate change itself and from societal adaptation measures responding to these processes. Under such conditions, sustainable development policies and planning instruments become key drivers shaping heritage governance, protection priorities and decision-making frameworks. This paper focuses on the functioning of archaeological sites situated within forest landscapes, understood as a complex socio-ecological environment in which environmental protection, economic use and heritage values intersect. Case studies from south-western Poland, including the sites of Białogórze, Bielawa and Ronów, located in forested border regions, form the empirical basis of the analysis. Forests may provide a degree of physical protection for archaeological remains, but they can also generate new threats related to forestry practices, climate-induced stress and increased human activity. At the same time, forest areas are increasingly embedded in local economic strategies and promoted as spaces of tourism and recreation. Within this context, archaeological heritage operates at the intersection of three principal stakeholder groups: local communities, public administration and the scientific community. From the perspective of sustainable development policy, maintaining a balance between these interests becomes a central challenge. The paper discusses practical examples of how such balance may be negotiated, highlighting both conflicts and effective management strategies. In doing so, it contributes to broader discussions on the role of fragile archaeological heritage in sustainable development under conditions of environmental change.

1965. Enhancing Mountain Cultural Landscapes in the Eastern Pyrenees: contributions of the CulturMonts project to sustainable territorial development

Authors: Marta Flórez-Santasusana (Catalan Institut of Classical Archaeology) – Josep Maria Palet – Arnau Carbonell-Puigventós – Valentina Pescini – Jesús Martínez-Fernández (Catalan Institut of Classical Archaeology)
Format: Oral

In recent decades, archaeological research carried out in European high mountain areas has demonstrated that these territories constitute cultural landscapes shaped over time and that they preserve an important cultural legacy resulting from intensive human

activity. Despite their significance, this exceptional archaeological and cultural heritage remains poorly known and has often been undervalued as a potential driver for revitalization, innovation, and sustainable territorial development. The Cultur-Monts project, funded by FEDER funds through the Interreg Sudoe programme, aims to enhance mountain cultural landscapes and promote new development opportunities for local communities. Led by ICAC CERCA, the project brings together a consortium of nine beneficiary institutions from Spain, France, and Portugal. The establishment of an international network among southwestern European regions linked to mountain cultural landscapes represents an important milestone for the development of shared strategies to promote these landscapes as resources for sustainable development—an issue of particular relevance in a social context marked by depopulation and ageing. Through various pilot cases, the project seeks to highlight the value of these cultural landscapes as tools for social innovation and for fostering territorial development and cohesion within mountain communities. This presentation will offer a brief overview of the resources and main expected impacts of the pilot initiative located in the Eastern Pyrenees, specifically in the regions of Ripollès and Cerdanya.

2466. How much is it worth?The value of archaeological heritage in environmental impact assessments

Authors: Gertrudes Branco (CHAIA/Universidade de Évora)
Format: Oral

As a member of the European Union since the end of the last century, Portugal has signed up to, and incorporated into its legislation, a set of Community regulations, including the Environmental Impact Assessment procedure. In this context, characterisation of archaeological heritage is carried out exclusively by archaeologists authorised by the public entity responsible for protecting, enhancing and disseminating archaeological heritage to the Portuguese people and international institutions. One of the archaeologist's tasks is to identify, characterise and enhance the existing archaeological heritage in a project area, with the aim of establishing a hierarchy of its scientific and cultural importance. This hierarchy determines the minimisation measures to be implemented in the project's different phases. But how much is archaeological heritage worth? What criteria should be used to value it? Should archaeologists be responsible for proposing the valuation of identified archaeological heritage on a project-by-project and site-by-site basis? Is this a substantive action to ensure the preservation of evidence of a people's collective memory and identity in the face of the growing impact of economic development projects? In this presentation, we will share and put up for debate these reflections, considering the European scope of this matter under Community law.

1099. Between theory and practice: the importance of training in the development of good Environmental Impact Assessment practices

Authors: Leonor Maria Pereira Rocha (Évora University, CHAIA)
Format: Poster

The introduction of mandatory Environmental Impact Assessment (EIA) in the European Union imposed new rules on the implementation of public and private projects likely to have a significant impact on the environment, including in Portugal. This preventive instrument, which is fundamental to the sustainable development policy of all states, has implications for economies and has required the creation of procedural and legal management mechanisms by the entities involved. With regard to heritage, the carrying out of specific environmental impact assessments (EIA) has also led to procedural changes in the entity that oversees heritage, establishing rules and methodologies, but one essential issue has been left out of this process, namely the training of technicians (archaeologists) with skills in this field. This paper aims to address how Heritage Impact Assessment (HIA) is being carried out in terms of university education, taking into account the work carried out in this field and the scientific results obtained.

2266. TOURAL: Multidimensional model of tourism driving sustainable and balanced growth among rural and remote regions, fostering macro-regional cooperation

Authors: Angela Pencheva – Zdravko Popov (Balkan Heritage Foundation)
Format: Poster

The TOURAL project (Horizon Europe 2023) aims to support the touristic development and untapped potential of six pilot regions in Greece, Italy, Croatia, Bulgaria, Romania and Ukraine, focusing on 5 tourism niche sectors: underwater tourism, cultural & nature heritage tourism, cultural & creative tourism, cultural science tourism and silver tourism (UCCST). The UCCST framework offers substantial promise in promoting sustainable regional development by capitalizing on unique cultural, scientific, and natural assets. Strategic actions, including stakeholder capacity-building, infrastructure investment, and targeted EU policy support, are essential to maximising the benefits of niche tourism development across pilot sites. Following the guidelines set out in the EU Rural Action Plan and the EU Blue Tourism Strategy, the TOURAL project focuses on sustainable, resilient tourism that protects ecosystems, fosters innovation, and supports coastal communities, fostering policy making and cross-border cooperation. Six Living Labs were held in the TOURAL pilot regions, aiming to identify and co-design solutions to reflect the real needs and opportunities of local communities with the active involvement of public authorities and local stakeholders. The Living Labs collected data, which will be used to design a UCCST model for every pilot region. Based on the UCCST, a business model will be created with specific tourist products and offers for every pilot region. Several digital tools will also be developed to expand the TOURAL project output, e.g., tourism flows impact simulation tool; predictive Advisor tool for balancing tourism flows and areas capacity; "MedDriveInThePast" web platform; VR Tools for an enhanced tourist experience; the TOURAL Embryonic Tourism Data Spaces.

2751. Enhancing Heritage Impact Assessment in Portugal: The Role of LiDAR and Remote Sensing for Sustainable Archaeological Management

Authors: Vanessa Antunes (CGeo - Centro de Geociências | Universidade Autónoma de Lisboa | Instituto Politécnico de Tomar | Património Cultural IP | ERA Arqueologia) – Telmo Pereira (Universidade do Minho | UNIARQ—Centre for Archaeology, School of Arts and Humanities | CGeo - Centro de Geociências) – João Fonte (ERA Arqueologia | Centre for the Humanities - CHAM, Universidade NOVA de Lisboa) – João Marques (CEAACP- Centro de Estudos em Arqueologia, Artes e Ciências do Património | CHAIA – Centro de História da Arte e Investigação Artística)
Format: Poster

The safeguarding of archaeological heritage within the framework of Environmental Impact Assessments (EIA) in Portugal continues to reveal structural weaknesses, despite the legislation and scientific requirements imposed by heritage authorities. The model currently used for the heritage descriptor has proven ineffective in the early identification of archaeological remains, often leading to their detection only at advanced stages of project development, when opportunities for protection or technical adaptation are already limited. This situation highlights persistent tensions between development objectives and the preservation of cultural value. These limitations are particularly evident in forested areas, where dense vegetation cover, terrain morphology, and access restrictions hinder traditional survey methods. Operations such as soil mobilization, the opening of firebreaks, and the circulation of heavy machinery frequently expose previously unknown remains, often making their safeguarding impossible. In this context, the integration of remote sensing technologies, particularly LiDAR, represents a concrete opportunity to strengthen the effectiveness of Heritage Impact Assessment (HIA) within EIA processes. By enabling detailed mapping of microtopography beneath vegetation cover, LiDAR allows for the early identification of archaeological structures and landscapes, supporting the analysis of project alternatives, the definition of mitigation measures, and the adaptation of alignments and interventions. The systematic adoption of these approaches marks a paradigm shift in the management of archaeological heritage, bringing Portugal closer to European best practices. By strengthening the preventive capacity of both EIA and HIA, these methodologies promote a better reconciliation between "preserving the past" and "building the future," consolidating the role of impact assessment not only as a technical instrument but also as a decision-support mechanism fostering culturally responsive and sustainable territorial development.

135 JAPAN'S RESONANT PASTS: MATERIALITY, LANDSCAPES AND HERITAGE

Theme: 1. Widening perspectives in material culture studies
Organisers: Mark Hudson (Max Planck Institute of Geoanthropology) – Claudia Zancan (Ca' Foscari University of Venice)
Keywords: Japan, Material practices, Sustainability, Heritage, Resistance, Nationalism
Format: Regular session

SESSION ABSTRACT

Japanese archaeology provides a unique lens for examining how material traces of the past resonant with and shape cultural, spiritual, and environmental experiences in the present. Japanese archaeology has been closely intertwined with narratives of national identity, where ancient sites and artefacts are interpreted as expressions of cultural continuity and the nation's historical roots. From the ritual landscapes of Jōmon and Yayoi communities to the monumental kofun mounds, these sites reflect both temporal transformation and enduring influence, intersecting with contemporary discussions about heritage, sustainability, and the role of archaeology in shaping collective identity. Moving beyond these narratives, this session will explore not just how Japan's past continues to resonate in present contexts—through material, sensory, and symbolic dimensions of archaeology, as well as through heritage management, environmental engagement, and community practices—but also how the long experience of social archaeology in Japan can be inserted into contemporary debates over a rapidly-changing world. By highlighting enduring echoes of the past, the session aims to foster discussion on how Japan's archaeological record not only preserves history but actively shapes contemporary cultural and social realities, while considering those issues within a global framework. Although centred on Japan, the session engages with themes central to European archaeological debates, including nationalism and identity-building, community participation, heritage management, and environmental sustainability. By encouraging comparative perspectives, the session aims to show how insights from Japanese archaeology can enrich European discussions, opening a dialogue that contributes to broader theoretical and methodological conversations within the European archaeological community. We invite papers addressing topics including, but not limited to: Material and spiritual continuities between past and present; Ritual landscapes; Archaeologies of memory, temporality and emotion; Archaeologies of resistance (feminist, ethnic, community-based and others); Heritage management; Environmental sustainability; Nationalism and identity; Aesthetics, materiality and sensory experience; Comparative perspectives on Japanese archaeology.

663. Archaeological Heritage Management in Hokkaido: Enacting and Unsettling Settler Colonialism

Authors: Amanda Gomes (Hokkaido University)
Format: Oral

Over the past decade, "utilization" (活用) has received growing attention in cultural property management in Japan, often framed as a pragmatic response to pressing sociopolitical issues. Yet even as the Ainu have been formally recognized as Indigenous and Hokkaido acknowledged as part of their traditional homelands, academic discourse rarely asks what it means to utilize archaeology in a settler-colonial region. This paper addresses this question by examining how colonial logics are defined, reproduced, and sometimes unsettled, through the everyday work of using the past in Hokkaido. Drawing on a mixed-methods ethnographic study of municipal heritage managers across the region, it combines a broad survey with semi-structured interviews, follow-up conversations, and site visits to trace how sociohistorical context, values, and participation shape heritage practice. The analysis shows how the utilization of archaeological heritage is negotiated within municipal institutions shaped by colonial histories and contemporary national agendas, setting the terms of relevance, participation, and interpretive authority in ways that tend to prioritize the ethnic Japanese majority. Across the sites, utilization tends to privilege a nationally recognizable deep past as the most "usable" heritage, while sidelining other local histories. Meanwhile, Ainu-related materials are often treated as cultural contexts rather than as archaeological materials, which diffuses responsibility for Indigenous authority and collaboration. Placemaking operates as a guiding value, uncritically aligning archaeological heritage with narratives of belonging in Indigenous land. Participation often takes educational forms aimed at supporting attachment to place and keeping interpretive authority firmly with heritage institutions. At the same time, place-based relationships also support uneven but meaningful collaborations, suggesting that these institutional logics do not fully determine practice.

1061. The "Kofun Boom" and its Implications for Heritage Communication: How Young Women are reshaping Public Engagement with Kofun Period Archaeology

Authors: Britta Stein (Martin-Luther-University Halle-Wittenberg | State Office for Heritage Management and Archaeology Saxony-Anhalt)
Format: Oral

In the early 2010s, a movement emerged in Japan centred on popular engagement with Kofun period archaeology. Publications featuring walks to keyhole-shaped tombs and songs about burial mounds appeared alongside the initiation of an annual festival at the Imashirozuka tomb in Osaka Prefecture. The event attracted an increasing number of visitors (3,000 in 2012; 40,000 in 2022), prompting national media coverage of what was soon termed the "Kofun Boom". This paper presents an overview of the phenomenon and critically examines the interactions between the "Kofun Boom" community and institutional archaeology, discussing the implications for heritage communication and public engagement policies. Notably, the movement's participants are predominantly young women, colloquially and somewhat derogatorily referred to as "Kofun girls", and their children. Beyond site and museum visits, these people engage actively in the production and sale of Kofun-themed, often hand-made, merchandise ("Kofun goods"). This movement's enthusiasm for sites and finds highlights the enduring influence of the Kofun period and also demonstrates how these ancient tombs shape community practices and local identity. The phenomenon was subsequently picked up by commercial actors. The department store chain Tokyu Hands has hosted annual travelling exhibitions of "Kofun goods", and museums have begun to expand their merchandise. Despite the high visibility of the movement, especially on social media, systematic interaction of the "Kofun boom" community and professionals in the cultural heritage sector has remained remarkably limited. This is particularly striking in light of the challenges faced by Japanese museums, where visitor demographics skew towards older generations and lecture audiences remain predominantly male. The "Kofun Boom" thus constitutes a rare opportunity to broaden audience demographics by challenging traditional gender dynamics and to foster dialogue between heritage professionals and community-driven initiatives by reconceptualizing heritage management as participatory community practice, leading to the democratization of archaeological knowledge.

479. Murals in Motion: Archaeology, Iconography, and Conservation of the Takamatsuzuka and Kitora Tombs

Authors: Marianna Lázár (Károli Gáspár University)
Format: Oral

This paper presents the wall paintings of the Takamatsuzuka and Kitora tombs (late 7th–early 8th century) as a significant case study in heritage management of fragile archaeological sites, where art-historical value, material vulnerability, and long-term preservation policy intersect. While the murals are central evidence for the transmission and transformation of East Asian cosmological and funerary imagery in Japan, their modern histories foreground the managerial challenges posed by excavated, microclimate-sensitive heritage. The study links art-historical interpretation with conservation decision-making, institutional response, and evolving preservation frameworks. The first objective reassesses the relationship between the tombs as sequential stages in the localization of continental visual systems. Both chambers employ the iconography of the Four Gods, celestial bodies, and constellations, situating Japan within the East Asian mortuary sphere. Takamatsuzuka uniquely includes courtier figures in an elegant linear mode, whereas Kitora presents a more systematized cosmological program, including a detailed astronomical ceiling map and Twelve Zodiac figures rendered as armed, animal-headed guardians related to the Buddhist Twelve Heavenly Generals. Differences in compositional structure, orientation, and workshop practice—particularly Kitora's incised draft lines and transfer techniques—indicate a distinctly Japanese reinterpretation of imported models, paralleling developments in the Hōryūji Kondō murals and echoed in Shōsōin materials. The second objective evaluates how conservation crises have shaped heritage management strategies. Fungal outbreaks at Takamatsuzuka and plaster exfoliation at Kitora revealed the instability of sealed stone chambers after excavation, prompting high-impact interventions: dismantling of structures and removal of murals for controlled off-site treatment. These actions redefined site authenticity, risk assessment, and stewardship models. Recent approaches emphasize preventive conservation and non-invasive research; mercury detection in Kitora clarified previously obscured zodiac figures and fine iconographic details without further physical intervention.

252. The Japonization of Jōmon Space-Time: Archaeology, Art, and the Resonance of Prehistory in Modern Japan

Authors: Rafael Abad (Universidad de Sevilla)
Format: Oral

The Jōmon period is today widely perceived as a foundational and resonant past in Japan, embedded in archaeological discourse, cultural identity, and popular imagination. This presentation argues that such resonance is historically constructed and results from a long process through which prehistoric materiality was transformed into a culturally meaningful space-time. The presentation begins by outlining the formation of Jōmon space-time within archaeology. Early interpretations of Japan's "Stone Age" framed prehistoric remains as a space of alterity, understood through Western evolutionary categories. During the early twentieth century, this perspective shifted with the recognition of continuity between prehistory and protohistory, leading to the consolidation of the Jōmon–Yayoi–Kofun sequence. This temporal framework redefined the prehistoric past as an internally coherent and culturally embedded Japanese space-time. The focus then shifts to the postwar rediscovery of Jōmon pottery, when archaeological artefacts began to be reinterpreted at the intersection of archaeology, craft, and art. In this context, Okamoto Tarō's influential "Dialogue with the Fourth Dimension" played a decisive role, reframing Jōmon ceramics not as primitive survivals but as expressions of a living and dynamic tradition, and opening the way for their aesthetic and symbolic revaluation. The presentation then examines the japonization of Jōmon space-time during the second half of the twentieth century. Artists and intellectuals such as Hijikata Hisakatsu, Sō Sakon or Shimao Toshio mobilized Jōmon materiality to rethink origins, sensibility, landscape, and collective memory, transforming archaeology into a resource for cultural and philosophical reflection rather than a purely academic domain. Finally, the presentation explores how Jōmon imagery and concepts entered the popular imaginary through exhibitions, museums, manga, and contemporary visual culture. This final section highlights how archaeological pasts continue to resonate through material, sensory, and symbolic forms, actively shaping cultural experience and debates on identity and heritage in modern Japan.

761. Deconstructing the "Jomon Utopia": Survival, "Original Sin," and the Responsibility of Archaeology

Authors: Yastami Nishida (Institute of Cultural Studies, Chuo University)
Format: Oral

In recent years, the Jomon period has been increasingly used by nationalist groups in Japan to support a narrative of a "unique and peaceful" origin for the Japanese people. This paper argues that the field of archaeology is partly responsible for this situation. By using modern national borders to define prehistoric cultures and focusing on a short-term view of history, researchers have unintentionally supported these political myths. This presentation proposes a necessary correction. First, we must stop viewing "Jomon" as a single, isolated culture. Instead, we should see it as a complex collection of regional groups. Second, we must challenge the idea that the Jomon period was a simple "peaceful utopia." If we look at the reality of how our ancestors survived for over 10,000 years, we must admit that they were not always "peaceful." Survival often required what we might call "Machiavellian intelligence"—the ability to compete for resources and, perhaps, displace other groups. This is the "original sin" of our existence: our life today is built on the sacrifices of those who did not survive. By recognizing that our survival is a "debt" rather than a "national triumph," we can create a new foundation for international empathy. Archaeology should not be used to justify national pride or borders. Instead, it should remind us of the heavy price of human survival. This perspective helps us resist nationalism and find a way to cooperate in a violent world, not through the state, but through a shared responsibility for our common human history.

944. 150 years of encounters between European and Japanese archaeology

Authors: Simon Kaner (Sainsbury Institute for the Study of Japanese Arts and Culture)
Format: Oral

2027-2029 marks the 150th anniversary of what was effectively the first formal 'archaeological' excavation in Japan, undertaken by the American zoologist Edward Sylvester Morse at the Omori shell mounds in Tokyo in 1877 and its publication, the first archaeological report from Japan, which appeared in both English and Japanese in 1879. This presentation will examine the history of engagement by European archaeologists with the Japanese archipelago, and Japanese archaeologists with their European counterparts. This paper marks the start of a new project based at the Sainsbury Institute for the Study of Japanese Arts and Cultures re-visiting the transnational history of Japanese archaeology, re-assessing previous accounts which present Japanese archaeology

as essentially nationalistic (cf Diaz-Andreu, Trigger). The paper briefly considers three sets of case studies: Eduardo Chiossone, William Gowland and the creation of a kofun period (1870s and 1880s); Shōgorō Tsuboi and Kōsaku Hamada and a Japanese gaze on European archeology (1890s to 1920s); and Jiujirō Nakaya, Gerard Groot, the Archaeological Institute of Japan, and the definition of Jomon archaeology (1930s to early 1950s). These case studies are set in the context of the broader development of archaeology in Europe and East Asia.

1963. From China with love: mirrors and empire in East Asian antiquities

Authors: Goran Đurđević (University of Zadar)
Format: Oral

This paper examines mirrors as artes minores in Han Dynasty and interactions with neighboring regions, including Japan. Central to this study is the concept of reflection, understood as a multifaceted process encompassing reversed images, perception and cognition, the formation of social values, and the expression of political authority. Mirrors are approached as two-sided media of reflection: a polished surface used for grooming and visual self-recognition, and decorative reverse bearing inscriptions and iconography that conveyed moral ideals, cosmological order, and imperial ideology. Reflection is treated as meta-concept shaped by imperial structures, integrating social practice, religious and magical meanings, and perceptions of physical and moral beauty. The production and distribution of mirrors across imperial centers and peripheral regions functioned as channels for transmitting imperial ideas, a process conceptualized as imperial peri-reflection. Within this framework, paper highlights the close functional and symbolic relationship between mirrors and seals. Both objects served as instruments of identity - mirrors reflecting the physical image, seals bearing names and titles that articulated personal and political status. Archaeological evidence shows that mirrors and seals were frequently stored and worn together in pouches, a practice corroborated by textual sources from the History of the Jin and Sui Dynasties. From a sovereign perspective, mirrors and seals also functioned as emblems of state power. Produced and distributed by the imperial court, they were bestowed upon officials, vassal rulers, and foreign polities. A key example is the diplomatic mission of 57 CE, during which Emperor Guangwu of Han sent mirrors and a golden seal to Japan, including the seal inscribed Han vassal King of Na state, symbolizing political recognition and hierarchical relations. Together with comparable evidence from Dian, these materials demonstrate how mirrors and seals operated as integrated elements of Han imperial diplomacy, projecting imperial image and authority within and beyond the empire.

460. Infrastructure and Agency in Late Kofun Japan: Between Private Performance and Public Aggregation

Authors: Claudia Zancan (Ca' Foscari University of Venice) – Mark Hudson (Max Planck Institute for Geoanthropology Jena)
Format: Oral

Building on our current research on infrastructure and social power in Kofun Japan, we explore the agency of infrastructure through its capacity to direct human movement and social relations. Focusing on Late Kofun mortuary infrastructure, we analyse two types of tombs and two categories of mortuary artefacts. Yokoanashiki-sekishitsu (corridor-style stone chambers) feature a fixed path of entry that restricts access to a limited number of individuals and mandates passage through specific, confined environments. The infrastructure thus mediates the relationship between the participant and the funerary space: the architectural layout constrains human movement, dictating both the scale of participation and the physical postures required. In contrast, yokoana (rock-cut tombs) function as 'public' infrastructure. Frequently clustered in large 'cemeteries' near settlements, their facades operate as nodes of aggregation. Their agency does not lie in guiding movement inward, but in anchoring social activity outward. Much like a square or a road, these tombs serve as daily spatial references that organize village life; the infrastructure thus facilitates the production of the community. Haniwa and sekijin-sekiba are artefacts placed outside tombs that guide the external movement and experience of those who will never be able to enter the tomb. Given their imposing scale (sekijin-sekiba) and often their expressions (haniwa), their agency was to keep intruders away from the sacred area and protect the tomb. They attract the gaze (visual agency), forcing those walking outside the mound to follow a precise perimeter. This study demonstrates how Japanese archaeology enriches global debates by relocating monuments as active infrastructural agents that produce, rather than merely reflect, social relations.

340. Keyhole-Shaped Mounded Tombs as a Religious Symbol in the Early State Formation Process in Japan

Authors: Kenichi Sasaki (Meiji University) – Yoshitaka Hojo (Tokai University)
Format: Oral

In the middle third century CE, giant keyhole-shaped mounded tombs appeared in the Nara basin where the central polity was presumably located at that time. The practice of constructing keyhole-shaped tombs spread all over Japan except the northern island of Hokkaido and the southwestern Ryukyu Islands. Keyhole-shaped mounded tombs were built according to fixed sets of construction plans, and it seems that the high-ranking chiefs of the central polity distributed the construction plans to local elites as a sign of political alliance or friendship. Local elites took the meanings of constructing keyhole-shaped mounded tombs in various ways, and one was to treat mounded tombs as a religious symbol. This interpretation is based on the following lines of evidence. For example, the axis of the Sakitama-Inariyama tomb in Saitama Prefecture is in the alignment to the direction of Mt. Fuji, the tallest mountain in Japan that has been considered sacred throughout Japanese history. Although the Sakitama-Inariyama tomb is approximately 100 kilometers away from Mt. Fuji, Mt. Fuji is visible from the tomb. The axis of the Kōbōyama tomb in Nagano

Prefecture is in alignment to the direction of sunrise on the day of winter solstice. It is likely that local agriculturalists participated in the construction of large elite burial mounds because of the religious nature of mounded tombs.

660. Effect of the Symbolism of Keyhole-shaped Mounded Tombs in the Frontier Regions of Japan

Authors: Yutaka Tanaka (Ibaraki University)
Format: Oral

n the middle third century, CE, keyhole-shaped mounded tombs that required a complicated and sophisticated construction plan appeared in the Nara basin. The Nara basin and Osaka plain are considered as the region where the central polity was presumably located because keyhole-shaped mounded tombs of much larger than 200 meters in length were spatially concentrated. Within a century, keyhole-shaped mounded tombs were built in most of the regions of Japan from north to south, 1200 kilometers in distance. Keyhole-shaped mounded tombs of various regions shared several aspects such as the mound morphologies and assemblages of goods deposited with the dead. This symbolized that mortuary rituals were unified in many regions, and the differences in the sizes of mounds indicated the differences in the social ranks of local elites. It is highly noteworthy that keyhole-shaped mounded tombs of 160 to 170 meters were built in the fourth century in Ibaraki in the east, Miyagi in the northeast, and Kagoshima in the southwest. These regions are very peripheral of the spatial distribution of keyhole-shaped mounded tombs. This phenomenon is puzzling because, excluding the central polity regions of Nara and Osaka, there are few keyhole-shaped mounded tombs of this size. In this paper, the author takes the case of Ibaraki Prefecture as an example where trades took place between the indigenous people of northeastern Japan and people of the mainland Japan. The author argues that the construction of large keyhole-shaped mounded tombs as ritual was incorporated into a system that created the mutual trust between these peoples and encouraged smooth trade of goods between them.

148. Where History Is Silent, Tombs Speak in Symbols. A Comparative Archaeology of the Kofun Culture in Human History

Authors: Kazutaka Kawano (Tokyo National Museum)
Format: Oral

From the 1960s to the 1990s, Japanese archaeology accumulated empirical research, interpreting the diversity of kofun forms and scales in relation to political order and state formation. However, the question of why social structure and power are expressed not only through political institutions but through burial practices as religious and symbolic acts has remained insufficiently theorized. Since the 1980s, comparative studies of royal tombs have repositioned the kofun within a global human-historical framework, drawing on research from Egypt, Mesopotamia, China. Building on this tradition, this paper redefines royal tombs as symbolic devices that materially visualize and reconfigure social order, ritual authority, ancestorhood, and temporality. Royal tombs are understood as social technologies through which societies "display" their order and legitimacy, constituted by five elements: a monumental above-ground commemorative structure, burial facilities surpassing in scale and complexity, a planned funerary landscape with subsidiary mounds and ritual spaces, burial spaces visualizing the otherworld, and human and animal sacrifice with prestige goods. This paper proposes a seven-stage model for the emergence and transformation of royal tombs: (1) sacredness-generating ritual landscapes and communal cemeteries; (2) the personalization of sacredness through individual burials; (3) dynastic royal tombs sustained by long-distance exchange and prestige goods networks; (4) the intensification of sacred kingship through sacrifice and retainer burials; (5) the deification of kings and completion of funerary complexes; (6) the integration of royal tombs with cities and the visualization of the otherworld; (7) the transformation into urban kingship, in which cosmic order is materialized in cities and royal tombs are overcome. Applied to the kofun culture, this model shows that dynastic kingship and keyhole-shaped tombs correspond to stages (3)–(4), while full deification was never achieved. Funerary complexes remained incomplete, and in the Asuka period cities came to embody cosmic order, ultimately overcoming the age of royal tombs.

56. Technologies of the Sacred: The Emergence of Mediated Religious Practice in the Yayoi Period

Authors: Koji Mizoguchi (Kyushu University)
Format: Oral

This paper explores the technological and social development of religious communication during the Yayoi period, focusing on the Middle Yayoi in northern Kyushu. It examines a pivotal transformation in how the supernatural/metahuman was conceptualised and engaged, as reflected in the emergence and evolution of ritual imagery on burial jars. In the earlier Middle Yayoi, iconographic motifs depicting animals such as deer appear on jar surfaces. These images likely referenced supernatural forces linked to life regeneration and fertility. They are sometimes accompanied by raised-floor storage buildings, suggesting an emergent religious logic connecting death, agricultural surplus, cyclical renewal, and communal continuity through material symbolism. This agrarian-cosmological grammar can be read as an early configuration of themes that later became prominent in Japanese religious history, including the sacrality of seasonal renewal, prosperity, and protection. From the latter Middle Yayoi onward, imagery shifts toward human figures performing ritual actions with distinctive attire and implements. This signals the rise of mediated religious communication and the emergence of designated ritual specialists. Such specialisation parallels increasing social complexity and stratification, as communities required authoritative roles to manage uncertainty and symbolically stabilise developing hierarchies. By tracing these iconographic and sociopolitical changes, this paper argues that Middle Yayoi innovations in ritual media and authority formation

laid important foundations for subsequent Japanese religious systems, from elite-centred ceremonial legitimation in later prehistory to more institutionalised forms of ritual governance.

487. Foreign Images, Indigenous Beliefs: Religion in Kofun Period Japan

Authors: Doreen Thierfelder (Martin Luther University Halle-Wittenberg)
Format: Oral

The earliest written sources from the beginning of the 8th century on the Japanese archipelago refer to the existence of „80 myriads of deities". However, the origins of these deities remain shrouded in mystery. The Kofun period (mid-3rd to 6th century AD), which predates both the compilation of these myths and the advent of Buddhism, is therefore crucial for assessing which concepts of deities or divine beings existed prior to written records. By the early 3rd century AD, mirrors bearing depictions of anthropomorphic Daoist deities had reached the Japanese archipelago from China. These mirrors were rapidly copied and widely distributed, becoming important religious objects and prestige symbols in the Early Kofun period. The iconography of these mirrors derives from external religious beliefs. Consequently, they cannot be regarded as evidence for indigenous beliefs in anthropomorphic deities. Additionally, it is important to note that subsequent religious concepts, such as Shinto, are unlikely to be applicable to the Kofun period and may result in the obscuring of earlier belief systems when retrojected. The present paper provides a re-evaluation of the portrayal of deities in Kofun period Japan, with a particular focus on depictions on domestic mirrors, decorated tombs and terracotta figures (haniwa). The analysis indicates that, despite sustained exposure to Chinese religious imagery, the Kofun people did not adopt anthropomorphic deities. Instead, the material record indicates the persistence of non-anthropomorphic, conceptually different forms of religious belief. The apparent absence of anthropomorphic deities during the Kofun period is in profound contrast to the deity-centred myths that emerged in the early 8th century, thus indicating a transformation in religious concepts prior to the compilation of the earliest written sources.

282. Material Anchors of Maritime Adaptation: Onigasaki (Tsushima) and Early Holocene Coastal Innovation in Japan

Authors: Daniele Petrella (IRIAE – International Research Institute for Archaeology and Ethnology)
Format: Oral

Tsushima Island is often framed as a marginal "stepping-stone" between the Korean Peninsula and northern Kyūshū. This paper argues instead that Tsushima should be approached as a productive island world in its own right, where coastal landscapes and material practices shaped distinctive forms of innovation and resilience during the Early Holocene. We present recent results from the IRIAE investigations at the Onigasaki site, integrating excavation data with observations derived from survey and documentation conducted across multiple coastal contexts on the island. Our approach moves beyond diffusionist narratives and overly generalised assumptions about Japanese prehistory—such as the idea that obsidian was uniformly accessible because sources are widespread across the archipelago. In an island setting without local obsidian outcrops, procurement choices, raw material circulation, and technological organisation become especially informative, showing how maritime connectivity was embedded in everyday practice rather than treated as an exceptional phenomenon. We interpret the Onigasaki record as evidence for adaptation not only as a functional response to environmental constraints, but as operational maritime knowledge: a learned capacity to schedule mobility, coordinate labour, and exploit coastal resources through time. By foregrounding the interplay between landscape dynamics, material decision-making, and social practice, this contribution shows how Tsushima's coastal archaeology resonates with wider debates on materiality, temporality, and the archaeology of island worlds, offering a comparative perspective for rethinking early Neolithic trajectories in East Asia.

768. The Shape of Death and Daily Life: Geometric Morphometric and Machine Learning Analyses of Edo-Period Ogame Jars, Japan

Authors: James Loftus (Institute of Science Tokyo)
Format: Oral

Edo-period (1603–1868) ceramic production in Hizen Province, Northern Kyushu, Japan is often discussed as a case of accelerating industrial organization under global and domestic pressures. Scholars have long argued that Hizen's porcelains became increasingly standardized as production expanded to meet overseas demand, particularly during disruptions to Chinese porcelain supply during the Qing "sea ban" (1647–1684), and through later domain-level regulation. Yet the same historical claim has yet been tested for Hizen's utilitarian stonewares. Among these, "ogame" large jars are especially revealing because they moved across social worlds: they stored water, soy sauce, and fertilizer, and frequently served as mortuary burial jars. Many ogame also survive to this day continuing to appear in households and commercial settings, making them a material bridge between early modern lifeways and the present. This paper statistically evaluates whether ogame became more standardized through the Edo period, and whether vessel shape differed between kiln contexts and mortuary contexts. Outline-based geometric morphometrics was applied to 243 ogame from sites across Hizen and Chikuzen Provinces, integrating kiln assemblages with burial assemblages. A machine learning random forest classifier groups undated vessels around a small set of dated samples, producing six stages spanning the seventeenth to eighteenth centuries. Results show (1) declining within-stage dispersion toward later stages, consistent with increasing standardization, plausibly connected to the wider reorganization of Hizen's ceramic economy in the wake of export expansion and stronger domain regulation; and (2) strong context-structured form, with mortuary jars tending to be taller and more enclosed, while kiln-associated jars are broader-shouldered with more open rims, suggesting context-sensitive selection and/or production. Together, this approach offers a replicable way to bring archaeological science into early modern Japanese archaeology and speaks to "resonant pasts" by linking political economy, daily practice, funerary meaning, and living heritage.

2183. Transformations in Ancient Japanese Eating Practices: Evidence from Deep Learning-based 3D Morphological Analysis of Sue Ware

Authors: Wataru Tatsuda (Institute of Archaeology, University College London) – Ryo Hori (Graduate School of Informatics, Nagoya University) – Kimiyasu Morikawa (College of Computing, Georgia Institute of Technology | The New York Public Library) – Hayata Inoue (Research Center for Cultural Heritage and Texts, Nagoya University)
Format: Oral

This study examines transformations in ancient Japanese eating practices through a deep learning–based 3D morphological analysis of Sue ware ceramics from the Sanage kilns, dating to the 8th–mid-9th century. Sue ware has long been discussed in relation to changes in food consumption, particularly the proposed shift from hand-based eating to the use of spoons or chopsticks, reflected in the declining use of dish-type vessels and the increasing prevalence of bowls. However, previous studies based on empirical typology or 2D outline analysis have struggled to establish a robust and objective link between vessel form and eating practices. To address this limitation, we apply the Point Transformer, a state-of-the-art deep learning model optimised for 3D point cloud data, to classify 917 Sue-ware vessels into five morphological types. The model achieves high overall classification performance and successfully captures subtle shape variations that are archaeologically meaningful. Notably, bowl (B) and dish body (DB) types show overlapping morphological features in both principal component analysis and hierarchical clustering, and several borderline specimens are classified correctly by the model. These results suggest that morphological ambiguity between bowls and dishes is not merely a classificatory problem but reflects a transitional phase in eating practices, during which vessel functions were not yet strictly differentiated. The interchangeable use of bowls and dishes implied by the morphological overlap supports the hypothesis that changes in food consumption practices were gradual rather than abrupt during this period. By directly linking fine-grained morphological variation to broader discussions of eating practices, this study demonstrates how explainable deep learning approaches can move beyond typological classification to address anthropological questions. The results highlight the value of 3D morphology as evidence for behavioural change and offer a transparent, reproducible framework for exploring the relationship between material form and everyday practices in archaeology.

798. Edo to Meiji Period Stratified Memory Landscape: Archaeology and Digital Reconstruction in Tokyo's Italian Embassy Historic Garden

Authors: Ivan Varriale (International Research Institute for Archaeology and Ethnology)
Format: Oral

The Historic Garden of the Italian Embassy in Tokyo is a palimpsest of three centuries of Japanese elite domestic architecture, spanning the Edo-period Nakayashiki of the Matsudaira clan, the Meiji political residence of Matsukata Masayoshi, and its current role as a diplomatic compound, showing the evolving of the architectural forms as expression of political power. This paper reports three seasons of stratigraphic excavation (2023–2025), documentation, and digital reconstruction of key remains: the Edo-period Nakano Ō Cha ya, the Meiji-period Keirokaku pavilion, and a Tai an–type tea house. Beyond traditional archaeological documentation, the research integrates parametric 3D modeling, augmented reality, and archival research to move from excavation to musealization, turning the garden into an interpretive laboratory where digital tools reveal the contested meanings of its layered topography. This research is significant as it represents the first archaeological investigation of this garden, moving beyond archival documentation to material evidence and stratigraphic confirmation. The stratigraphic excavation was crucial, as it provided the first material evidence confirming Edo-period structures like the Nakano Ō Cha ya, previously known only from maps, and their Meiji obliteration. The discovery of a Kikuma roof tile—a hallmark product of the Iyo-Matsuyama domain—directly connects the Nakayashiki to its parent clan, illuminating networks of craft production and political loyalty The research also identified the original placement of the nine-tiered stone pagoda and the precise site where the Ako rōnin spent their final days, restoring the spatial and symbolic logic of a commemorative marker whose meaning had been obscured by changes in the site's topography. The paper argues that the Historic Garden of the Italian Embassy exemplifies how archaeological investigation, digital reconstruction, and public musealization can work together to recover and interpret layered memory landscapes, contributing to Japanese architectural history and broader debates on conservation and digital heritage.

138. Ritual Water Landscapes in the Yayoi Period:Focusing on the Karako–Kagi Site

Authors: Tetsuya Shiroishi (Yamagata University)
Format: Poster

The Yayoi period in the Japanese archipelago is generally regarded as the time when rice-based agriculture was introduced (ninth century BC). During this period, under the influence of continental interactions, a major ideological transformation occurred from the preceding Jōmon period, which had been based primarily on hunting and gathering. This transformation is thought to have been accompanied by significant changes in ritual landscapes, particularly in relation to water and agricultural practices. In this

paper, we focus on pictorial representations and well features in order to reconstruct ritual landscapes associated with water. Wells in Yayoi settlements are not only functional facilities for daily life but also appear to have played important symbolic and ritual roles, reflecting cosmological conceptions of water, fertility, and community. In addition, through pollen analysis of well sediments excavated at the Karako–Kagi site in Nara Prefecture—where the authors have been conducting recent archaeological investigations—we reconstruct the contemporary environment and examine the specific contexts in which ritual practices were carried out. By integrating archaeological interpretation with environmental data, this study contributes to broader discussions on ritual landscapes and human–environment relationships in early agricultural societies.

136 COLLECTIVE BURIAL TRADITIONS: ARCHITECTURE, MEMORY, AND THE SOCIAL LIFE OF THE DEAD

Theme: 1. Widening perspectives in material culture studies
Organisers: Katarzyna Harabasz (University of Szczecin) – Arkadiusz Marciniak (Adam Mickiewicz University) – Patrycja Filipowicz (University of Adam Mickiewicz) – Marco Milella (University of Pisa)
Keywords: Collective burials, Anatolia, Balkans, Central Europe, Neolithic, Chalcolithic, Funerary architecture, Material culture
Format: Regular session

SESSION ABSTRACT

During prehistory, collective burial traditions extending from the Near East into the Balkan and Central European regions in the Neolithic and Chalcolithic periods offer profound insights into how ancient communities conceptualized death, memory, and social belonging. These funerary practices were not merely ritual expressions but active mechanisms through which social identities, power relations, and collective histories were negotiated and maintained. This session focuses on the architectural forms, material assemblages, and embodied rituals associated with communal graves and mortuary enclosures, exploring both shared and divergent patterns that shaped social life and remembrance across these interconnected regions. It also considers their multifaceted meanings as dynamic arenas where care, violence, and remembrance intersected. We welcome interdisciplinary contributions that explore the diversity and long-term development of collective burial customs particularly those addressing shifts linked to demographic change, and socio-political transformation. Particular emphasis is placed on studies that integrate spatial analysis, bioarchaeological data (including paleopathological and isotopic analyses), and theoretical frameworks such as memory studies, personhood, and material agency. By examining how bodies were arranged, modified, and redeposited over time, the session aims to situate these practices within their specific social frameworks and link them to the lived experiences of human communities and their long—term engagement with ancestral remains. Furthermore, the session encourages critical reflection on how modern archaeological interpretations have shaped—and sometimes distorted—understandings of prehistoric deathways. How do excavation methods, preservation biases, or cultural assumptions influence our reconstructions of collective burial practices? We also invite methodological innovations, including digital reconstructions, 3D modeling, and GIS-based spatial analyses, to enhance the visibility of subtle mortuary patterns. Ultimately, this session seeks to advance a holistic understanding of how the dead and their material worlds actively structured prehistoric social life, serving as enduring anchors of identity, continuity, and transformation across generations.

CONTRIBUTION ABSTRACTS

146. Body rituals from four prehistoric millenia. Initial insights into an interdisciplinary research project on the Cherry Tree Cave, Franconia, Germany

Authors: Timo Seregély – Andreas Schäfer (Pre- and Protohistoric Archaeology, University of Bamberg) – Joachim Burger – Laura Winkelbach – Jens Blöcher (Palaeogenetics Group, University of Mainz) – Marcel Keller (Department of Environmental Sciences, University of Basel | Institute of Genomics, University of Tartu) – Nadine Carlichi-Wiltjes – Franziska Immler (AnthroArch GbR, Grafrath) – Carsten Witzel (Department of Biology, University of Hildesheim) – Valeska Becker (Pre- and Protohistoric Archaeology, University of Münster)
Format: Oral

The Cherry Tree Cave, discovered in 2011 in Franconia, is a stroke of luck for archaeological research in vertical caves in many respects. The numerous bone finds in the small cave were not displaced by laymen and can be proven to date back at least four prehistoric millennia. In addition to an unique cattle bone from the Younger Neolithic, human and animal bones from the Final Neolithic, the Early Bronze Age and the Iron Age were found. In two preliminary projects the finds were first recovered from the cave surface and from initial small test trenches and analysed. Due to the confined space in the cave, a 3D scanner was used to record the exact location of the finds. Analyses to date indicate the presence of at least 22 human individuals, as well as several animals of different species. The preservation of ancient DNA is excellent, which is why the site has incredible potential for population genetic studies, kinship analyses and analysis of pathogens. As the nature of the deposits of bone remains in the hard-to-access vertical caves is still unclear, for the time being we will refer to them as body rituals rather than burials. This more neutral term includes burials, but as a 'repeated, intentional process' it is also open to other interpretations. A research project funded by the German Research Foundation and launched in 2026 aims to complete the excavation of the Cherry Tree Cave. This offers the opportunity to use interdisciplinary collaboration to decipher processes and perhaps the original motivation behind these long-practised body deposits in a vertical cave. Another exciting question is that of continuity or discontinuity and similarities and differences between prehistoric periods. The lecture summarises the current state of knowledge and provides an overview of the research methodology and initial results.

398. Another World – Burials in the Late Copper Age in Central Europe

Authors: András Rajna (Ferenczy Museum Center)
Format: Oral

The Late Copper Age in the Carpathian Basin is one of the most researched periods in Central European prehistory. The processing of the findings of the thousands of sites dating back to this period excavated over the past decades is constantly adding tons of new data to the research. Complex researches produced a number of new results, but it is still this period, the 4th millennium BC, that raises the most questions. There is a sharp contrast between the explosion of innovation manifested in the finds and the invisibility of the housing conditions (the absence of archaeological traces of the houses) and the lack of copper finds. The representation of cemeteries and settlements is also inconsistent and disproportionate: the small number of cemeteries and burials within settlements is not proportional to the vastness of settlements and the population they presumably accomodated. In this ever-changing Late Copper Age world, we must interpret the phenomena we discover in a different way from the earlier stages of the Copper Age. The way of caring for the dead changes, the majority of the deceased departs to the afterlife without any archaeological trace. Therefore, the 'traditional' burial of individuals in cemeteries and settlements has a special significance. The act of burial itself represents the role of the individual in society. In my presentation, I would like to introduce the changes that followed the Middle Copper Age, which was characterized by large numbers of cemeteries, and rich in copper artifacts, the phenomena of the small number of burials and mass graves during the transitional period introducing the Late Copper Age, the possible social connections of the Baden complex cemeteries, and the relationship between the cemeteries and the finds excavated at the sites, based on recently published extensive research results.

789. Bioarchaeological Analysis of a Mierzanowice Culture Multiple Grave, Southeastern Poland

Authors: Anita Szczepanek (Institute of Archaeology an Ethnology Polish Academy of Sciences | Department of Anatomy Collegium Medicum Jagiellonian University) – Paweł Jarosz (Institute of Archaeology an Ethnology Polish Academy of Sciences) – Marta Korczyńska-Cappenberg (Independent Researcher) – Paulina Kowalska (Anthropos Doctoral School of the Institutes of the PAS | Institute of the History of Science, PAS) – Alicia Muriel (Centre for Palaeogenetics, Stockholm | Stockholm University, Stockholm) – Maja Krzewińska (Centre for Palaeogenetics, Stockholm | Stockholm University, Stockholm)
Format: Oral

This interdisciplinary study presents integrated isotopic and genetic analyses of an Early Bronze Age cemetery at Krzyżanowice Dolne in southeastern Poland, with particular emphasis on a multiple grave containing nine individuals, interpreted within the broader context of the burial ground. The arrangement of the skeletons and radiocarbon dating indicate simultaneous interment. This grave, exceptional within the Mierzanowice culture and enigmatic in character, comprised predominantly young individuals, several of whom exhibited osteological evidence of violent death, raising questions about social relations and funerary practices. Genetic analyses identified four females and five males and revealed greater variability in mitochondrial DNA lineages compared to Y-chromosome haplotypes, a pattern consistent with patrilocal residence systems and a possible polygynous social organization. Stable carbon and nitrogen isotope analyses were conducted to reconstruct dietary practices and to compare individuals buried in the multiple grave with those interred elsewhere in the cemetery. The results indicate a predominantly inland subsistence strategy based on C3 plants, supplemented by varying proportions of animal protein, with observable differences between individuals from the multiple grave and the remaining community. In addition, strontium isotope analyses provided insights into mobility patterns, suggesting female-biased immigration into the cemetery population, while indicating a local origin for the individuals interred in the multiple grave. Taken together, the combined bioarchaeological, isotopic, and genetic evidence contributes to explaining the distinctive character of this multiple burial, which contrasts markedly with earlier Late Eneolithic and later Bronze Age funerary traditions involving collective interments. This research was funded by the National Science Centre Poland, grant number NCN 2020/39/B/HS3/00454.

492. Collective cave burials in the Subbaetic Mountais (Córdoba, Spain) during Late Prehistory: insights from Cueva de los Mármoles

Authors: Zita Laffranchi – Rafael M. Martínez Sánchez (University of Córdoba) – Juan Carlos Vera Rodríguez (University of Huelva) – Juan Antonio Cámara Serrano (University of Granada) – María José Martínez Fernández (University of Huelva) – María Dolores Bretones García (Independent Researcher) – Marco Milella (University of Pisa)
Format: Oral

The use of natural caves as collective burial places is a long-standing and cross- regionally widespread practice. Frequently represented by secondary depositions, these finds often exhibit traces of manipulation. Such features are particularly frequent from the 4th millennium cal. BCE onward in the Subbaetic region of Córdoba (southern Iberia). Cueva de los Mármoles (CM) in Priego-Córdoba is one of the largest caves in this region and has yielded a substantial assemblage of commingled skeletal remains, suggesting

a repeated funerary use from the Neolithic to the Late Bronze Age. The aims of this study are (a) to present and discuss the archaeological, osteological, and taphonomic features of CM based on radiocarbon dates, minimum number of individuals (MNI) estimates, fragmentation patterns, and analyses of anthropogenic modifications, and (b) to contextualize these findings within the broader regional variability of similar Subbaetic assemblages. Results suggest a funerary use of CM between the 5th and 2nd millennia cal. BCE, and a MNI of 12 (seven adults and five nonadults). The underrepresentation of hand and foot bones raises the possibility that bodies were introduced into the cave in a partially decomposed state. Anthropogenic modifications, including fresh fractures and modified bone elements, point to intentional fragmentation, soft tissues removal, and selective reuse of skeletal remains. The comparison with other cave funerary contexts from the same region suggests the presence of shared cultural elements, particularly during the Neolithic period, and underscores the persistent symbolic and social significance of the human body within these communities. The development of collective deposits in this region from the mid-4th millennium cal BCE should be understood in direct conceptual and chronological relation to the megalithic and hypogeic chambered tombs of southern Iberia.

1200. The Last of Us: Chalcolithic Collective Burial and the Maintenance of Identity at La Paridera de la Dehesa (Muel, Spain)

Authors: Marina Bretos – Jesús Picazo (University of Zaragoza) – Javier Fanlo – Nerea Timoneda (Independent researcher)
Format: Oral

Recent excavations at La Paridera de la Dehesa (Muel, Zaragoza) have revealed an exceptional collective burial context that offers new insights into the mortuary practices of the Ebro Valley during the Chalcolithic (c. 2800–2300 cal BCE). Located within a natural sandstone shelter, the site has been significantly altered by post-depositional processes. However, the identification of remnants of a closing wall lined with a clay coating suggests an original intent to transform the geological formation into a defined mortuary enclosure, delineating a boundary between the living and the ancestral domain. The funerary deposit, containing a minimum of 50 individuals of varying ages and sexes, reflects a complex biography of use. This prolonged use has led to a highly fragmented and mixed record, barring some notable instances of anatomical articulation. These taphonomic signatures are not merely preservation issues but indicators of an active "social life" of the remains, where ancestors were continuously reorganized to accommodate newcomers. Moreover, preliminary bioarchaeological analysis has identified distinct paleopathologies indicative of survival with debilitating conditions, pointing to the existence of care and community resilience. This site dates to a crucial period marked by territorial mobility and emerging organizational systems in the region. In this context, the persistent use of the burial space over centuries served as an enduring anchor for the community, acting as an active mechanism through which social identities and collective histories were maintained. By integrating high-resolution spatial analysis, 3D digital modeling, and bioarchaeological data, we aim to disentangle the formative process of this collective burial. These mortuary practices provide a vital proxy to reconstruct the specific social framework of the community, shedding light on a period where the scarcity of settlement evidence has historically obscured our understanding of their lived experience.

1342. The Emergence of Collective Burial Phenomenon in Late Neolithic Çatalhöyük

Authors: Katarzyna Harabasz (University of Szczecin) – Arkadiusz Marciniak – Patrycja Filipowicz (Adam Mickiewicz University)
Format: Oral

This paper examines the emergence of collective burial traditions corresponding purpose-built funerary architecture during the Late Neolithic occupation of Çatalhöyük (ca. 6300–5950 BCE), a period characterized by pronounced demographic contraction, environmental stress, and spatial reorganization. Whereas earlier mortuary practices at the site were embedded within domestic architecture and structured around intramural burials, the final centuries of occupation witnessed a decisive shift toward spatially segregated funerary contexts. Drawing on architectural analysis, stratigraphic relationships, osteological evidence, and Bayesian chronological modelling, the paper focuses on three key funerary contexts: two burial chambers and a structure interpreted as a charnel house, located in the TP and East Areas. These funerary features document a transition from individual, household-centred interments to collective, and repeatedly reopened mortuary deposits, in which the dead were actively re-engaged through practices of manipulation, reburial, and spatial reconfiguration. Within this framework, collective funerary architecture is interpreted as a critical arena for negotiating social memory and communal belonging in the context of settlement fragmentation and post–8.2 ka event environmental instability, fundamentally reshaping the social life of the dead in the late phase of Çatalhöyük's occupation.

2317. Living with the Dead: Continuing Bonds at Late Neolithic Tell Sabi Abyad, Syria

Authors: Karina Croucher (University of Bradford) – Jo-Hannah Plug (University of Oxford)
Format: Oral

Drawing on a background of rethinking burial interpretations – moving away from traditional interpretations of status, instead exploring emotional impacts on the bereaved and the relationships between the living and the dead – this paper discusses burial practices from the Late Neolithic site of Tell Sabi Abyad, Syria. We focus on a subset of burials from the 7th and early 6th millennium BCE from Tell Sabi Abyad 1 and III, which evidence extended interaction with the dead, bodily manipulation, and keeping the dead spatially close to the living. We explore emotional relationships with the dead, and the tangible connection with the dead evidenced through the mortuary evidence. Through an analysis of burial practices which incorporates emotion, sensory experiences,

and mourning, we aim to further enhance our understanding of the significance of the dead at Tell Sabi Abyad, and what such approaches might mean for understanding the prehistory of Southwest Asia, and for funerary archaeology more broadly.

382. Fragmented bodies and renewed engagements: The mortuary dimension of social cohesion at Tepecik-Çiftlik

Authors: Ali Büyükkarakaya (Hacettepe University)
Format: Oral

Appearing as special and rare graves during the Neolithic period, Collective Burials are considered a distinct type of burial, differing from "individual" and "single" burials, as they involved long-term successive burials and accommodated numerous members of the community across different generations. Furthermore, in these types of graves, the extended communal use of a specific space is considered to have led to the intersection of different household groups in Neolithic villages. Thus, they are not merely a place where successive burials were carried out, but should also be seen as a performance area for important references to a shared past and narratives. Located in the volcanic Cappadocia subregion of Central Anatolia, Tepecik-Çiftlik is a settlement that exemplifies the extremely diverse mortuary practices of the PPN and PN, allowing for an examination of the relationships these period communities established with their dead. Material evidence of secondary interventions in graves, skull removal practices, secondary and multiple burials, and the different representations of individuals' skeletal elements in these burials reveal the continuity of interesting funeral rituals. Recently unearthed plastered skulls have also given us a better understanding of the extent of interventions performed on the dead at Tepecik-Çiftlik. Among the graves identified at the settlement, the BB collective burial dated to the first half of the 7th millennium BCE is particularly significant due to its long-term use and evidence regarding bodily manipulation and fragmentation. Many researchers have pointed out that findings regarding the handling and rearrangement of body parts belonging to the dead, especially in multiple burials, contribute to the study of social relations during that period. Given this, the present study aims to examine this burial, along with other multiple graves, from the perspective of the formation of collective memory and social cohesion through mortuary rituals.

1251. Spatial Organization and Collective Practices in Extended Supine Inhumation Cemeteries of the Northern Pontic Region

Authors: Olha Demchenko (Odesa I.I. Mechnikov National University)
Format: Oral

Extended Supine Inhumation (ESI) cemeteries of the Northern Pontic region represent one of the longest-lasting burial traditions in Eastern Europe (late 8th–mid-5th millennium BCE), comprising over 1,200 individuals from more than 50 sites. Rather than following a linear development, ESI practices display multiple forms of spatial organization, reflecting changing concepts of ancestry, social belonging, and engagement with the dead. This study focuses on collective burial practices and identifies at least two main organizational models based on cemetery layouts, grave morphology, stratigraphy, and disturbance patterns. The first model consists of sub-burial cemeteries, where graves were repeatedly reopened to inter closely related individuals, as confirmed by genetic data from Yasynuvatka (Type A). Sites such as Vovnygy I–II, Dereivka West and East, Vilnianka, and Yasynuvatka show reused burial pits with layered fills and partial disturbance of earlier skeletons while preserving grave outlines. These features indicate controlled, memory-based practices in which specific graves functioned as long-term family or lineage burial places, anchoring collective identity. The second model is characterized by large rectangular or sub-rectangular collective ossuaries with homogeneous fills, suggesting continuous access, likely via covering structures (documented at Mykilske). Prolonged use led to extensive skeletal disturbance and loss of anatomical order, pointing to repeated embodied interaction with ancestral remains. This model corresponds chronologically with the emergence of the Azov–Dnipro tradition and broader eastern Eneolithic influences. The appearance of flexed supine burials in the latest ESI contexts reflects shifting ritual systems and the gradual decline of collective traditions. Radiocarbon dates indicate partial chronological overlap between the two models, though the second persists until the onset of metallurgy. Bioarchaeological and genetic evidence demonstrates that these transformations resulted primarily from internal social processes rather than population replacement. Clear markers of social status are largely absent; only with the Eneolithic do individual burials signal emerging social differentiation.

1049. Kinship, Mobility, and Violence in a Late Eneolithic Collective Burial of the Złota Culture from Southeastern Poland

Authors: Anita Szczepanek (Institute of Archaeology an Ethnology Polish Academy of Sciences | Department of Anatomy Collegium Medicum Jagiellonian University) – Wojciech Pasterkiewicz (Institute of Archaeology, Rzeszów University) – Paweł Jarosz (Institute of Archaeology an Ethnology Polish Academy of Sciences)
Format: Poster

The study presents the results of a multidisciplinary investigation of a collective grave attributed to the Złota culture and dated to the Late Eneolithic (first half of the 3rd millennium BC), discovered at the cemetery site in Sadowie, southeastern Poland. The deliberately constructed grave chamber contained the commingled remains of six individuals representing different age groups and both sexes (five males and one female). Osteological analysis revealed clear evidence of perimortem violence: three individuals exhibited fatal cranial injuries, while flint arrowheads embedded in the postcranial skeletons of two others indicate death as

a result of interpersonal conflict. Integrated bioarchaeological, genetic, and isotopic analyses were undertaken to reconstruct the biological profiles of the individuals, their mobility, diet, and the circumstances surrounding burial formation. Ancient DNA analysis identified close biological relationships among three of the individuals, suggesting kinship ties within the group. Strontium isotope ratios demonstrated that most individuals were local to the Sadowie region, with the notable exception of one female whose isotopic signature indicates a non-local origin. Stable carbon and nitrogen isotope values obtained from bone collagen point to a broadly homogeneous diet based primarily on C3 plants, supplemented by substantial animal protein intake. Taphonomic observations, together with the spatial distribution of skeletal elements and grave goods, suggest at least two phases of burial activity, involving both primary deposition and subsequent disturbance of remains. The burial practices, combined with genetic and isotopic evidence, suggest that the victims of at least one violent event were interred by members of their own community, providing important insights into social relations and expressions of violence during a period of major cultural and genetic transformation in Late Eneolithic Europe. The research was financed by the Polish National Science Centre (grant no. 2021/05/X/HS3/01850).

1201. Collective Burial in the Neolithic Western Alps: Deliberate Choices, Ritualised Interaction, and Long-Term Engagement with Ancestral Remains

Authors: Noah Steuri (McDonald Institute for Archaeological Research, University of Cambridge | Institut für Archäologische Wissenschaften, Universität Bern) – Nikolai Goritschnig – Sandra Lösch (Institut für Archäologische Wissenschaften, Universität Bern)
Format: Poster

The first Neolithic burials of the Western Alpine region provide a valuable perspective on how prehistoric communities constructed memory and social continuity through long-term engagement with the dead. Between 4800 and 3800 BCE, so-called Chamblandes-type graves—small box-shaped structures built from stone slabs or, more rarely, wooden planks—display considerable variability in mortuary practice, ranging from single primary inhumations to successive and collective burials involving secondary deposition. This variability paired with strong similarities in grave structures suggests that collective burial was not predetermined by architectural form but emerged through deliberate choices and repeated practices. Chamblandes-type graves occur both in small clusters and in large necropolises containing hundreds of graves, with burial activity continuing over multiple centuries. Long-term engagement with ancestral remains is further indicated by repeated reopening of graves for successive burials, as well as the rearrangement and redeposition of bones. Notably, overlapping graves are rare, implying that even centuries-old ones remained visible, remembered, or otherwise accounted for in the mortuary landscape. Taken together, these patterns indicate that Chamblandes-type graves structured social life beyond the moment of burial, likely functioning as enduring anchors of identity, continuity, and community history. Drawing on modelling of nearly 200 radiocarbon dates from human remains, this paper reconstructs long-term developments in burial customs and regional variation in grave use. Ongoing bioarchaeological research—including isotopic and aDNA analyses—further enables exploration of biological relatedness and mobility within and between burial communities, providing insight into how kinship and movement were negotiated. By situating Chamblandes-type graves within broader debates on memory, personhood, and the social life of the dead, this contribution argues that Western Alpine Neolithic burial practices served as focal points for ritualized interaction with ancestral remains, materializing kinship, community, and continuity.

137 KEEP TRYING TO CONTROL YOUR TEMPER: REASSESSING POTTERY TEMPERING PRACTICES IN THE AGE OF ARCHAEOLOGICAL SCIENCE

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Vasile Opris (University of Bucharest, Research Institute, ArchaeoSciences Platform | Bucharest Municipality Museum) – Miriam Cubas (University of Alcalá, Área de Prehistoria)
Keywords: ceramic technology, temper, archaeometry, interdisciplinary approach, material agency
Format: Regular session

SESSION ABSTRACT

In 1976, O. S. Rye urged archaeologists to "keep their temper under control" by investigating the material and technological choices of pottery manufacturing rather than focusing exclusively on decorative techniques or typology. Half a century later, his appeal for integrating etic and emic perspectives on tempering resonates anew within the rapidly expanding field of archaeological science. Today, the addition of organic or mineral temper is no longer regarded as a static cultural trait, but as a dynamic technological choice—one that reflects environmental knowledge, performance optimization, and social practice. This session invites discussion on how interdisciplinary analytical methods—such as petrography, SEM–EDS, XRD, isotopic and biomolecular analyses, computed tomography, and experimental replication—are transforming our understanding of tempers and tempering processes in ancient pottery. Recent studies from Europe and Western Asia have revealed complex technological systems, from calcite, chaff, or steatite for functional reasons, to the recycling of ceramic fragments as grog encoding social memory and identity. We seek to explore how the study of tempers can bridge traditional technological analyses with the pluralistic and reflexive perspectives of current approaches in Archaeology, linking potters' embodied skills with the physical and chemical behaviour of their materials. We welcome contributions from prehistoric and ancient pottery assemblages from all regions that address methodological innovations, theoretical implications, or cross-disciplinary dialogues concerning pottery tempering practices. By revisiting Rye's foundational questions

through the lens of twenty-first-century science, the session seeks to redefine temper not only as an additive in clay but as a key concept for understanding resilience, innovation, and meaning in ceramic technologies.

CONTRIBUTION ABSTRACTS

1105. More Than Porosity: Organic Temper as a Technological Choice in Neolithic Pottery from West Lithuania

Authors: Eglė Šatavičė (Vilnius Academy of Arts, Institute of Art Research)
Format: Oral

Organic temper has traditionally been interpreted primarily through its effects on fired ceramic properties, particularly porosity and thermal performance. In prehistoric pottery, it is often discussed in relation to early agrarian contexts, where vegetal additives such as chaff are well documented. In contrast, organic-tempered pottery associated with hunter–fisher–gatherer communities remains less systematically explored and appears considerably more variable in composition. This contribution examines organic temper as a technological choice in Neolithic pottery from West Lithuania, with emphasis on the diversity of organic and mineral additives used within non-agrarian ceramic traditions. Petrographic and SEM–EDS analyses reveal heterogeneous paste recipes combining organic temper with shell and other inclusions. XRD, FTIR, and CL provide complementary information on mineralogical composition, organic matter, and thermally related variability. FTIR results indicate predominantly plant-based organic matter, although the presence of animal-derived materials (e.g., hair or feathers) cannot be excluded based on microstructural observations alone. Shell-tempered fabrics exhibit variable CL responses, reflecting differences in preservation and thermal histories. Following the framework proposed by O. S. Rye (1976), organic temper is approached not solely as a functional additive affecting porosity, but as part of broader technological decision-making encompassing paste preparation, workability, and firing behaviour. In this context, the combined use of organic matter—including materials such as dung or herbivore stomach contents rich in organic acids—may have influenced clay flocculation and handling properties. While direct chemical characterisation of organic additives remains challenging, the observed fabric characteristics are consistent with intentional paste modification, which can be explored through the integration of experimental approaches and high-resolution imaging techniques. By emphasising variability rather than typology, this contribution demonstrates how interdisciplinary approaches can deepen our understanding of organic tempering practices within hunter–fisher–gatherer ceramic traditions and highlights their technological complexity.

343. Functional and Symbolic Dimensions of Ceramic Inclusions in the Early Chalcolithic Precucuteni Culture

Authors: Ana Drob (Arheoinvest Center, "A.I.Cuza" University of Iasi) – Camelia Pintilie (Faculty of History , "A.I. Cuza" University of Iasi) – George Bodi (Institute of Archaeology, Romanian Academy, Iași, Romania) – Felix Tencariu (Arheoinvest Center, "A.I.Cuza" University of Iasi)
Format: Oral

This study focuses on pottery from the Early Chalcolithic site of Isaiia–Balta Popii (Eastern Romania), a settlement attributed to the Precucuteni culture and dated to approximately 4700–4500 BC. Its primary objective is to reconstruct the ceramic chaîne opératoire through an integrated approach combining field investigations, laboratory analyses, and experimental archaeology. A total of fifty ceramic samples, along with several additional clay artefacts, were examined using portable X-ray fluorescence (pXRF), scanning electron microscopy coupled with energy-dispersive X-ray spectroscopy (SEM-EDX), and optical microscopy. These analyses were complemented by the sampling and characterisation of local clay sources in order to assess potential raw material procurement strategies. The analytical results indicate the deliberate incorporation of a diverse range of inclusions within the ceramic matrix. These include vegetal temper, as well as grog consisting of crushed and re-fired ceramic fragments intentionally added to the paste. In addition, the detection of foraminifera and other biogenic calcareous microfossils points to the use of locally available clay deposits as primary raw material sources. Particularly noteworthy is the identification of calcium- and phosphorus-rich residues consistent with bone ash in several cult-related artefacts, suggesting a non-random and potentially symbolic choice of temper. To further evaluate this hypothesis, experimental replication was conducted. Comparative SEM-EDX analyses revealed compositional and microstructural correspondences and characteristic vitrification patterns, supporting the intentional inclusion of bone ash in the original ceramic assemblage. Collectively, these findings point to a sophisticated technological repertoire characterised by selective clay procurement, intentional tempering, and recycling practices. Moreover, they underscore the technological, cultural, and social complexity inherent in the selection, processing, and combination of raw materials and additives. Overall, the study enhances current understanding of Early Chalcolithic ceramic production, revealing deliberate technological choices that reflect both functional requirements and symbolic considerations within the Precucuteni cultural framework.

1149. Does Temper Matter? Diachronic Choices in Prehistoric Pottery from Sultana

Authors: Theodor Aurelian Ignat – Vasile Opriș (University of Bucharest | Bucharest Municipality Museum) – Adrian Majuru (Bucharest Municipality Museum) – Cătălin Lazar (University of Bucharest)
Format: Oral

The prehistoric settlement of Sultana, located in southern Romania near the Danube, offers an exceptional opportunity to investigate

long-term continuities and transformations in ceramic production practices. The site was occupied for approximately 1,500 years, from around 5000 cal BC (Boian culture) to 3500 cal BC (Cernavodă III), encompassing major cultural and technological shifts throughout the Chalcolithic sequence. This paper examines the role of ceramic temper as a technological choice and cultural practice within the prehistoric communities of Sultana. Our approach combines macroscopic qualitative and quantitative analysis of pottery fabrics with targeted archaeometric investigations, including petrographic and geochemical analyses of a selected sample set. Through this multi-scalar methodology, we explore diachronic patterns in temper selection and their implications for ceramic manufacture and performance. Observed similarities and differences in tempering traditions across time raise key questions regarding production processes: who produced tempering materials, what tools and labour were required, and how did different tempers influence clay preparation, shaping, and firing behaviour? To address these issues, we integrate insights from experimental archaeology, replicating temper preparation and ceramic forming under controlled conditions. Our results suggest a marked local resilience in preferred temper types during the early and middle Chalcolithic, alongside significant changes emerging in the late Chalcolithic period. These shifts may reflect broader transformations in technological knowledge, resource management, and social practice. By reassessing temper not merely as an additive but as a meaningful component of ceramic technology, this contribution aligns with current interdisciplinary debates on material agency and innovation in prehistoric pottery production. This work was supported by a grant of the Romanian Ministry of Research, Innovation and Digitization, CNCS-UEFISCDI, project number PN-IV-P2-2.1-TE-2023-0876, within PNCDI IV.

602. Temper Your Shells: Archaeometric Analysis of Cernavodă I Shell-Tempered Chalcolithic Pottery from Southeastern Romania

Authors: Bogdan Manea (Interdisciplinary School of Doctoral Studies, University of Bucharest | ArchaeoSciences Platform, ICUB) – Valentin Radu (ArchaeoSciences Platform, ICUB | National Museum of Romanian History, Bucharest) – Ioana Poroșnicu – Adrian Sima (National Institute for Laser, Plasma and Radiation Physics, Măgurele) – Florin Vlad (Ialomița County Museum) – Ion Tiseanu (National Institute for Laser, Plasma and Radiation Physics, Măgurele) – Cătălin Lazăr (ArchaeoSciences Platform, ICUB)
Format: Oral

Pottery held a central role in the development of early societies, which is why it rapidly spread and became widely adopted during prehistory. Today, it remains equally important for archaeologists, as archaeometric analyses enable them to access new information on past technologies, social organization and relations, mobility, and human-environment interactions. One of the most intriguing aspects of pottery research is the variety of choices in temper, as they provide valuable information about technological practices and traditions within well-defined spatio-temporal frameworks. The proposed topic aims to discuss preliminary archaeometric results on Late Chalcolithic Cernavodă I pottery (4th millennium BC) from the archaeological site of Săveni-La Movile, Ialomița County, southeastern Romania. The objective of this study is to investigate in detail the main technological feature of the Cernavodă I phase, characterized by the addition of crushed shell valves to the paste recipe, a practice unlike those encountered among other Chalcolithic communities in the Muntenia region. By means of macroscopic investigation, thin-section petrography coupled with optical microscopy, and X-ray computed tomography, among other methods, various aspects of shell-tempered pottery will be discussed. The meaning of the available data on the nature of the shells (whether fossil or non-fossil), their presence in the paste (natural or deliberate), their cluster (frequency, distribution, orientation), and individual (shape, size, striations, and breakage patterns) characteristics, as well as the potential species and their provenance, will be explored from technological (including possible shell crushing practices), social, and human-environment perspectives. Temper studies are continuously developing and highlighting the untapped plethora of information that pottery still holds, ultimately allowing archaeologists, through comparison, to gain a better understanding of how life unfolded within and between prehistoric communities. This work was supported by a grant from the Romanian Ministry of Education and Research, CNCS UEFISCDI, project number PN-IV-P1-PCE-2023-1899 (BioArhSteppe).

2496. Paste, Pores, and Firing: Ceramic Production Technology and Stylistic Transformation during the Bronze Age Harappan Civilization in the Drishadvati Basin

Authors: Manjari Sharma (Indian Institute of Technology, Gandhinagar) – Prabhakar Nandagopal (Indian Institute of Technology Gandhinagar) – Krishnan Krishnan (—)
Format: Oral

The evolution and expansion of the Bronze Age Harappan Civilization (c. 2600–1900 BCE) across diverse ecological zones display high degrees of standardization along with regional stylistic and typological variations. However, the degree of regional variability in manufacturing practices and technological choices related to paste preparation and tempering, remains underexplored. This study evaluates variability in production techniques and raw material use through a scientific investigation of ceramics from the type-site Karanpura (Drishadvati basin). The site has a one-thousand-year occupation unravelled through stratigraphic excavations, divided into Early Harappan (c. 3000–2500 BCE) and Harappan (c. 2500–2000 BCE) phases. Ceramic assemblages from the Sarasvati–Drishadvati river basins have been attributed to the Sothi–Siswal ceramic tradition during the Early Harappan phase [1] and classical Harappan ceramics during the Harappan phase, based largely on typological characteristics such as vessel forms, surface treatments, and decorative schemes. The hypothesis is that variability in ceramic typologies over time may conceal shared production strategies and tempering practices. The ceramics from Karanpura were analyzed using an integrated approach combining apparent porosity analysis, thin-section petrography, and X-ray diffraction (XRD), complemented by ethnoarchaeological observations and experimental replication of ceramic production practices. Apparent porosity values helped assess changes in paste preparation, and degrees of vitrification through time. Petrographic analysis provided basic information on fabric classification, temper types, and raw material selection [2], while XRD identified mineralogical phases, allowing inferences on the overall preparation techniques. Some Ethnoarchaeological and experimental production data were used as comparative frameworks to evaluate technological choices and execution. Further, the site's location in a dynamic fluvial landscape is also investigated to understand the regional geology and availability of raw materials influencing clay and temper choice. This paper will discuss the continuity in techniques of paste preparation, tempering, and firing across the stratigraphic phases of Karanpura while disentangling technological practices from stylistic expressions.

2685. Temper or not to temper? The manufacturing of painted pottery as a sign of innovation in the Early Iron Age

Authors: Dagmara Łaciak (Institute of Archaeology, University of Wrocław) – Wojciech Bartz (Institute of Geological Science, University of Wrocław) – Paweł Szymański (Masurian Pottery School)
Format: Oral

In the territory of today's SW Poland, the phenomenon of polychromic ceramic vessels seems to become the most noticeable at the beginning of the Early Iron Age (Hallstatt period, ca. 750-450 BC), when an abundant amount of ceramics dominated in archaeological records. The collection includes a broad assemblage of shapes and ornaments that differ from other kinds of mass-scale pottery. They are considered a prestige item, and the production as one of the material signs of social changes. Our presentation aims to indicate temper as a feature influencing the manufacturing process of painted pottery. Archaeometric (petrography, XRD, thermal, SEM-EDS) and traceological research have indicated several different stages of manufacturing sequence according to raw clay, temper, shaping techniques, surface treatment, and firing. Especially one of the group differs not only in painted patterns, but also in the lack of temper or a small amount of mineral one. The question about the shaping technique has appeared. New insights were provided by traceological observations. Experimental attempts based not only on archaeometric and surface analysis, but also on handicraft skills and knowledge of recreating ceramic paste have shown the existence of a very new technique of shaping the painted vessels. In the light of social transformation at the end of the Bronze Age, temper consist a technological choice, a representation of innovative properties of the Early Iron Age manufacturing of ceramics.

1630. Black Matter: Graphite-Tempered Pottery and Its Role in Late Iron Age Society

Authors: Ábel Garczik (Eötvös Loránd University)
Format: Oral

One of the most important aspects of pottery production is tempering. The choice of temper influences the clay's workability and stability, firing conditions, and the quality and appearance of the final product, as well as its function. Graphite, which has both positive and negative physical and chemical properties, can definitely be considered a unique tempering agent. Its use flourished in Central Europe during the Late Iron Age. Graphite-tempered vessels represent one of the most distinctive, yet also most enigmatic find type of the La Tène culture, as numerous questions remain unanswered regarding their production, distribution, and function. Previous geochemical analyses have demonstrated that the graphite used in their manufacture was mined in the Bohemian–Moravian region and subsequently transported as small lithic fragments to various areas of the eastern Celtic cultural complex. Graphite-tempered vessels occur in substantial quantities at nearly every site in this region during the last centuries BC, indicating the existence of a well-organized and efficient network of connections. Through this network, not only graphite itself but also the technological knowledge required for its processing, as well as the conceptual background of its use, could circulate over distances exceeding more than a thousand kilometres. In this presentation, I will examine the chaîne opératoire of graphite-tempered pottery, their value in Celtic societies, as well as their chronological development. This study is based on a series of new petrographic material analyses (thin sections, XRD) combined with a revised approach to typo-chronological observations, with particular emphasis on finds from the Carpathian Basin.

498. End or Reorganisation? The First-Century BC Transformation in Central Europe Based on Pottery from South Bohemia

Authors: Jan Volf (Institute of Archaeology of the Czech Academy of Sciences) – Karel Slavíček – Kristýna Trnová (Department of Geological Sciences, Faculty of Science, Masaryk University)
Format: Oral

This paper examines changes in tempering practices and other stages of the ceramic chaîne opératoire in Central Europe during the first century BC, at the end of the La Tène and the beginning of the Roman periods. The transformation of material culture during this time has traditionally been explained as a result of population replacement, with La Tène pottery production assumed to have ceased entirely. However, past research has primarily focused on vessel shapes and decorations, leaving technological choices largely unexplored. The aim of this study was to obtain new data on pottery from this transitional phase using macroscopic observation, X-ray fluorescence analysis, and thin-section petrographic analysis, with an emphasis on the properties of ceramic fabrics. Pottery assemblages from the settlements of Dub-Javornice and Přešťovice in southern Bohemia were selected as a case study. The results showed that certain tempers were typical of pottery attributed to either the La Tène or the Roman period, with materials of distinct chemical composition often characteristic of pottery dated to one of the two periods. Nevertheless, overlaps in fabric preparation

were also identified, with some materials used with similar frequency in the production of pottery from both periods. This demonstrates that the detected variability in tempering practices cannot be understood simply as a chronological marker. Further differences were observed in other stages of the chaîne opératoire, although similarities were documented as well. Overall, the data suggest that differences in pottery production can be interpreted more as a reorganisation of ceramic production and changes in specific stages of the manufacturing process, including tempering practices, rather than as evidence of a complete technological discontinuity. These changes likely reflect deliberate choices made by potters in response to a combination of environmental, cultural, social, and economic factors, rather than being a direct result of large-scale migration.

922. Reading the Landscape in Pottery: Fe-Rich Concretions Between Technology and Environment

Authors: Andra Simniškyte-Strimaitiene (Lithuanian Institute of History, Department of Archaeology)
Format: Oral

The study examines the origin and significance of Fe-rich concretions in ceramic fabrics. Iron-rich concretions in ceramics are often described in general terms without detailed mineralogical characterization. As a result, their interpretation remains ambiguous, ranging from natural inclusions to intentionally added temper. In this study, using SEM–BSE imaging and EDS analysis, we examine Fe-bearing phases in two Roman Iron Age vessels from a site in Lithuania. One of the vessels was highly sensitive to a magnet, while the clay matrix of the other contained abundant spherical nodules. The results demonstrate that the Fe-rich concretions are natural inclusions rather than added temper, having originated in naturally ferruginous clays formed under fluctuating redox conditions in wetland settings and subsequently modified during firing and depositional processes. The findings contribute to broader research on how landscape processes are recorded in material culture. By situating Fe-rich inclusions within environmental and technological frameworks, the study contributes to a more nuanced understanding of temper as a dynamic and context-dependent concept rather than a priori cultural choice.

344. Cucuteni Type C Pottery in Chalcolithic Eastern Romania: An Archaeometric and Experimental Technological Study

Authors: Ana Drob (Arheoinvest Center, "A.I.Cuza" University of Iasi) – Camelia Pintilie (Faculty of History , "A.I. Cuza" University of Iasi) – George Bodi (Institute of Archaeology, Romanian Academy, Iași, Romania) – Felix Tencariu (Arheoinvest Center, "A.I.Cuza" University of Iasi)
Format: Poster

The present study examines Cucuteni pottery assemblages from eastern Romania, with a particular emphasis on technological traditions, manufacturing practices, and provenance within the Chalcolithic Cucuteni cultural framework. Conducted as part of a broader interdisciplinary research project on prehistoric pottery production and distribution, the study focuses on the experimental and archaeometric characterisation of ceramic materials, with special attention given to the so-called Cucuteni type C ceramics. These vessels are functionally associated with cooking activities and are distinguished by the use of shell or vegetal tempering agents. The main objectives of the research are to identify potential raw material sources, to assess technological choices, and to differentiate between local and regional production patterns. From a methodological perspective, the research combines macroscopic and microscopic observations with advanced analytical techniques, including scanning electron microscopy coupled with energy-dispersive X-ray spectroscopy (SEM–EDX) and micro-Fourier transform infrared spectroscopy (μFTIR), complemented by experimental replication using locally sourced clay materials. Comparative analyses of archaeological and experimentally produced samples from several recently investigated Cucuteni B sites reveal notable variability in both the type and composition of inclusions. In certain settlements, ceramics predominantly contain vegetal temper, whereas in others, shell-rich pastes prevail, pointing to technological as well as cultural differentiation among the examined sites. Preliminary results suggest that, despite the overall standardisation observed in Cucuteni B ceramic production, type C pottery exhibits a marked degree of heterogeneity. This variability likely reflects small-scale, potentially household-based production practices. While local clay sources appear to have been primarily exploited, differences in raw material selection and tempering strategies indicate the coexistence of diverse technological traditions. Overall, the study enhances current understanding of Chalcolithic ceramic production systems and highlights the complex interplay between tradition, technological choices, and local resource management.

434. The Secret Recipe by the Khitans: Potteries from Medieval Frontier Mongolia

Authors: Jingchao Chen (Hebrew University of Jerusalem) – Paula Weiman-Barak (Tel Aviv University) – Gideon Shelach-Lavi (Hebrew University of Jerusalem)
Format: Poster

This research presents the interdisciplinary analysis on pottery from the Medieval period in China and Mongolia, with a specific focus on ceramics associated with the Medieval Wall System in Mongolia. Particularly, it is to investigate ceramic technology and distribution nomadic and seminomadic societies in frontier medieval Mongolia, as opposed to sedentary societies. As a pilot study, earthenware and glazed sherds, along with local clay samples, were thin-sectioned and analyzed using polarized light microscopy, Fourier-transform infrared spectroscopy (FTIR), and scanning electron microscopy (SEM). Petrographic and microstructural analyses reveal multiple fabric groups characterized by distinct mineral inclusions, clay matrices, and tempering strategies, including variations in particle size, sorting, and temper composition. These patterns suggest intentional recipes rather than uniform or

static traditions, highlighting adaptive choices in raw material selection and paste preparation.The ceramic samples were previously subjected to isotopic and biomolecular analyses, which identified significant lipid residues linked to steppe subsistence and foodways. Integrating residue evidence with technological data provides rare insight into how tempering choices intersected with vessel use, thermal performance, and culinary practices in mobile societies.

1911. Does Temper Always Matter? Experimental Insights into Clay–Temper Recipes

Authors: Andreja Kudelic – Natali Neral (Institute of archaeology, Zagreb) – Ana Maričić (University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering)
Format: Poster

Throughout prehistory, communities employed a range of tempering materials to modify ceramic pastes. These materials improve workability, reduce shrinkage, and enhance thermal shock resistance. However, tempering materials may interact differently with specific clay types, resulting in variable technological and mechanical outcomes. Examining these interactions is essential for understanding tempering practices, the function of tempering materials, and factors underlying raw material selection in pottery production. This study investigates the physical and mechanical properties of ceramics produced using different clay–temper recipes to assess how tempering materials interact with distinct clay types and influence production and ceramic strength. The research focuses on four tempering materials—calcite, grog, sand, and vegetal material—and two clay types commonly used in prehistoric Croatia: sandy clay and inclusion-poor clay. The methodology combines plasticity and shrinkage tests (Atterberg limits) with mechanical strength assessment using point load index testing on 56 experimentally produced ceramic briquettes. The results show that tempering effects are strongly conditioned by clay type, with a more pronounced impact in highly plastic, inclusion-poor clays. In these clays, mineral tempers are essential to reduce shrinkage and maintain structural integrity after firing, indicating that tempering materials are structurally necessary rather than merely performance-enhancing. Moreover, these clays produce stronger briquets, reflecting the potters' skill and understanding of raw materials. In contrast, adding tempers to moderately plastic, sandy clays does not significantly affect production or ceramic strength, suggesting that tempering can be considered independently of clay properties. Therefore, tempering materials may fulfil different technological roles depending on clay type. These findings raise questions about why potters select challenging, highly plastic clays despite the availability of sandy clays, and why tempers are used in clays already rich in mineral inclusions. These choices likely reflect specific cultural and environmental conditions, offering insight into the complexity of technological strategies and material selection.

139 CROSS-ANALYTICAL APPROACHES ON THE MATERIALITY OF CULT IN EARLY GREEK SANCTUARIES

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Tamara Saggini (ESAG - Swiss school of Archaeology in Greece | Université de Lausanne) – Azzurra Scarci (LEIZA) – Samuel Verdan (ESAG - Swiss school of Archaeology in Greece | Université de Lausanne)
Keywords: interdisciplinary approaches, Early Greece, sanctuaries, analytical methods, archaeometry, materiality of cult
Format: Regular session

SESSION ABSTRACT

Research on early Greek sanctuaries increasingly benefits from methodological innovation and collaborative frameworks that move beyond traditional material studies. While archaeological investigations have significantly deepened our understanding of sacred spaces and ritual settings, interdisciplinary approaches are reshaping the way we engage with the tangible remains of cult and belief, broadening interpretative horizons and enhancing analytical precision. This session explores how the dialogue across disciplines –– including archaeometry, geology, archaeobotany, zooarchaeology, palynology, anthracology, metallurgy, geomorphology, spatial and digital modelling, and advanced data analysis –– refines our understanding of sacred spaces and ritual behavior. Integrating these approaches allows us to gain deeper insight into the complex biographies of cult implements and votives, the roles of plants and animals in ritual practices, the significance of landscape features, the shaping of sacred spaces through architectural choices, and, ultimately, the material and spatial dimensions of ritual performance within Greek sanctuaries. By fostering dialogue between field archaeology, laboratory science, and computational methods, this session assesses how data integration and analytical experimentation can deepen our understanding of early Greek cults poorly attested in written sources. We welcome contributions that present recent methodological advances, and first-hand, data-driven approaches. Ultimately, the session seeks to illustrate how interdisciplinary collaboration reshapes the study of early Greek religion, improve interpretative accuracy, and enhances reconstructions of ritual practices and social dynamics in Greek sanctuaries.

1220. The metal finds from the Greek sanctuary of S. Anna in Agrigento (Sicily): archaeometric investigation

Authors: Giovanni D'Elia (University of Augsburg)
Format: Oral

The research project originates from hundreds of metal objects recovered in numerous depositions intercepted in the area of the extra-urban shrine of S. Anna in Agrigento. These artefacts can be considered either gifts to the gods, part of the sanctuary's metal treasure found within the famous indigenous pithos, or as individual votive objects buried in the sanctuary grounds, with no possibility of recovery by worshippers. The analysis of such metal finds is based on their careful stratigraphic contextualisation within the sanctuary, their comprehensive classification, and their ethno-geographical origins (indigenous, Greek, or continental European workshops). To better define the consistent cultural, commercial, and trade relations surrounding metal in antiquity, the research, in addition to focusing on numerous comparisons with metal artefacts from across the Greek world, also drew on the valuable contributions of archaeometry. The archaeometric analyses, supervised by Dennis Braekmans, Associate Professor in Archaeological Materials Analysis at the Department of Archaeological Sciences at Leiden University (The Netherlands), have been conducted on specific categories of artefacts (ingots, aes rude, smelting slag, and miscellaneous objects). Such analyses have aimed to deepen our understanding of ancient raw materials and metallurgical processes, identify the chemical composition of the various objects, and, finally, determine the origin of the metals hoarded at S. Anna. To achieve these goals, the research project employed a combined approach that incorporated various analytical techniques (invasive and non-invasive): XRF and ICP-MS analyses to obtain a complete spectrum of the materials' chemical composition; and lead isotope analysis to trace the sources of metal supply. The results of these scientific investigations have provided new data on mineralogical and metallurgical aspects of S. Anna's metal and have enabled us to trace a broad picture of trade and exchange in the Mediterranean area.

1319. Disassembled Dedications: The Aesthetics and Use of Bronze Hydria at the Sanctuary of Zeus at Nemea

Authors: Stephanie Kimmey (Weber State University) – Jesse Obert (University of South Florida)
Format: Oral

The Sanctuary of Nemean Zeus in the northeast Peloponnese, one of the four Panhellenic "crown" sanctuaries in Greece, does not always conform to the established understanding of a panhellenic sanctuary. Too frequently, aspects at Nemea were described in relation to patterns and rituals occurring at Olympia, but the sanctuary clearly does not fit the traditional mold. One primary example is the relatively low quantity votives bronzes. Throughout the sanctuary, votive deposits are rare generally. The most prevalent exception, and the centerpiece of the Nemea Museum is an archaic bronze hydria with the inscription "ΤΟ ΔΙΟΣ ΕΙΜΙ ΤΟ ΝΕΜΕΑΙ" (BR 379). Excavated from a well in 1977, it was found ritually "killed" in three separate pieces. Excavators found four bases one hydria, but not their bodies, in the same well. At least five more disassembled bases were deposited in other wells around the sanctuary and very few bronze fragments were found in association; we are left with only part of the whole. This begs the question, what happened to the rest of the hydriai? Combining contextual and depositional analysis with pXRF spectroscopy and archaeometallurgical analysis opens the door to reconstructing the pre- and post- depositional history of these bases. It also allows us to reconstruct what these hydriai would have looked like due to variations in metallurgical composition and construction, the visual aesthetics of displaying metal objects, and the ritual practices occurring at the sanctuary. This paper examines these metal vases in their ancient context, their use and reuse, while also addressing issues of modern conservation, to demonstrate how interdisciplinary approaches can open new avenues of research on legacy material.

2253. From Use to Offering: Weapons, Tools and Vessels Dedications in the Artemision of Amarynthos

Authors: Tamara Saggini (Swiss school of archaeology in Greece | University of Lausanne) – Azzurra Scarci (Leibniz-Zentrum für Archäologie LEIZA, Mainz)
Format: Oral

This paper investigates cultic practices related to the dedication of objects that may have been used before their deposition in the sanctuary of Artemis at Amarynthos (Euboea). By situating this material within the wider framework of votive behavior in Greek sanctuaries, the study seeks to explore the processes through which functional objects were transformed into meaningful ritual offerings. The analysis focuses on a corpus of metal dedications—primarily weapons and tools—examined alongside associated assemblages of ceramic vessels. The study adopts an integrated methodology combining contextual archaeological analysis with archaeometric investigation. Elemental and metallographic analyses, X-radiography, and metalwork-wear analysis are employed to examine alloy composition, manufacturing techniques, structural features, traces of repair or modification, and patterns of use-wear. Together, these approaches provide critical insights into the object biographies, allowing an assessment of whether they were produced specifically for votive purposes or circulated within domestic, artisanal, martial or other everyday contexts prior to their dedication. The ceramic assemblage is similarly evaluated in terms of use, selection, and depositional context, enabling a comparative perspective on different categories of offerings. Particular attention is given to the spatial and stratigraphic distribution of the material within the sanctuary, as well as to chronological patterns of deposition. This approach facilitates the reconstruction

of ritual practices and depositional strategies, highlighting the role of material choice and object biography in the articulation of cultic gestures. By contextualizing metal and ceramic offerings within the broader ritual landscape of the Artemision, this paper contributes to a more nuanced understanding of the cult of Artemis at Amarynthos, emphasizing the intersections between warfare, craftsmanship, and social identity. More broadly, it demonstrates the interpretive potential of integrating archaeometric data with contextual analysis for the study of the materiality of cult in ancient Greece.

969. Crossed methodologies for the Archaic and Classical pottery from the Amyklaion of Sparta

Authors: Adrien Delahaye (Université de Montpellier Paul-Valéry)
Format: Oral

Excavations conducted at the Spartan sanctuary of Apollo Amyklaios since 2006 by the Amykles Research Project, under the auspices of the Archaeological Society of Athens, have led to the discovery of rich deposits of archaic and classical pottery in stratigraphy. These artifacts, which consists mainly of fine wares and miniature objects, offer the possibility of a comprehensive and holistic documentation, thanks in particular to the use of cross-disciplinary approaches: ceramology, typology, stylistic, diachrony, but also archaeometric analyses. Petrographic and XRF analyses are currently underway, as are analyses of organic residues. The aim of the former is to identify the fabrics and their local dimension. The aim of the latter is to determine the function of certain categories of vases as containers and then to identify the nature of the contents. These analyses of archaic and classical artifacts are being conducted in conjunction with those of the Bronze Age and Early Iron Age periods. While the data is still being processed and therefore remains unpublished for the moment, the purpose of this presentation is to provide an overview of the current state of research.

2055. Exploring the polychromy of terracotta figurines from the sanctuary of Artemis Amarysia

Authors: Alice Clinch (Max Planck Institute for the History of Science)
Format: Oral

Research into the polychromy of the ancient Mediterranean world has routinely focused on its uses in large scale formats such as architecture, wall painting, and sculpture, offering reconstructions and interpretations of how these structures and materials would have originally appeared. However, smaller scale material culture has frequently been overlooked by such studies. In ancient cult practice, smaller forms of visual and material culture dominated as the principal type of votives and thus embodied more personal forms of religious commitment and ritual. Recent excavations at the sanctuary of Artemis Amarysia in Euboea by the Swiss School of Archaeology in Greece have uncovered a remarkable number of terracotta figurines, many still bearing traces of rich, polychromatic, painted decoration. This paper presents initial results in the identification of pigments and colourants used in the decoration of the figurines, to revive the rich polychromy of votive practice, and offer insights into the craft and technology of ancient cult at the sanctuary of Artemis at Amarynthos.

2610. Textiles for Artemis: new evidence from Amarynthos, Euboia

Authors: Bela Dimova (Independent scholar)
Format: Oral

Since 2021 excavations at the temple of Artemis at Amarynthos conducted by the Swiss School of Archaeology in Greece have uncovered several hundred fragments of ancient textiles from a deposit dated to the late 6th century BC. These mostly small and fragile fragments were documented and analysed with a range of scientific tools in order to shed light on their raw materials, technology, how they were used at the sanctuary. Some were carbonised (partially burnt in situ), others are preserved through mineralisation in contact with bronze and iron weaponry and other objects, and some are partially organic. Insights from the scientific investigation will be integrated with information from written and iconographic sources on textiles at other cult sites. The study of the textile remains sheds light on cult practices, the material environment at the sanctuary, and the biography of votive offerings, which could be embellished, wrapped, and stored using cloth.

919. Timber and Technology: Anthracological Analysis of the Amarynthos Temple Structures

Authors: Panagiotis Koullouros (The Cyprus Institute, STARC)
Format: Oral

This paper investigates the materiality of cult in early Greek sanctuaries through a cross-analytical framework, utilizing the anthracological record of the Artemis Amarynthia sanctuary as its primary evidence. Rather than focusing on theological interpretations, the study prioritizes the technical and economic realities of sanctuary life, assessing the selection of wood for both ritual combustion and construction. By analysing charred macro-remains, the research assesses the interplay between environmental resource management and the structural evolution of the temple site. The transition from geometric structures to formalized stone architecture necessitated a sophisticated understanding of timber properties; consequently, the anthracological data is correlated with architectural features such as post-holes, to distinguish between fuel and structural timber. This approach treats charcoal not merely as sacrificial refuse, but as a diagnostic material that reveals the logistics of sanctuary maintenance, the exploitation of the local

Euboean maquis, and the spatial organization of the temple. By integrating archaeobotanical identification with a rigorous study of architectural stratigraphy, the paper demonstrates how the physical construction and daily operation of the Amarynthos temple were dictated by available technology and landscape management, providing a grounded, materialist perspective on the development of early Greek sacred spaces.

27. Animals and ritual practices at early Olympia - a neglected piece of evidence

Authors: András Patay-Horváth (ELTE Budapest)
Format: Oral

Based on the iconographical analysis of the EIA bronze animal figurines, the present author has already suggested that the sanctuary of Olympia was originally frequented by aristocratic hunters chasing wild or feral bovids. The sanctuary has not provided any archaeozoological/osteological evidence in order to test this hypothesis, but a skull identified as belonging to an aurochs (bos primigenius bojanus) has been found near Elis (at Staphidokampos). It has slready been examined by a archaeozoologist (G. Nobis), was mentioned in the excavation report (ArchEphem 1999) and is currently on display in the local museum. The find was made in 1993 during a rescue excavation of a classical era cemetery with cist graves containing also some circular repository pits dating from the Byzantine times. Inside the largest pit, the skull was found among the remnants of fire but not burned itself and it was carefully placed and secured all around with small stones and tiles. The skull belongs to a young animal, whose horns have probably been cut off, perhaps to be used as a domestic drinking vessel. The paper will discuss the identification of the animal and its possible implications for the interdisciplinary study of early Olympia.

2096. The Gods' Portions: Zooarchaeological Perspectives on Local Sacrificial Variability in Ancient Greece

Authors: Audrey Fourtet (Université Paris 1 - Panthéon-Sorbonne | ArScAn - UMR 7041 - Archéologies environnementales | AnHiMA - UMR 8210)
Format: Oral

In the account of the Promethean sacrifice, Hesiod places the question of division at the heart of the thusia: the gods receive the bones concealed beneath fat, while humans are allotted the consumable portions of the animal. While Hesiod clarifies the distinction between the divine and human shares, other sources allow a more precise understanding of the nature of the burned portion. Homeric epic emphasises thigh bones wrapped in fat (mēria), a motif taken up in tragedy and comedy (Aeschylus, Sophocles, Aristophanes), while other passages also refer to the caudal region (osphys), and more occasionally to other anatomical parts. Taken together, these testimonies suggest a recurrent model of the portion offered to the gods, centred on posterior segments of the animal, without constituting a homogeneous norm or accounting for the diversity of local practices. This paper proposes to examine the material translation of these sacrificial models at the scale of sanctuaries through zooarchaeological analysis of faunal remains. The identification of bones subjected to intense burning (carbonisation and calcination) provides a means of approaching materially the portions burned for the gods and of highlighting variability in anatomical selection, both between sanctuaries and over time. The study is based on a comparative analysis of three Archaic-period sacrificial contexts – the sanctuary of Apollo at Delphi, the sanctuary of Aphrodite at Miletus, and, to a lesser extent, the Amyklaion at Sparta – and on their comparison with assemblages from other Greek sacred spaces. The spatialisation of these data at the scale of Greece allows an assessment of the archaeological visibility of the "classical" sacrificial model and a discussion of its regional and chronological variations. This approach highlights the tension between shared ritual frameworks and local practices, showing that the existence of a common sacrificial reference does not necessarily entail uniformity in ritual gestures.

2420. Fire, Bone, and Ritual: Cross-Analytical Perspectives on Faunal Assemblages from the Sanctuary of Artemis at Amarynthos

Authors: Angelos Gkotsinas (Hellenic Ministry of Culture, Ephorate of Antiquities of Ilia | Swiss School of Archaeology in Greece)
Format: Oral

This presentation presents an ongoing cross-analytical study of faunal assemblages from the Sanctuary of Artemis at Amarynthos, demonstrating how integrating complementary methodologies can transcend the limits of conventional macroscopic analysis to produce data-driven reconstructions of cult activity. The assemblage, recovered from the Geometric–Archaic temple and associated spaces, exhibits intense fragmentation and pervasive burning consistent with repeated episodes of ritual processing and deposition. Preliminary analysis reveals a marked predominance of caprines, supplemented by lesser proportions of cattle, pigs, and wild taxa. Significant spatial variation in the density and burning intensity of remains across the sanctuary suggests differentiated modes of ritual behavior, potentially linked to distinct stages of sacrificial practice. While extensive thermal alteration constrains species-level and anatomical identification, integrating analytical perspectives on burning conditions — including combustion temperature, duration, and bone coloration patterns — provides a framework for interpreting how animals were processed and deposited in relation to cult installations such as altars. This case study illustrates how interdisciplinary dialogue between field archaeology and laboratory science deepens our understanding of early Greek cult practices.

2681. Offering the sea: marine animal remains in the first Greek sanctuaries

Authors: Tatiana Theodoropoulou (CNRS - Université Côte d'Azur)
Format: Poster

Marine animal remains recovered from Greek sanctuaries have often been interpreted as incidental or as decorative curiosities, not included in the official religious acts of Greek religion. Yet their repeated presence in ritual contexts points to deliberate acts of selection and deposition, that should be more valued within the overall discussion of ritual practices. This poster provides a short overview of marine invertebrates and fish in sanctuary assemblages from Greek sanctuaries of the Aegean and Greek colonies during the Early Iron Age and Archaic periods. It aims to explore inter-regional similarities and local variations, taking into account the nature of the deity involved, as well as the environmental availability of marine resources. The study examines how marine materials contributed to the articulation of individual and collective identities within the official religious experience. We argue that marine animals functioned as meaningful ritual media rather than incidental offerings, reflecting not only individual expressions but also shared religious conventions in the Early Iron and Archaic Greek religion.

141 CROSS-CULTURAL PATTERNS IN SMALL-SCALE SOCIETIES: INSIGHTS FROM COMPARATIVE ETHNOLOGY

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Vaclav Hrncir (Max Planck Institute for Evolutionary Anthropology) – Petr Kvetina (Institute of Archaeology of the CAS, Prague)
Keywords: comparative ethnology, cross-cultural research, material culture, hunter-gatherers, small-scale agriculturalists, cultural evolution
Format: Regular session

SESSION ABSTRACT

Every human culture is unique. And yet there are certain commonalities shared by some, or even most, human societies. This applies both across space and across time. Archaeologists have long been aware of the potential similarities between prehistoric and recent ethnographically documented societies, which has led to the common use of ethnographic analogies and the development of the specialized subfield of ethnoarchaeology. Although both provide interesting qualitative insights into the lives of traditional hunter-gatherer, horticultural and pastoral societies, the possibility of generalizing their findings is debatable, as they are often random, fragmentary, or based on cherry-picking. In contrast, comparative ethnology provides a more systematic approach. It collects and statistically analyzes data from a global and representative sample of societies (e.g., Ethnographic Atlas, Standard Cross-Cultural Sample, HRAF Probability Sample) to describe and explain patterns of cross-cultural regularity and diversity, and to test cross-cultural hypotheses. However, this quantitative approach to ethnographic data is still relatively rare in the archaeological community. This is despite the recent resurgence in comparative ethnology stimulated by the digitization of extensive ethnographic databases (e.g., eHRAF World Cultures, D-PLACE) and the development of new analytical methods (e.g., phylogenetic analysis, Bayesian modelling and causal inference). In this session, we want to bring together researchers who conduct large cross-cultural comparisons to understand the variation of material culture, behaviors, and norms in small-scale societies. We are particularly interested in the applications of insights from comparative ethnology for answering specific archaeological questions, especially on topics of dwellings and monumentality, production and technology, exchange and trade, and rituals and religion. We also welcome critical contributions that discuss the limitations and pitfalls of this methodological approach.

CONTRIBUTION ABSTRACTS

564. Alcohol before agriculture: Insights from a cross-cultural study of recent foragers

Authors: Vaclav Hrncir (Max Planck Institute for Evolutionary Anthropology)
Format: Oral

Alcohol is the most widely used psychoactive drug that people have been consuming for millennia. However, the origins of alcohol production remain unknown. Although archaeologists have found 10,000-year-old residues of fermented beverages in stone mortars and ceramic vessels, earlier evidence is difficult to obtain because virtually no organic vessels from the Pleistocene have been preserved. There are thus two hypotheses: either alcohol production began with the dawn of agriculture (i.e., "traditional hypothesis"), or it began much earlier in hunter-gatherer societies (i.e., "Paleolithic hypothesis"). In this talk, I will demonstrate how comparative ethnology can contribute to this discussion. A cross-cultural analysis of a global sample of more than 90 foraging societies (ethnographically documented in the 19th and 20th centuries) shows that the production of fermented beverages is not very common, observed in less than 20% of the studied cases. This indicates that alcohol consumption was not a universal feature of Pleistocene societies. On the other hand, the presence of indigenous fermented beverages on several continents and the variability of raw materials used to make them (ranging from honey and fruit to tree sap and flower nectar) suggest that various forager

groups discovered alcoholic drinks independently several times throughout history.

2593. Environmental Determinism and Human Agency in Models of Upper Palaeolithic Shelter Construction

Authors: Phoebe Baker (University of Liverpool) – Tullio Abruzzese (Leiden University)
Format: Oral

The origins and early use of shelter is difficult to disentangle in the archaeological record. Whilst hints from early sites, such as worked wood found at Kalambo Falls, Zambia, are suggestive, it is not until the Late Pleistocene that traces of free-standing shelter constructions begin to appear in the human record. Much of the Pleistocene evidence remains disputed either in form or function. In high latitudes, it is likely that environmental conditions - primarily cold temperatures - had a significant influence on daily life. It is of particular interest, then, that traces of shelters, which may potentially have been key to surviving harsh environments, appear so late in the European Palaeolithic record, and remain so difficult to understand. In this paper, we will discuss the use of large-scale cross-cultural comparison of contemporary hunter-gatherer groups to inform models of early shelter construction. Whilst not directly analogous to Palaeolithic groups, analysis of foragers' shelter solutions reveal both overarching patterns and significant variability in style, function and form across different societies. This duality raises questions about how environment determines shelter construction, and whether it is possible to create a model for early shelter use that can also take individual or cultural choices into account. Ultimately, this contribution aims to provide a starting point for moving beyond environmentally deterministic explanations of early shelter construction and use, and to explore whether ethnographic data can be structured in ways that explicitly integrate cultural choices, traditions, and social practices into static, predictive models.

1515. Concealed Spaces and Restricted Knowledge: Interpreting Neolithic Enclosures through Cross-Cultural Comparison

Authors: Petr Kvetina (Institute of Archaeology of the CAS, Prague) – Petra Schindlerova (Museum of Prague)
Format: Oral

This paper applies cross-cultural research to model the interpretative context of selected Neolithic enclosures in Central Europe, focusing on Early Neolithic longhouse enclosures and Middle Neolithic rondels. Prevailing interpretations emphasize their function as communal gathering places and ritual centers, but often fail to specify the kinds of activities that would have required architecturally segregated and visually concealed spaces. Our analysis is based on two recurring characteristics: the enclosures demarcate spaces hidden from external view and occur only at selected sites within the settlement landscape. These features suggest activities restricted to limited groups and requiring deliberately screened spaces, while remaining plausible within Neolithic social systems. We propose that rites of passage and rituals associated with secret or restricted societies best fit these parameters. This hypothesis is tested through a cross-cultural analysis using the Standard Cross-Cultural Sample (SCCS) and the Ethnographic Atlas (EA). The results refine current interpretations of Neolithic enclosures and contribute to broader discussions of ritual, secrecy, and social differentiation in early farming communities.

959. Organisation of manufacture and crafts in cross-cultural data

Authors: Tomasz Oberc (Institute of Archaeology and Ethnology, Polish Academy of Sciences)
Format: Oral

Interpreting the functional division of settlements from intra-site archaeological data is one of the most challenging tasks in the field. Although some archaeological and ecological evidence aids interpretation, the specific uses and life cycles of individual structures are often unknown. This challenge is especially pronounced at older sites, where later occupations may further obscure the archaeological record. For Neolithic settlements, often only material sealed within pit and post-hole infills remains. Use-wear analysis of lithic tools can help reconstruct how tools were used before disposal. However, the locations where tools were deposited do not always match where they were used, resulting in a disconnect between recorded activities (e.g. hide cutting) and the broader production process. This study is part of the "From Waste to Workshop"[1] research project, conducted at the Institute of Archaeology and Ethnology PAS. The project investigates whether there is a relationship between use-wear evidence and the spatial organisation of activities in Neolithic Lengyel culture settlements. Historical and ethnographic data on craft organisation and procesing of different materials, visualised as networks of interconnected tasks, help bridge the gap between tool use and spatial planning. The research constructs networks for processing plant, animal, and mineral materials (such as wood, hide) using lithic tools. This presentation offers general observations on material processing, manufacture, and craft specialisation. While manufacturing specifics are often unique to particular cultures or sites, a broad cross-cultural overview of production can provide comparative models. These models help create plausible scenarios and narratives for the choices made by Neolithic societies, extending beyond purely economic considerations. [1] https://iaepan.edu.pl/from-waste-to-workshop/

1861. Counting Herds Without Numbers: Domestication, Risk, and the Cultural Adaptation of Numerical Practices

Authors: Cheng Liu (UMR 5199 PACEA, Centre National de la Recherche Scientifique) – Francesco D'Errico (UMR 5199 PACEA, Centre National de la Recherche Scientifique | SFF Center for Early Sapiens Behaviour, University of Bergen)
Format: Oral

Human numerical cognition is often framed as progressing toward increasingly abstract and symbolic representations. However, cross-cultural evidence suggests substantial variability in how quantities are tracked and managed in practice. Here, we investigate how livestock management shapes numerical practices, focusing on herd tracking as a cognitively demanding problem involving mobile, high-value resources. Drawing on a qualitative cross-cultural survey of 36 societies using the eHRAF World Cultures database, we examine whether variation in numerical practices is predicted by (i) the duration of animal domestication, (ii) herd scale and species characteristics, and (iii) economic reliance on livestock. Using a generalized linear mixed model, we find no consistent association between these domestication-related variables and the presence of symbolic number systems. Instead, substantial between-society variation remains unexplained by livestock characteristics alone. Ethnographic evidence indicates that approximation, individuation, embodied counting, and externalized memory systems constitute adaptive alternatives to exact enumeration, shaped by cultural norms, political risk, and cognitive constraints. In many herding contexts, avoiding precise counts serves to mitigate misfortune, evade taxation or state surveillance, or prioritize qualitative herd composition over abstract totals. From a cognitive perspective, these findings highlight alternative strategies for allocating limited cognitive resources: some societies externalize computation through material or embodied tools, while others rely on memory, perception, and estimation. Overall, the results portray numerical cognition as flexible, socially embedded, and responsive to ecological and institutional conditions, rather than as a unidirectional developmental sequence.

242. Four New Guinea Societies

Authors: Christopher Buckley (Tracing Patterns Foundation)
Format: Oral

In this talk I will discuss a study of four small-scale societies in New Guinea, encompassing highland and coastal regions and two major language groupings (Papuan and Austronesian), for which unusually detailed, visual ethnographies of material culture are available. Beginning with a listing of the objects made by each culture, I have classified them according to the functional niches that they occupy, and the techniques used to make them, and used simple numerical measures to compare between cultures. Over a thousand objects are considered and classified, using photographs and descriptions of the items. The results suggest that object types are linked to functional niches, as might be expected, but that the study of techniques is more closely linked to cultural histories and connections. Fine detail emerges as a key requirement: a group of New Guinea studies on a database that lumped different artifact types such as axes and adzes together produced unclear results. I will briefly discuss the patchy state of material culture studies as compared with the impressive and systematic cross-cultural work done by linguists and suggest some directions for future archaeological and ethnographic research.

1945. Same Forms, New Meanings: Reading Cultural Motifs Through the Millennia

Authors: Petra Rajtarević – Mirna Šuljug – Mirela Hutinec (Vucedol Culture Museum)
Format: Poster

This research focuses on a comparative analysis of artifacts from the Vučedol site (Vukovar, Croatia), with an emphasis on the anthropomorphic figurines of the Eneolithic Baden and Vučedol cultures, certain motifs from the Vučedol ceramic repertoire, and their possible parallels with the traditional clothing of Baranja County (Croatia) during the 19th and 20th centuries. By comparing archaeological and ethnological material heritage, the study examines the question of continuity and transformation of specific motifs, based on the assumption that observed similarities do not indicate direct cultural continuity, but rather the universality of certain symbols, ornaments, and garments across different social and cultural contexts. The presentation discusses how universal symbols and motifs, although separated by time and space, can shape the same or similar material culture in different communities across long chronological spans and even broad geographical areas. The preservation of archaic elements in Baranja's traditional clothing has been the subject of numerous studies and discussions. Viewed in an archaeological context, the traditional Baranja costume raises the question of whether the motifs and symbolism of more recent traditional communities can contribute to a better understanding of prehistoric life.

143 SCRAPING THE BARREL: APPROACHING THE LOW-VISIBILITY PREHISTORIC PAST AND THE ARCHAEOLOGY OF THE EPHEMERAL

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Kate Britton (University of Aberdeen) – Anna Linderholm (Stockholm University)
Keywords: Palaeolithic, Mesolithic, Late Pleistocene, Interdisciplinary, Archaeological Science, Preservation
Format: Regular session
Affiliation: Palaeolithic and Mesolithic Community - PaM

SESSION ABSTRACT

In this session, we will explore how archaeologists can investigate the deeper past in areas where little conventional archaeological evidence exists and how interdisciplinary approaches can come together to help meet the challenge of low-visibility archaeological evidence. Low-visibility archaeology arises in diverse circumstances but often stems from past human activities that were fleeting or temporally punctuated in nature. However, syn- or post- depositional preservation conditions, complex taphonomic histories, archaeological palimpsests, and even biased or blinkered research traditions can further complicate the interpretation of these records. This is particularly problematic when studying the pre-Neolithic past in areas that have been exposed to significant landscape change during the Late Pleistocene and early Holocene (e.g. glaciations, sea level change), as well as in areas with extreme environmental conditions or otherwise sparse resources. These same environments may also hold reservoirs of data yet untapped and only recently accessible with advanced methods and techniques. Together we will explore the diverse methods, approaches, and techniques which can be used to ascertain information about the past from prehistoric archaeological contexts and natural archives which are traditionally considered poor quality, low-visibility or otherwise scant in their character. This may include, but is not limited to: landscape or agent-based modelling; sedaDNA/eDNA or other biomolecular approaches; palaeoenvironmental or palaeoecological proxy approaches; the utilisation/maximalisation of fragmentary or uncontextualized archaeological or palaeontological remains; methods in understanding complex taphonomic histories; effective utilisation of antiquarian collections; and the avoiding or addressing of perceptual barriers.

CONTRIBUTION ABSTRACTS

1052. The Other Loch Ness Monster: Approaching the Lost World of Scotland's Last Interglacial Megafauna

Authors: Kate Britton (University of Aberdeen)
Format: Oral

The Last Interglacial, specifically sub-stage Marine Isotope Stage (MIS) 5e (also known as the Ipswichian or Eemian), saw a global climatic amelioration that brought a curious suite of temperate mammalian species to Britain, some of which are restricted to sub-Saharan Africa today. While archaeological evidence suggests Britain was abandoned by hominins at this time, a comparatively rich palaeontological record of contemporary mammalian life has been found across sites in England and Wales. This famous "hippopotamus assemblage-zone" features megafaunal species such as straight-tusked elephant, narrow-tusked rhinoceros, and hippopotamus, alongside taxa such as spotted hyaena, lion, wolf, red fox, brown bear, wild boar, bison, red deer, fallow deer, giant deer, and mountain hare. The most northernly extent of Eemian hippopotamus documented to date is northern England. However, the extent to which this reflects the real geographical expansion and climatic tolerance of this species, or is simply a result of the destructive effects of subsequent glaciations on pre-MIS 2 palaeontological records in Scotland (and elsewhere in northern Europe), is not known. This paper will examine the intersections between the material record and the impact of glaciations, and the scant evidence for warm-phase biota in Scotland from rare deposits that pre-date the Last Glacial Maximum. Novel potential sources of information will be explored, from archives to sedaDNA, with the ultimate goal of asking how we might begin to reconstruct the Lost World of the Last Interglacial in northern Europe.

1212. Life before the Ice: Exploring the evidence for MIS 3 fauna at a high-latitude Scottish cave site

Authors: Alicia Sanz Royo (University of Aberdeen | National Museums Scotland) – Andrew C. Kitchener (National Museums Scotland) – Kate Britton (University of Aberdeen)
Format: Oral

Scotland has been shaped by complex glacial processes and has few karst landscapes. Consequently, the evidence for human or animal life in the region during Marine Isotope Stage (MIS) 3 is scarce. The Late Pleistocene faunal assemblage from Reindeer Cave (Assynt), in north-west Scotland, however, represents a rare exception. Their study offers a unique opportunity to explore the palaeoecosistems in Scotland prior to the Last Glacial Maximum (LGM). Nevertheless, following the late 19th/early 20th centuries, systematic study of the collections has been limited. In this work, we conduct a multidisciplinary analysis of the faunal remains pre-dating the LGM of Reindeer Cave and compare it with available regional data. The main objective is to improve our understanding of the impact of climatic fluctuations during MIS 3 on the local environment and mammalian communities, including humans. The taxonomic study of these materials highlights a rich Late Pleistocene sub-Arctic fauna, almost entirely dominated by reindeer and bears. While taphonomic analysis indicates that there is no evidence of anthropogenic activity on these remains, research reveals diverse activities of animals inside the cave and different depositional processes. A new programme of radiocarbon dating and isotope analysis on bones illuminates the eco-chronological framework associated with the advance and retreat of the last British-Irish Ice Sheet. Our results suggest that climatic variability and ice sheet dynamics are reflected both in the species composition at Reindeer Cave and in the processes involved in the accumulation of their remains. These data are consistent with the available chronological, faunal, and palaeoenvironmental evidence in Britain. Severe climatic conditions and associated faunal shifts may explain the limited presence of Palaeolithic groups in the region compared to areas farther south. Ongoing dating and biomolecular analyses will provide more insights into the environment–fauna–human interactions in the region during MIS 3.

575. Updating off-site archaeology: surface finds, land-use patterns and modelling pioneer settlement in southern Scandinavia

Authors: Jesper Pedersen (University of Tübingen) – Felix Riede (Aarhus University)
Format: Oral

Archaeological research on the Late Pleistocene of Southern Scandinavia has long been shaped by a paradox: despite intensive research histories, the archaeological record remains sparse, fragmented, and dominated by a small number of well-known sites. This low-visibility record has traditionally been treated as a limitation. Here we argue instead that it constitutes a key source of information about past land-use strategies, provided that surface finds and isolated artefacts are treated as primary data rather than as noise. Building on Robert Foley's concept of off-site archaeology, we propose a methodological update that integrates large-scale surface find datasets from existing heritage databases with spatial and modelling-based approaches. We explore how contrasting archaeological patterns 1) few, dense sites associated with the Hamburgian Culture contexts versus 2) numerous isolated finds linked to Federmessergruppen and Bromme Culture assemblages can be interpreted as fundamentally different land-use strategies rather than differences in archaeological visibility alone. Southern Scandinavia is presented as an ideal case study for this approach. The region combines dramatic Late Glacial environmental change, pioneer settlement dynamics, and exceptionally rich legacy datasets derived from both antiquarian and modern recording practices. By incorporating surface find distributions into climate niche modelling frameworks, it becomes possible to explore how land-use intensity, mobility, and spatial decision-making varied between cultural groups operating under comparable climatic conditions. This contribution demonstrates how the systematic use of surface finds can help transform low-visibility archaeological records into analytically powerful datasets. More broadly, it argues that integrating off-site archaeology with quantitative modelling offers a productive way forward for investigating ephemeral prehistoric land use, particularly in regions shaped by rapid environmental change and pioneer settlement.

1133. A handful of stones on the edge of the known world. Lifting the cloak of invisibility off Magdalenian northern expansion

Authors: William Mills (University of Aberdeen)
Format: Oral

Since its reassessment in 2008, Howburn Farm has been widely accepted as evidence for Late Glacial activity in Scotland based on techno-typology alone. Despite two decades of intense research, the record remains limited to a few lithic assemblages, none of which possess associated organic material or directly datable contexts. Re-evaluating regional collections has identified several "potential" Late Glacial assemblages; however, these often share attributes with the Scandinavian Fosna/Hensbacka Early Holocene, or Early Mesolithic industries bearing broad transitional Upper Palaeolithic traits. Consequently, confidently isolating these to the Late Glacial — rather than a broader Late Glacial-Early Holocene bracket — is difficult. Following a re-examination of antiquarian collections at the National Museum of Scotland (NMS), three specific artefacts from Urquhart, Moray, stood out. One exhibits distinct Upper Palaeolithic features characteristic of Magdalenian technocomplexes, which are absent in later transitional industries. Following the archival trail through successive collections, notably Elgin Museum, further evidence for Upper Palaeolithic lithic production around Loch Spynie (57°39N) has been identified. When combined with the recent re-dating of faunal remains and landscape modelling as part of the PALaEoScot project (Aberdeen), a picture of the northernmost human exploration on the edge of the European continent becomes increasingly tantalising.

1095. Fragmented Traces, Connected Landscapes: The CELL Project and Inland Mesolithic Lolland

Authors: Sandra Söderlind (Museum Lolland-Falster) – Sascha Krüger (National Museum of Denmark) – Mikkel Sørensen (University of Copenhagen) – Daniel Groß (Museum Lolland-Falster)
Format: Oral

Stone Age research on Lolland, southern Denmark, is quickly gaining momentum and preliminary results indicate long term fishing practices, as well as the presence of large-scale contact networks. The extensive excavations associated with the Femern Belt project over the last decade have significantly expanded knowledge of coastal occupation during the late Mesolithic Ertebølle period. In contrast, inland Mesolithic sites, particularly those predating the Ertebølle, remain poorly understood, resulting in a markedly low-visibility archaeological record. This paper presents ongoing research on the Godsted mose site complex, located within a former lake system in central Lolland. The complex has seen limited excavations in the early 1900s and again between 2023–2025, providing valuable insights into chronology and preservation. However, the majority of the archaeological material derives from extensive surface collections gathered over the last several decades, indicating repeated human activity from at least the early Mesolithic and possibly the Late Palaeolithic through to the Neolithic. As such, Godsted mose represents a deeply stratified palimpsest shaped by complex taphonomic processes. The site's topographic position on a minor plateau within an otherwise flat landscape is critical for understanding Mesolithic mobility and orientation. During the early Mesolithic, Lolland formed part of a land bridge between continental Europe and southern Scandinavia, before mid-Holocene sea-level rise transformed the region into an archipelago. The newly initiated CELL project (CEntral Lolland's Landscapes) aims to integrate fragmentary archaeological evidence with new archaeobotanical and palaeoenvironmental approaches to reconstruct human–landscape interactions and illuminate the understudied Mesolithic prehistory of inland Lolland.

2108. Extending the early Holocene (Mesolithic) faunal record of Scotland using ZooMS: a case study from Tarradale

Authors: Tayla Sanders (Department of Archaeology, University of Aberdeen) – Benjamin Elliot – Ingrid Mainland (UHI Archaeology Institute, UHI Orkney) – Astrid Nyland (Museum of Archaeology, University of Stavanger) – Karen Ruebens – Geoff Smith (Archaeological Proteomics Laboratory, University of Reading) – Kerry Sayle (SUERC Radiocarbon Laboratory, University of Glasgow) – Craig Pattinson – Kate Burgoyne (Aberdeen Proteomics, The Rowett Institute, University of Aberdeen) – Kate Britton (Department of Archaeology, University of Aberdeen)
Format: Oral

The early Holocene archaeological record of Scotland is characterised by pronounced low visibility, shaped by a combination of post-glacial processes, sea-level change, extreme environmental events and acidic soils that have constrained the preservation of bone (or the visibility of sites) in many contexts. This, alongside hunter-gatherer lifestyles associated with more ephemeral archaeological evidence, has meant that faunal assemblages from the few known Scottish Mesolithic sites are dominated by highly fragmented, morphologically unidentifiable faunal remains, limiting understanding of human-animal relationships and subsistence practices in this period. Biomolecular approaches have the potential to substantially extend the known palaeontological record for early Holocene Scotland. This paper presents the results of a pilot analyses of fragmentary bone samples from the Mesolithic site of Tarradale, Scotland utilising Zooarchaeology by Mass Spectrometry (ZooMS). The assemblage can be divided into two temporal phases, with contexts pre- and post-dating the Storegga tsunami (~8.2 k ya), and is mainly comprised of small, unidentifiable bone fragments, many of which show evidence of burning, offering limited insight through traditional zooarchaeological techniques. Application of ZooMS has more than doubled the number of species identified at the site, demonstrating the value of targeted biomolecular approaches for extracting information from low visibility assemblages. The results allow comparison of faunal exploitation across temporally distinct phases and identification of animal taxa otherwise absent from the visible archaeological record for the site. Combined with the results of stable isotope analyses on the same samples, the new data contribute to the broader palaeontological record for early Holocene Scotland and provide novel evidence for past ecosystems and environments.

2510. Tracing Human Activities through Sedimentary DNA at El Portalón

Authors: Anders Götherström (Dept. Archaeology and Classical Studies | Center for Palaeogenetics, Stockholm University) – Emrah Kırdök (Mersin University, Department of Biotechnology) – José Miguel Carretero Díaz – Cristina Valdiosera Morales (University of Burgos) – Anna Linderholm (Center for Palaeogenetics, Stockholm University)
Format: Oral

Cave sediments can be a useful source of information where conventional archaeological evidence is sparse, biased, or archaeologically invisible. Sedimentary ancient DNA (sedaDNA) can capture signals from plants, animals, and microorganisms that are poorly represented, fragmentary, or entirely absent from the archaeological and osteological record, offering a complementary perspective on site use and human–environment interactions. Here, we present a sedimentary DNA study from El Portalón de Cueva Mayor (Atapuerca, northern Spain), a cave site with a well-documented stratigraphic sequence spanning from the Late Pleistocene to the Roman period. Such cave contexts often exhibit strong preservation biases and complex taphonomic histories. We analysed sedaDNA from 25 stratigraphically well-defined sediment samples and integrated these data with the archaeological and faunal record from the site, allowing us to evaluate aspects of human activity that remain archaeologically underrepresented. Our results show that anthropogenic signals in the sediments closely track major cultural and economic transitions. DNA from domestic animals, including sheep and cattle, appears from the Neolithic and Chalcolithic onwards, broadly mirroring the osteological assemblage while highlighting differences in preservation relative to skeletal evidence. Importantly, sedaDNA also reveals cultivated plants that leave limited or ambiguous macrofossil evidence in cave contexts. Barley DNA is detected in Neolithic sediments, while wheat appears from the Chalcolithic onward, documenting the emergence and development of agricultural practices at the site. In parallel, we observe shifts in sedimentary microbial communities associated with sustained human occupation, reflecting changes in cave use and environmental conditions difficult to detect through artefactual evidence alone. Together, these results show that sedimentary DNA captures structured signals of human activity rather than background environmental noise. By demonstrating how domesticated animals, cultivated plants, and microbial communities co-vary with archaeological phases, this study highlights the potential of sedaDNA to illuminate how prehistoric societies organised subsistence and space across millennia.

2267. Unveiling the invisible: a methodological study for optimizing sedaDNA extraction and purification

Authors: Zara Evans – Samantha Jones – Linus Girdland Flink (University of Aberdeen)
Format: Oral

Sedimentary ancient DNA (sedaDNA) has emerged as a powerful approach for recovering ephemeral and disseminated traces of past life beyond conventional archaeological contexts, yet its wider and routine application in archaeology remains limited. This limitation reflects persistent challenges in sedimentary taphonomy and the lack of efficient standardized extraction protocols across contrasting sediment types. Here, we present preliminary results from a comparative assessment of ancient DNA recovery from organic- and mineral-rich sediments, focusing on release from organo-mineral complexes and the inhibitory effects of humic substances. We evaluate the efficiency of three extraction and purification strategies: the standard Qiagen PowerSoil kit, an adapted cold-spin method from Murchie et al. (2021), and a novel workflow combining PowerSoil extraction with oligonucleotide clean-up using the NEB Monarch DNA Clean-Up Kit. Performance is assessed in terms of DNA yield, inhibition, and recovery of ultra-short fragments, alongside amplification of established trnL P6 chloroplast metabarcodes. This preliminary research is based on two coring sites in Scotland, in Tiree and Aberdeenshire, that have been radiocarbon dated to span the late Mesolithic/early Neolithic to the late Iron Age/early Medieval period. The tested sediments include peat-rich deposits and lake sediments representing a range of taphonomic histories and environmental conditions, for which we are also analysing a corresponding pollen record. Comparing the efficacy of existing and modified sedaDNA protocols as applied to varied sediment types will enhance the ability of researchers to overcome taphonomic limitations of sedaDNA and develop routine and accessible practices for recovering the invisible and fragmentary evidence of past lives.

1835. Tracking 'invisible' migrations and behaviours of Late Pleistocene ungulates in Britain

Authors: Sarah Barakat (Department of Archaeology, University of Aberdeen) – Mael Le Corre (Department of Archaeology, University of Aberdeen | BioArch– UMR 7209, Muséum national d'Histoire naturelle) – Kate Britton (Department of Archaeology, University of Aberdeen)
Format: Poster

Reconstructing Late Pleistocene ungulate ecology is essential to understanding early hunter-gatherer lifestyles, particularly in regions where archaeological evidence is scarce but palaeoecological evidence is abundant. Reindeer (Rangifer tarandus) are common prey-species found in large numbers across northwestern European archaeological and palaeoecological sites. As a pioneer species capable of inhabiting harsh environments and undertaking long-distance seasonal migrations between summer and winter home ranges, reindeer can be a valuable proxy to reconstructing past environmental conditions and understanding ecosystem-ice sheet interactions during glacial events. This project aims to use multi-isotope analysis and computational modelling to reconstruct reindeer spatial ecology in Late Pleistocene Britain. By integrating published and unpublished isotopic datasets with find distributions, radiocarbon dates and spatial ecology models, this project seeks to identify reindeer migratory behaviours before and after the Last Glacial Maximum. Using strontium isotopic analysis, innovative isoscape modelling including now-submerged landscapes, and computational spatial assignments, this project aims to take a landscape level approach to understanding habitat suitability and predict herd routes. These results can provide new insights into Rangifer's adaptations to climate variability and provides archaeologists with a better understanding of living landscapes and the otherwise 'invisible' behaviours of archaeo-faunas.

145 RETHINKING MARKETS SITES IN ANCIENT AND MEDIEVAL MEDITERRANEAN BASIN

Theme: 8. Beyond the Middle Sea: rethinking the Mediterranean in motion
Organisers: Noe Conejo (University of Carlos III of Madrid) – Pedro Trapero Fernandez (University of Cadiz) – André Carneiro (University of Evora)
Keywords: Market, Rural economy, Exchanges, Mobility
Format: Discussion session

SESSION ABSTRACT

Markets were important spaces for political, social and economic life in cities and rural areas of the Mediterranean in ancient and medieval times. Dedicated to the exchange of goods and services, sources mention that these places also hosted political and even religious activities, given their public nature and capacity to draw crowds. In urban environments, markets, which could be permanent or periodic, are easily identified by archaeology, thanks to specific architectures in which it is possible to identify certain economic activities. In rural areas, identification is complex because these commercial encounters took place at intermediate points, on the outskirts of cities and/or in large rural settlements, such as the vici, pagi or villae in Roman times and/or villages in medieval times, and did not require architectural structures. In recent years, the study of market spaces has undergone new revisions and proposals, although most of them have focused on new interpretations of urban markets, so the rural world in the Greco-Roman and medieval periods remains an open question. Beyond the reference studies on permanent and periodic markets developed in Africa, Italy and Egypt, where epigraphic and papyrological evidence is abundant, this session invites researchers to reflect on different aspects of the identification of market spaces in rural areas in the classical period: a) new interpretations of rural sites favourable to commercial activities in ancient and medieval times; b) new strategies for identifying market spaces through epigraphy, legislation, numismatics, spatial archaeology and/or architecture; c) specific case studies illustrating commercial activities in the rural Mediterranean world of the classical period.

CONTRIBUTION ABSTRACTS

546. Villae as markets or Villae and markets? Searching for productive and commercial connectivities in rural Lusitania

Authors: André Carneiro (Universidade de Évora)
Format: Oral

The rural economy in Lusitania is a subject that relies heavily on acquired but unvalidated concepts. It is always assumed that traditional production – wine, olive oil and bread – served to sustain rural communities and supply cities. These products were developed within large rural units known as villae. However, new data must be introduced in order to gain a more accurate understanding of the economic system of the Lusitanian rural world. Product circulation networks were not unidirectional, but had internal relationships. Similarly, these villae could take on other functions, generating their own commercial and economic dynamics. We are aware of archaeological and epigraphic evidence that points to the exploitation of other products. Similarly, we understand the functioning of commercial networks that connect different regional areas, promoting exchange circuits that, in addition to economic benefits, may also have had social, cultural, and technological implications. This presentation considers new possibilities for the study of the rural world and the function of the various settlement units.

548. SPATIUM: A GIS Model for Spatial Mobility and Territorial Influence in Historical Landscapes

Authors: Pedro Trapero Fernández (University of Cádiz)
Format: Oral

Geographic Information Systems (GIS) are widely used in landscape archaeology and historical research to study mobility, connectivity, and spatial organisation. Most existing approaches, however, rely on mobility models originally designed for modern geography, transport planning, or environmental management. As a result, GIS-based analyses in historical contexts have predominantly focused on optimal routes, least-cost paths, and the reconstruction of road networks, often overlooking the broader spatial implications of human mobility. This paper proposes a conceptual and methodological reorientation of GIS mobility analysis for historical landscapes. Rather than modelling movement between sites, we introduce a framework that conceptualises mobility as a spatial property of places themselves. The proposed model treats mobility tools as technical constructs for understanding areas of influence, territorial centrality, and intermediate spaces within inhabited landscapes. The model is based on the generation of isochrone-based mobility surfaces that do not rely on conventional cost maps. Instead, territorial limiters such as rivers, mountain ranges, and uninhabitable zones are explicitly modelled as structural barriers that shape spatial accessibility SPATIUM ((Spatial Processing of Areas Through Integrated Mobility). Drawing on principles derived from historical agrimensory and land-surveying practices, mobility is interpreted as a measure of territorial reach rather than transport efficiency. This approach enables the delineation of functional territories for cities, villas, and secondary settlement centres, offering new analytical possibilities for studying market accessibility, transport costs, spatial hierarchies, and the effective limits of occupied and unoccupied areas. The methodology is evaluated through a set of case studies from the southwest of the Iberian Peninsula, demonstrating how GIS mobility tools, when reinterpreted in this way, can address historical questions that extend beyond the identification of paths to the understanding of territorial organisation and spatial interaction

786. Coins in Hispanic rural contexts: evidence of market activity?

Authors: Noe Conejo (University of Carlos III of Madrid)
Format: Oral

The discovery of coins in rural areas confirms that the inhabitants of the countryside in Roman times were well connected to the structures of a monetised economy. The most recent excavations have made it possible to georeference coins in different rural sites, which has helped to identify the areas of greatest daily activity in villae, vicus and other types of settlements. Sometimes, it is possible to observe a higher concentration of coins in certain areas, which is sometimes interpreted as the result of a lack of solid paving and/or the existence of rubbish dumps where coins had been discarded. However, a relationship between the coins, their respective monetary value, and their location in certain areas with respect to the daily life of these sites makes it possible to put forward new hypotheses about the economic activity of certain sites. An analysis of certain Hispanic cases suggests that this concentration of finds in certain places in villae is evidence of periodic market activities in the rural world. This interpretation supports our understanding of economic and commercial activity in the Hispanic rural world, where there is no epigraphic evidence of the existence of rural markets, whether periodic and/or permanent, but which existed regularly due to the strength of the verified exchange networks.

450. Central Places or Isolated Islands? The Formation and Hierarchy of Urban Networks in High Medieval Bohemia

Authors: Katerina Levá (Institute of Archaeology of the CAS, Prague, v. v. i.)
Format: Poster

The emergence of urban networks in 13th and 14th-century Bohemia represents a fundamental shift in the spatial and social organization of the medieval landscape. While traditional historiography and archaeology have primarily viewed the medieval town as a distinct legal and economic unit, this study seeks to place this perspective within a broader context. It interprets towns not as a collection of isolated entities, but as a complex, integrated system of interconnected nodes, exploring the structural dynamics that bound these centers—and their peripheries—together. The primary theoretical framework for this analysis is Central Place Theory (CPT), applied here not as a rigid geometric model, but as a flexible tool to investigate functional hierarchies and spatial distributions. Through case studies of selected Bohemian regions, the research demonstrates how varying levels of urban settlements—from major regional hubs to minor towns—formed a structured and interdependent network. The paper explores how these sites organized their hinterlands through market systems, administrative ties, and economic functions, creating a sophisticated spatial hierarchy. A key component of this study is the application of Geographic Information Systems (GIS) to model these complex relationships. The results indicate that medieval Bohemian towns did not exist as 'islands,' but rather as integral parts of a dense, multi-layered network where urban functions overlapped diachronically. By focusing on the diversity and hierarchical levels of these settlements, the study underscores the transformative potential of geographic modeling in archaeology. These theoretical principles remain highly relevant for interpreting settlement patterns and spatial hierarchies across diverse historical periods and geographic regions.

146 RESILIENCE, ADAPTATION, AND TRANSFORMATION: TRAJECTORIES OF CHANGE IN PAST AND PRESENT HUMAN SOCIETIES

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Sebastien Manem – Peter Tóth (Masaryk University) – Louise Gomart (CNRS) – Sara Krubeck (Pompeu Fabra University) – Morgane Blanot (Université Paris 1 Panthéon-Sorbonne)
Keywords: resilience, adaptation, social change, human-environment interactions
Format: Regular session

SESSION ABSTRACT

Throughout human history, societies have faced, multiple and interrelated forms of change: environmental, political, economic, social, demographic, ideological, and technological. Archaeological and ethnographic records reveal diverse and often non-linear responses to such changes. This session explores societal and socio-ecological trajectories—past and present—through the theoretical lens of resilience, emphasizing mitigation, adaptation, transformation or collapse. We invite papers addressing: (1) social, economic, and other dynamics in response to stressors; (2) the impact of change across different temporal scales, from abrupt crises and disturbances to gradual transformations and long-term shifts; (3) the interaction and compounding effects of multiple stressors; (4) the role of mitigating, adaptive, and transformative strategies in ensuring continuity, restructuring or renewal. With a focus on trajectories in the short and long term, we welcome analyses at diverse social and spatial scales, from small-scale communities to inter-cultural networks. We encourage reflections on specific historical contexts and the pursuit of transferable insights for the present and future regarding mechanisms, limits, and sources of resilience. For an interdisciplinary discussion, this session seeks to bring together case studies and theoretical works from all regions and periods, and multiple fields including archaeology, archaeological sciences, ethnography, palaeoenvironmental studies, historical geography and history. We welcome empirical studies integrating environmental and socio-cultural proxies, theoretical and computational modelling approaches. We encourage contributions examining contemporary forms of social resilience, from preservation of traditional knowledge and heritage to risk adaptation and sustainable development. Thematic areas may include: human-environment interaction, resource use, subsistence practices, land-use change, mobility and migration, production of goods, networks, demographic dynamics, settlement patterns, socio-political organization, ideology, ritual practice and the encounter between tradition and innovation. Ultimately, this session seeks to move beyond static notions of resilience, revealing the complex, contingent, and sometimes fragile pathways through which human societies endure, transform, or disappear.

CONTRIBUTION ABSTRACTS

1333. Trajectories of Change and Adaptation in Communities of Practice: Petrographic Analysis of Neolithic Pottery in Northeast China (6000–2000 BC)

Authors: Pauline Duval (École Pratique des Hautes Études - Université PSL | Jilin University)
Format: Oral

In Northeast China, the coexistence of hunter-gatherer societies and groups transitioning to agriculture during the Neolithic (6000-2000 BC) is well-documented. Both economies had established ceramic traditions. In this paper, I will examine the unique historical trajectories of Neolithic social groups by discussing the changes observed in the development and evolution of ceramics alongside changes in subsistence strategies, and the extent to which these pottery-making communities adapted and interacted with one another. In the Lower Nen River Valley, in a context of hunter-gatherer economy, each chronological phase yielded pottery characterized by a single fabric consistently containing shell fragments, although in varying proportions. During the sixth millennium BC, quantities of shell fragments were high enough to affect the artefacts' physical properties. After this initial phase, however, shell fragments were mixed with large amounts of sandy inclusions and did not always significantly impact the artefacts' properties. The persistence of such inclusions can thus be considered as a cultural choice, revealing perhaps an intent on the part of potters to

maintain a tradition from generation to generation. Conversely, in the Liaoxi region, where societies were gradually transitioning to agriculture around 6000 BC, two distinct communities of potters coexisted within the same area: one using grog (chamotte) and the other producing fabrics rich in metamorphic inclusions. By the late fourth millennium BC, these distinct practices were no longer in use, and a new tradition appeared where clay fabrics (fine or coarse) were selected according to the vessel's intended function. While these populations were geographically close, with their peripheral zones meeting despite core areas being 400 km apart, their fabrics marked clear social and spatial boundaries. Despite production remaining largely domestic, these communities were integrated into broader networks that facilitated the circulation of pottery, ideas (forms and styles), and likely people as well.

1172. Integrating stable isotopes, lipid residues, and pottery chaîne opératoire: Late Neolithic Lifeways and resilience at Čičarovce, Slovakia (5000-4500 cal BC)

Authors: Peter Tóth – Johana Malíšková – Sébastien Manem (Masaryk University) – Veronika Brychová (Czech Academy of Sciences) – Miriam Nývltová Fišáková (Masaryk University) – Zdeněk Tvrdý (Moravian Museum) – Peter Milo (Masaryk University) – Rastislav Hreha (Zemplín Museum) – Dalia Pokutta (University of Rzeszów | Stockholm University) – Eszter Bánffy (HUN-REN RCH Institute of Archaeology | Römisch-Germanische Kommission des Deutschen Archäologischen Instituts)
Format: Oral

During the construction of a gas pipeline at Čičarovce, Slovakia, in 1976, excavations revealed 12 Late Neolithic graves (5000-4500 cal BC), including a central burial interpreted as a shaman's grave with four consecutive burials, surrounded by five pits. While previous publications have focused on typological-chronological analysis of pottery, this study uses an integrated bioarchaeological approach to reconstruct the subsistence strategies and social organization of this community. This research addresses three central questions: (1) What was the paleoenvironmental context of the settlement? (2) How do human dietary isotopes correlate with faunal evidence and lipid residues in pottery? (3) What do pottery production techniques and dietary patterns reveal about social differentiation within the community? Human and faunal skeletal remains from museum collections underwent zooarchaeological and anthropological analysis, as well as stable isotope (δ13C, δ15N) analysis, and 14C dating to reconstruct diet and chronology. Ceramics were analyzed by lipid extraction using GC-FID, GC-MS and GC-C-IRMS to identify absorbed organic residues and determine the function of the vessels. Analysis of ceramics using the chaîne opératoire method examines the complete production sequence and identifies technical choices that reflect learned traditions and social transmission. This integrated analytical approach aims to deepen our understanding of the social structure, resilience and adaptation of Late Neolithic communities in the Upper Tisza region. This research is supported by the RES-HUM project (Ready for the Future: Understanding the Long-Term Resilience of Human Culture; CZ.02.01.01/00/22_008/0004593).

2305. Čičarovce, Slovakia (5000-4500 cal BC): an anthropological reading of ceramic technical tradition

Authors: Sebastien Manem – Peter Tóth – Johana Malíšková (Masaryk University)
Format: Oral

The twelve Late Neolithic graves and five pits (5000-4500 cal BC) from Čičarovce in Slovakia (Vizdal 1980) offer an opportunity to reconsider the perception of the site in the context of the Upper Tisza region through an anthropological interpretation of the ceramics. In this paper, we will explore the themes of resilience, transformation, and adaptation through a synchronic and diachronic reading of ceramic technical traditions—involving roughing-out, preforming, finishing and surface treatments—, the latter being inherited from one generation to another and the expression of a social group. In the synchronic axis, we will focus on the societal importance of the site and the social status of the deceased by researching the "number" (one or more) of social groups involved in the burial deposits. More broadly, this question allows us to address the sociological landscape in which the Čičarovce site is located. From a diachronic perspective, we will address the issue of cultural filiation by tracing the signal of transmission through time—generation after generation of potters—in order to determine a possible historical continuity between technical traditions at Čičarovce through detailed analysis of ceramic chaînes opératoires. This research is supported by the RES-HUM project (Ready for the Future: Understanding the Long-Term Resilience of Human Culture; CZ.02.01.01/00/22_008/0004593).

2550. Ceramic change across boundaries: resilience and techno-social trajectories in Northeast Iran (3500-1800 BCE)

Authors: Camille Abric (Paris 1 Panthéon-Sorbonne University | UMR 7041 ArScAn)
Format: Oral

Between the Late Chalcolithic and the end of the Middle Bronze Age (ca. 3500-1800 BCE), Northeast Iran underwent profound techno-social transformations associated with the development of proto-urban societies. One of the most striking material expressions of these changes is the progressive disappearance of painted ceramic traditions and the widespread adoption of burnished grey ware, which became dominant during the Bronze Age. This transition has long been interpreted as a sharp cultural rupture, often explained through invasionist models. Drawing on a multi-scalar analysis of ceramic assemblages from key sites on both sides of the Elburz Mountains, including Tureng Tepe and Tepe Hissar, this paper reconsiders these interpretations through the lens of resilience and techno-social trajectories. Combining technological analysis and typological approaches, it explores how technical choices, production practices and morpho-stylistic variability articulate local traditions with broader inter-cultural networks. At a

macro-regional scale, ceramic trajectories appear broadly comparable, marked by the emergence and dominance of grey ware. At a micro-scale, however, technological analyses reveal significant continuities with earlier painted traditions, alongside locally specific adaptations and hybridization processes. Despite the strong topographic constraints imposed by the Elburz Mountains between the two sites, ceramic techniques display both shared foundations and differentiated expressions, challenging the idea of mountains as strict technical or cultural boundaries. Rather than reflecting a uniform of abrupt transformation, the shift from painted to grey ceramics documents a process of adaptative reconfiguration, in which communities reworked existing technical knowledge while engaging with wider exchange networks, including those linked to major contemporaneous socio-political entities such as the Oxus Civilization. Resilience in pottery production thus appears as a situated and dynamic process, combining continuity, innovation and selective resistance. Through the study of seemingly ordinary artefacts, this paper highlights the potential of ceramic techniques as sensitive proxies for understanding long-term techno-social transformations in ancient Iran.

2691. Resilience and adaptation of the honorific statue habit in Late Antiquity (fourth-sixth centuries C.E.)

Authors: Esen Ogus (Utah Valley University)
Format: Oral

The honorific statue was a three-dimensional anthropomorphic 'contract' on which were played out a variety of human agency, ranging from the expression of political and economic power to social status and religious affiliation. The medium was employed from the fourth century B.C.E. onwards, for almost one thousand years, and yet dedicating new statues was abandoned by the sixth century C.E. Multivariate factors drastically upended urban life between the fourth and sixth centuries C.E., an essential habitat for the honorific statue medium. These factors include the transformation of administrative and civic politics, cultural changes such as the dissemination of Christianity, and environmental factors such as earthquakes. Despite these stressors, the statue habit showed remarkable resilience and adaptation, a phenomenon that deserves scrutiny. I adopt a theoretical framework that highlights the significance of 'things' in social network systems, promoted in A. Gell, Art and Agency (Oxford 1998); B. Latour, An Introduction to Actor-Network Theory (Oxford 2005); and I. Hodder, Entangled (Malden 2012). I argue that statues, just like other items of material culture, acted within social and cultural networks that involved multiple stakeholders, such as the honoring body, honorand, maker, and public beholder. The 'stickiness' of these networks resulted in necessary adjustments in the honorific habit to continue it. The eventual demise of statues came only when society could no longer sustain the social networks that benefited from the presence of statues. My main geographic area of focus is Asia Minor and Greece, which offer large numbers of the material amenable to qualitative and quantitative analysis. This study leads to the conclusion that human subjects attributed such significant social role, symbolic power and agency on the medium of statues that adaptation and transformation strategies were developed to sustain it so as not to suffer the social, economic and cultural consequences.

2514. Family ties and "good" pots: Hiwi ceramic production and circulation in the Middle Orinoco (16th-21st century)

Authors: Natalia Lozada-Mendieta (Universidad de Los Andes) – Sebastien Manem (Masaryk University) – Jose Oliver (University College London)
Format: Oral

Hiwi (Jivi), Sikuani or Guahibo people were highly nomadic indigenous groups located in the Middle Orinoco region between Colombia and Venezuela, in the lowlands of northern South America, who moved across the savannah and the river channel of this borderland region at the time of the Spanish contact. Since the 18th century, most Hiwi communities have adopted a more sedentary way of life, practiced agriculture and incorporating material and religious practices of the European and criollo culture. Despite the significant transformations associated to the acculturation and colonization process, some Hiwi communities have continued to produce and adapt pottery following traditional recipes and innovating in other areas to appeal to larger audiences beyond their local camps. Using archaeological, historical, and ethnographic sources we prove how certain methods and techniques of the chaîne opératoire have prevailed and which ones have been transformed according to cultural and economic pressures. Adaptation and resilience and observed specially in morphological and decorative traits, as well as in some tools and uses for different ceramic productions, still associated to family networks and reputation from particular pottery workshops. Contemporary uses of these pots are limited since there is only one potter active in the area and might translate into the disappearance of this long tradition.

772. A Tale of Two Cities Evolution and structural adaption in two LBK settlement clusters- a comparison

Authors: Franz Pieler (State Collections of Lower Austria) – Julia Längauer (Univ. for Continuing Education Krems, Centre for Museums Collections Management)
Format: Oral

The Early Neolithic settlements of Lower Austria are structured into regional clusters. Those north of the Danube seem to possess a hierarchical structure and clear regional, often fortified, centres. Presently, two of these dwelling clusters have been researched in depth as to their size, structure and evolution: the Horn Basin and the Upper Zaya Valley. Although only some 70 km apart, the regional natural and climatic properties are very different. Living on the edge of the LBK world, the inhabitants of the Horn Basin had to adapt, which resulted in notable shifts of settlement hotspots and population distribution. In the Zaya Valley, possibly due to a comparatively more fertile and milder setting, structural changes are not as prominent. However, there were stress factors in

this community too, which might have led to the "famous" massacre event in Schletz. It seems, however, that this possible demise of the central site was only a milestone in the downward spiral of the Zaya Valley dwelling cluster. In our contribution we want to point out the regional differing courses of evolution of these two communities from the first settlement to the transition to the Middle Neolithic Lengyel Culture. We will present the natural challenges of both regions and portrait the two dwelling clusters, focusing on their respective strategy in the human-natural relationship and the effects visible in site structure, selection of settlement sites and dwelling patterns .

1479. Neither "crisis" nor "end of the world". Resilience and non-linear change at the end of the Uruk early urban Mesopotamia

Authors: Johnny Baldi (CNRS, UMR 5133 Archéorient, Lyon)
Format: Oral

The profound chrono-cultural transformations marking the passage from the 4th to the 3rd millennium BCE have long been described in the archaeological literature through either imprecise chronological labels – often subsumed under the loosely defined notion of "transition" – or through overtly catastrophic frameworks that privilege the concept of "crisis." Such interpretations tend to extrapolate from a single cultural process or marker, however prominent – most notably the end of the Uruk diffusion in northern Mesopotamia and western Iran and its "retreat" in southern Mesopotamia – to characterise an entire historical phase. Several decades ago, M. Frangipane questioned the relevance of the notion of crisis for the southern Uruk world, suggesting instead that processes of economic contraction may have more directly affected northern Mesopotamian communities. More recent archaeological and environmental evidence invites a further reassessment of this perspective. While a degree of cultural discontinuity between the polities of the fourth millennium BCE and the early urban formations of the early third millennium is undeniable, data from northern regions increasingly point to a strong legacy of the Uruk phenomenon, particularly in terms of social practices identifiable through material culture. Drawing on recent results from excavated sites in the Zagros Piedmont – specifically the Chamchamal Plain – as well as from southern Mesopotamia in the Dhi Qar Governorate, this paper challenges the interpretative framework of "crisis" and proposes a non-linear reading of political and cultural transformations between the 4th and 3rd millennia BCE.

554. Mapping Resilience: Parish Networks, Land Use, and Settlement Patterns in Late Medieval Hungary

Authors: Beatrix F. Romhányi (Károli Gáspár University of the Reformed Church in Hungary)
Format: Oral

This paper explores late medieval land use and settlement patterns in the Kingdom of Hungary through large-scale spatial analysis of ecclesiastical and fiscal data. The study draws on the RD1500 database, which currently integrates nearly 15,000 settlements and over 5,000 Catholic parishes for c. 1500, complemented by c. 4,400 parishes recorded in the papal tithe register of 1332–1337 and related documents. Rather than treating ecclesiastical institutions as objects of inquiry, parish networks are used here as spatial proxies for settlement density, infrastructural reach, demographic change, and modes of subsistence. By combining distance-based modelling of parochial catchments with fiscal evidence for cereal production, the paper reconstructs the interaction between arable farming and pastoral land use across different ecological zones. The results reveal pronounced regional contrasts between areas of dense, cereal-oriented settlement and regions characterised by extensive pastoralism, seasonal mobility, and sparse institutional coverage. In marginal and mountainous areas, large distances from parish centres correlate with Orthodox chapels and monasteries, or with the absence of stable ecclesiastical infrastructure, pointing to adaptive land-use strategies rather than institutional deficiency. Comparison of the two time slices also reveals significant shifts in spatial patterns, allowing for the identification of both climatic and human-driven factors behind these changes. The Hungarian case highlights resilience as a product of land-use diversity and flexible settlement organisation, demonstrating how mixed agro-pastoral economies sustained long-term continuity under varying environmental and social constraints. Methodologically, the paper illustrates the potential of high-resolution, relational datasets for tracing adaptive socio-ecological trajectories in medieval Europe.

1053. Violent disruption of settlement continuity and trajectories of resilience: Long-term transformation of the rural landscape of Iraqi Kurdistan

Authors: Lenka Starková (University of West Bohemia in Pilsen) – Karel Nováček (Palacký University Olomouc)
Format: Oral

This paper examines processes of resilience, adaptation and transformation in rural settlement systems of Iraqi Kurdistan in the context of the violent disruption of settlement continuity during the second half of the twentieth century. Armed conflicts, and in particular the genocidal al-Anfal campaign, led to the destruction of thousands of villages, forced population displacement, and the radical reorganisation of social and spatial structures that had developed over centuries. These events represent an extreme case of abrupt socio-ecological shock whose consequences can be traced across both short- and long-term trajectories of regional development. The study draws on an interdisciplinary research (multi-temporal analysis) project combining archaeology, remote sensing analysis, architectural and building-historical survey, and oral history. The research focuses on the mountainous areas north of the city of Koya (Iraqi Kurdistan). The results demonstrate that local responses to the violent rupture of settlement continuity were neither linear not uniform. Alongside the complete abandonment of some villages, a wide spectrum of adaptive strategies can be identified, including partial reoccupation of former settlement cores, the establishment of new villages in close proximity to earlier

sites, and the transformation of traditional nucleated settlement layouts into more dispersed forms reflecting new socio-economic conditions. These processes reveal profound changes in social organisation, resource use, and the relationship between communities, landscape, and place-based memory. By situating this case study within broader debates on resilience and socio-ecological change, the paper argues that the transformation of rural landscapes in post-conflict contexts should be understood not only as a consequence of destruction but also as the outcome of active adaptive strategies. The study further highlights the urgency of documenting endangered cultural heritage and demonstrates the potential of such datasets for comparative research on resilience and long-term trajectories of human–environment interaction.

1458. Landscape archaeology and historical roots of territorial remoteness: Basilicata inner areas in the longue durée

Authors: Giovanni Lombardi – Elisa Di Giovanni (Institute for Studies on the Mediterranean CNR-ISMed)
Format: Oral

This paper will explore the landscape archaeology and the historical roots of territorial remoteness of the inner areas of Basilicata, a region in southern Italy mostly mountainous and hilly, but embraced on the east and west by two Mediterranean seas. Basilicata, also known as Lucania, houses ancient settlements alongside a rich historical palimpsest. In a longue durée view, considering landscape archaeology and long-term settlement dynamics, we will examine the correlation among the deep structures that have shaped territorial organization from the protohistoric to the contemporary era, passing through a vibrant Greek, Roman, and medieval history. Currently, Basilicata is largely associated with the so-called inner areas, facing challenges such as depopulation, marginalization, and infrastructural and socio-economic fragility. The approach aims to integrate archaeological, topographical, and environmental data, focusing on the territorial morphology, the continuity of mobility networks, and hilltop settlements from a heritage perspective. These aspects are crucial for understanding the adaptative reconfiguration of the territorial system over time. This perspective emphasizes how the 'marginality' of the Basilicata inner areas did not emerge from immutable pre-existing conditions, but by socio-economic and cultural challenges that have resemanticized material continuities, civilizations, human-environment interactions, and settlements beyond the obvious erosion by historical time. The longue durée view relativizes the centre-periphery simplifications, highlighting the role – sometimes even the protagonism – the resiliencies, and the strategies of adaptation of historical settlements, roots, and uses in shaping territories. The paper intends to emphasize archaeology as a critical tool for dialogue between past and present, providing a knowledge-based framework to inform policies for the promotion and sustainable development of inner areas. It will consider landscape archaeology and historical roots as opportunities while exploring the connections between the often-perceived inevitable condition of inner areas and the meaning of heritage, which is always correlated with social recognition.

1435. A 5,500-year record of paleohydrological variability in a northwestern Mediterranean paleolake: trajectories of human-water interactions (Cadrix, Var, France)

Authors: Mélanie Dagneaux (CEREGE | Aix-Marseille Université) – Romaric Bardet (CCJ | Aix-Marseille University) – Hélène Bruneton (CEREGE | Aix-Marseille University) – Olivier Sivan (LAMPEA | INRAP) – Christelle Claude – Doriane Delanghe (CEREGE | Aix-Marseille University) – Fréderic Guiter (IMBE | Aix-Marseille University) – Alda Flambeaux (INRAP) – Corinne Landuré (CCJ) – Tachikawa Kazuyo (CEREGE)
Format: Oral

Several surveys carried out in 2024 revealed nearly 22 metres of lake deposits. Two cores measuring 6 and 11 metres long were taken, recording the last 5.5 thousand years showing high-resolution potential for paleoenvironmental records. First results obtained, combining archaeological inventories and paleoenvironmental data from Cadrix paleolake, illustrate the resilience of rural populations regarding water resource management, with two significant turning points during Middle Neolithic and Roman period, offering a relevant case for the development of a socio-hydrosystem in the northwestern Mediterranean. The Middle Neolithic period may show a shift from a climate-dominated system ~5.5 ka to early human interactions with the environment. Paleoenvironmental proxies are consistent with a lake transgression phase associated with stable, low-energy lacustrine conditions. Simultaneously, data suggest early population settlement near the lake. Such conditions likely constituted a window of opportunity for Middle Neolithic societies, providing freshwater resources and exploitable littoral zones prior to later phases of hydrological management. Regarding the Iron Age, data suggest that the impact on water resources was limited. Settlements were characterized by fortified hilltop villages inhabited by about a hundred people. Water management was probably not left to individual initiative, suggesting that water resources were abundant enough. Around 150 AD, the paleolake appeared to be a good observatory of Roman domination, as proxies suggest the plain was artificially drained by a trench in the tufa dam to dry, settle and cultivate the lowland. Archaeological inventories and written sources show that Romans exploited land taken from indigenous people, fundamental to Rome's effective (and symbolic) control of the territory. Rome reorganized the land and constructed large-scale hydraulic engineering works to dominate the environment and supply water to large villae. Beyond the 3rd–4th century AD, the lake may have experienced several fluctuation phases linked to climatic variability and/or wetland management and water resource control.

1918. Modeling shoreline mobility and taphonomic filtering in Martinique (French West Indies): a spatio-temporal analysis of pre-Columbian settlement patterns

Authors: Morgane Blanot (University Paris 1 Panthéon-Sorbonne | Archéologie des Amériques UMR 8096 | Centre de

Recherche et d'Enseignement en Géosciences de l'Environnement UMR 7330) – Benoit Bérard (Université des Antilles | Archéologie des Amériques UMR 8096) – Christophe Morhange (University of New Caledonia) – Frédérique Leroy (Département des Recherches Archéologiques Subaquatiques et Sous-Marines | French Ministry of Culture)

Format: Oral

Coastal zones are highly attractive yet inherently unstable areas. Throughout the Holocene, marine transgression not only reshaped shoreline morphology but also reconfigured habitable areas, ecosystems, circulation routes, and sheltered environments. In the pre-Columbian Antilles (3000 BCE–16th century CE), where maritime engagement was structurally embedded, these reconfigurations likely influenced settlement and mobility choices and, consequently, the present-day preservation and visibility of coastal sites. While relative sea-level (RSL) changes are evident at geological scales, their perception at the human scale remains debated: were they experienced as abrupt crises, or as gradual processes manageable within lived time? In Martinique, new data from submerged sites and mangrove coring now enable us to locally constrain late-Holocene RSL rise. Using these indicators, we propose palaeogeographic reconstructions of shoreline positions for several pre-Columbian periods to quantify changes in available space (supralittoral, intertidal, infralittoral) and to assess the magnitude of coastal reconfigurations likely to have affected settlement dynamics. These modelling efforts provide the basis for a settlement-pattern analysis that moves beyond a deterministic interpretation of the environment. We aim to distinguish risk-mitigation strategies (erosion, submergence, coastal instability) from the exploitation of opportunities (new biotopes, resources, and changes in coastal connectivity). Finally, we discuss the taphonomic biases caused by shoreline mobility (submergence, erosion, burial), which influence our interpretation of site distributions. Beyond the Martinican context, this approach offers a transferable framework for other insular settings and directly echoes contemporary climate-change challenges, both in terms of the resilience of coastal societies and the preservation of an increasingly vulnerable archaeological heritage.

1786. The Magdalenian Hunter and His Prey: High-Resolution Isotopic Evidence for Human- Environment Adaptation in the Tatra Mountains Huciva Cave (Slovakia)

Authors: Anna Kraszewska (Institute of Archaeology, Jagiellonian University) – Dalia Pokutta (Archeological Research Laboratory University of Stockholm | Collegium Medicum University of Rzeszow) – Kerstin Lidén (Archeological Research Laboratory University of Stockholm) – Jakub Skłucki (Institute of Archaeology, Jagiellonian University) – Katarzyna Zarzecka-Szubińska (Department of Paleozoology, University of Wroclaw) – Peter Tóth (Department of Archaeology Masaryk University) – Marián Soják (Institute of Archaeology, Slovak Academy of Sciences) – Paweł Valde-Nowak (Institute of Archaeology, Jagiellonian University)

Format: Oral

Human resilience to environmental stress has often been explored through lowland settlement systems, while high-mountain landscapes have long been regarded as marginal or episodically used. This paper presents new bioarchaeological evidence from Huciva Cave (Western Carpathians, Slovakia), challenging static models of human avoidance of high-altitude environments during the Late Pleistocene. The site provides rare evidence for human activity close to the former margins of a high mountain glacier. We present an integrated multi-proxy dataset comprising 20 new AMS radiocarbon dates, stable carbon and nitrogen isotope analyses for 20 faunal individuals, 20 oxygen isotope measurements, and approximately 41,000 strontium isotope ratios ($^{87}Sr/^{86}Sr$) generated using a new high-resolution laser-based approach ("Superstrontium"). This unprecedented isotopic resolution allows the reconstruction of fine-scale mobility patterns, seasonal landscape use, and environmental variability at temporal scales previously inaccessible in Paleolithic research. The results reveal a complex adaptive strategy combining short-term mobility, targeted resource exploitation and repeated use of high-altitude environments under fluctuating climatic conditions. Rather than representing marginal or symbolic incursions, the Carpathians emerge as an integrated component of broader socio-ecological systems, reflecting resilience through flexibility and environmental knowledge. By combining chronological control with dietary, mobility and paleoenvironmental proxies, this study illustrates how human groups negotiated environmental stress not through collapse or retreat, but through adaptive transformation of land-use strategies. The presentation will be delivered by D. Pokutta, the author of the research; the project is funded by the Rector of the University of Rzeszów Programme for the Development of Humanities and Social Sciences (grant no. PWOSG.501.3.2025). The archaeological work was carried out as part of the research project no. 2021/41/B/HS3/03217 The Stone Age Man in the Caves of the Tatra Mountains, funded by the National Science Center (Poland).

1297. Millet served: A glimpse into dietary strategies at the LBA site of Čejč (CZ) tracked through organic residues in pottery

Authors: Veronika Brychová (Nuclear Physics Institute of the Czech Academy of Sciences) – Klára Šabatová (Faculty of Arts, Masaryk University) – Ivan Čižmář (The Institute for Archaeological Heritage Brno) – Vojtěch Nosek (Faculty of Arts, Masaryk University) – David Parma (The Institute for Archaeological Heritage Brno)

Format: Oral

The Čejč site (Late Bronze Age; Moravia region, Czech Republic) was excavated in 2021 during the construction of a gas pipeline. The excavation revealed more than 150 recessed features, predominantly shallow storage pits containing ceramic vessel fragments, as well as two ceramic hoards comprising complete vessels. In total, 34 ceramic fragments from both the hoards and settlement features were selected for organic residue analysis. The aim was to identify lipid residues absorbed during vessel use and to obtain an initial insight into the dietary economy of the Čejč site. Cleaned and powdered potsherd samples were subjected to acidified methanolic extraction, followed by FID, GC/MS, and GC-C-IRMS analyses to assess the concentration, composition, and original sources of lipid residues. More than 70% of the analyzed potsherds contained appreciable amounts of lipids, in some cases exceeding 1 mg per gram of extracted ceramic. The lipid extracts were rich in residues of original fats and their degradation products, including long-chain fatty acids, n-alkanes, fatty alcohols, and triterpenic alcohols. Notably, the millet biomarker miliacin was detected in approximately half of the samples. Stable carbon isotope analysis (GC-C-IRMS) of the two most abundant fatty acids indicated the presence of non-ruminant adipose fats, ruminant adipose fats, and dairy fats. Furthermore, the isotopic signatures of the animal fats were enriched in, or strongly influenced by, C_4 plant input, suggesting a significant contribution of millet to both animal and human diets. This first glimpse into the dietary practices and livestock management at Čejč through organic residue analysis of pottery raises several research questions about subsistence strategies in LBA, not only in Čejč, but also in other LBA sites in the region, to explore how millet-based subsistence at Čejč reflects broader adaptive strategies in the Bronze Age.

1156. Living in the Arctic worlds: adaptation, transformation and resilience of the past and present societies

Authors: Claire Houmard (Université Marie et Louis Pasteur)

Format: Oral

The North American Arctic lands (including Greenland) were among the last to be populated. The harsh living conditions in these regions require specific subsistence strategies and constant adaptation to environmental and/or societal changes. Any wrong decision can take a heavy toll, human and/or material. Low population density and significant seasonal variations are probably the reasons for the high mobility often assigned to these human groups. This mobility is directly linked to weather and environmental. Programming and anticipating the needs and activities can also be explained by varying degrees of resources' accessibliity. Through this communication, we wish to develop a reflection on the modes of adaptation, transformation, and resilience of Arctic societies over the last millennium. From the last human major migration (13th c. CE) to present day, the Arctic societies experienced cooling and warming episodes, as well as the contact with radically different cultures (Westerners), both factors might have influence and modify the previous traditions.

869. Long-term dynamics of flood resilience under compounding stressors: Historical insights from Southwest China (1644–1911)

Authors: Siying Chen – Liang Emlyn Yang (Ludwig-Maximilians-Universität München)

Format: Oral

Throughout history, human societies have evolved in close relationship with rivers, while floods have remained a frequent and highly disruptive natural hazard worldwide. Although resilience has emerged as a key concept in contemporary flood risk management, it has deep historical roots shaped by pre-existing resource endowments, institutional arrangements, and accumulated practices of adaptation. Yet the long-term trajectories of flood resilience under changing environmental and societal conditions remain insufficiently understood. Addressing this gap, this study draws on extensive Chinese historical documents to trace the dynamics of flood resilience in Sichuan, Southwest China during 1644-1911 A.D. (the Qing Dynasty). A composite index is calculated to capture the flood impacts across six interrelated subsystems: environment, production, infrastructure, population, economy, and social order. The reconstructed annual series reveals a non-linear resilience trajectory comprising four distinct phases, separated by three major turning points (1727, 1779, and 1856). Early phases show relatively low flood impacts despite recurring hazards, indicating a capacity to absorb disturbances. Over time, however, flood impacts increasingly intensified through cascading effects across interconnected subsystems, resulting in widespread famine, market disorder, and social unrest, with consequences extending beyond the directly affected regions. Integrating natural and socio-economic indicators, this progressive erosion of resilience is associated with continuous population growth and cropland expansion, environmental degradation, declining per capita resource availability, increasingly frequent warfare, and weakening governance capacity. Historical experience highlights the need for a holistic, systems-based approach for sustaining flood resilience under compounding stressors. It also underscores the importance of identifying thresholds and cascading processes in contemporary contexts of growing systemic and regional interdependence.

937. Discovering resilience strategies in traditional dryland agriculture: Insights from ethnoarchaeology

Authors: Sara Krubeck – Marco Madella – Carla Lancelotti (Pompeu Fabra University, CASEs research group | AGRI-DRY network) – Olaotse Thabeng – Bothepha Mosetlhi (University of Botswana | AGRI-DRY network) – Sarah Mothulatshipi (AGRI-DRY network) – Nicki Whitehouse (University of Glasgow | AGRI-DRY network)

Format: Oral

Ethnographic and archaeological evidence shows that crop production in drylands can be a sustainable and viable subsistence and land use activity under Holocene conditions. Today, agricultural systems in arid regions are disproportionately threatened by climate change, land degradation and mismatched environmental policies. Traditional farming practices may provide time-tested alternatives to unsustainable industrialised agriculture, prompting us to assess their value for sustainable development and ecological policy-making in such areas. Here, we examine which characteristics make traditional agriculture resilient to the erratic rainfall patterns in arid environments and what we may learn from past agricultural systems that persisted during periods of climate change. Applying a framework based on Resilience Theory, this study investigates resilience strategies in past and present traditional dryland

agriculture that allow farmers to cope with droughts, adapt to shifts in rainfall patterns, mitigate land degradation and sustain food security. With a focus on African contexts, the results from ethnographic interviews conducted with subsistence farmers in Botswana will be presented here. The research targets Traditional Ecological Knowledge of agricultural practices encompassing crop choices, water and soil management with their perceived costs and benefits and in relation to climatic and ecological risks. Of key interest are practices that reflect specific risk management strategies, as these are conceptualised as the sources of resilience. The ethnographic findings will be used in evaluating the trajectories of archaeologically evidenced agricultural systems. Observations on change and continuity in past farming contexts exposed to climatic disturbances provide a test for the resilience and long-term viability of agricultural practices and of the risk management strategies they display. The ethnoarchaeological approach thereby enables to assess the resilience fostering potential of non-industrial methods to sustainably address environmental stressors in smallholder dryland farms.

430. Raw material networks in Balkan Prehistory: a proxy for social interaction and sustainability

Authors: Maria Gurova (Bulgarian Academy of Sciences) – Clive Bonsall (University of Edinburgh)
Format: Oral

The paper discusses advancements in the study of flint resources in Bulgaria, particularly the analysis of Balkan flint, a key material used in toolmaking during the Early Neolithic. Over more than a decade there have been notable advances in Bulgaria in raw material studies using macro- and micropetrography combined with geochemical (LA-ICP-MS) analysis of raw material samples and flint artefacts. A systematic analysis of flint raw materials from different outcrops compared with flint artefacts from different sites leads to a better understanding of flint provenance and distribution for subsequent and variable inter-site consumption. The paper illustrates the complete chain of analyses of an important raw material (Balkan flint) with a prominent role in the Early Neolithic network in the Balkans. The findings indicate that Neolithic communities in Bulgaria often sourced flint from multiple sites, all located in Upper Cretaceous limestone formations in northern Bulgaria, and GIS modelling has suggested potential distribution routes. The concentration of Balkan flint resources in northern Bulgaria gave the region a crucial role in the spread of the Neolithic way of life through Southeastern Europe. We explore: (1) How flint procurement networks may have functioned as critical, adaptive strategies during the EN by enabling sedentary communities to secure high-quality raw materials for new agricultural technologies while fostering social, economic, and ideological connections across landscapes; (2) Whether distribution patterns changed in response to environmental or social stressors; and (3) How resource concentration contributed to community resilience during the EN.

69. Adaptation and Transformation in the Late Harappan of the Indus Valley Civilization

Authors: Heidi J. Miller (—)
Format: Oral

In the lower Indus River valley, Pakistan, from approximately 2000 to 1600 BC, significant cultural elements of the Bronze Age Harappan Civilization disappeared; however, it is believed that the culture of the Harappan continued into the late period, albeit appearing in a very different form. This new cultural expression represents a transformation from an urban-based system with extensive interregional trade reliant on shared systems of weights, writing (undeciphered), etc., to a smaller-scale, more locally situated cultural adaptation. The loss of importing of raw materials as well as the loss of an extensive array of craft products, suggest a major upheaval. Although these changes are striking, there is evidence of cultural continuity from within this loss of an overarching ideological and political identity which had governed socio-economics of the Harappan. This presentation will focus on the interregional elements that were lost, and the ways in which the new culture adapted certain aspects of the earlier material culture to the new situation by creating a more resilient fit for the socio-economic changes that were occurring.

1498. Resilience vs. Fragility in the Mediterranean Metal Trade throughout the Late Bronze-Iron Age Transition: A View from the Southern Levant

Authors: Naama Yahalom-Mack (The Hebrew University of Jerusalem)
Format: Oral

The destruction of Mediterranean palatial centers c. 1200 BCE triggered profound regional transformations, particularly within the metal trade networks central to the Late Bronze Age (LBA) economy. This study investigates these transitions in the Eastern Mediterranean by tracking shifting copper sources in the southern Levant. We synthesized a robust geochemical dataset of copper-based artifacts spanning the LBA, Iron Age I, and Iron Age II, integrating elemental composition with lead isotope analysis (LIA). When contextualized with existing lead and silver data, our results reveal a complex LBA landscape where copper procurement extended beyond Cyprus, although Cypriot intermediaries remained pivotal to regional distribution. The subsequent surge in copper production within the Arabah during the early Iron Age serves as a primary proxy for shifting geopolitical power dynamics. These shifts include a strategic repositioning of the Cypriot market toward alternative commodities and Mediterranean regions, alongside a total cessation of Aegean metal imports. By synthesizing new and archival data, this research clarifies long-standing debates regarding continuity versus disruption, illustrating how the collapse of palatial systems reorganized Mediterranean resource management.

490. The Shifting Moral and Spatial Terrain of Medieval Valencia in Times of Crisis

Authors: Ella Zeiders – Laura Jakubczak (Arizona State University)
Format: Oral

The History of Late Medieval Valencia (1300-1500 CE) was marked by major transformations to the layout of the city, both in terms of who was allowed to live within the city walls and where different religious groups were forced to reside. These changes were influenced by political and social transformations that were often linked to stressors such as the plague in the early 1300s, a violent assault of the Jewish quarter in 1391, and the great fire that happened in 1447 CE, all of which profoundly impacted the structure of the city and the make-up of its citizenry. This paper applies gender archaeology methods to gain a better understanding of how women in particular responded to these shifts in the fabric of their life. The study of the symbolic vs. actual use of spaces such as private households and public city domains allows for a picture of the medieval past that is more inclusive of all people of the city, not only those of the privileged classes that tend to be the focus of historical texts. A survey of the historical and legal documents, combined with new archaeological research, helps reveal who were enforcers of new rules and who were the people who worked subtly against the system.

2498. Salt Exploitation and Socio-Ecological Resilience in the Eastern Carpathians of Romania: A Long-Term Perspective

Authors: Mihaela Asandulesei ("Alexandru Ioan Cuza" University of Iași, DSU)
Format: Oral

The Eastern Carpathian area of Romania holds a significant and long-recognized potential in subsurface resources, among which salt represents one of the most persistent and socially impactful. Concentrated along the Carpathian chain, salt occurs in both solid deposits and liquid forms, creating a diverse and accessible resource landscape that has been exploited continuously since prehistory. Archaeological evidence documents the exploitation of saline springs as early as the Neolithic (e.g., Lunca, Poiana Slatinii) through controlled recrystallization processes. These practices, further developed during the Eneolithic through techniques commonly described as briquetage, were associated with stable settlements, collective labor organization, and emerging forms of resource management. Such early exploitation strategies indicate not only subsistence-oriented production, but also the integration of salt into systems of exchange, prestige, and social differentiation. Over time, the exploitation of solid salt deposits increased in technological complexity and scale, contributing to the development of supra-local networks and, in certain historical contexts, to political and economic control over saline resources. Throughout antiquity, the medieval period, and into modern times, salt exploitation in the Eastern Carpathians was progressively incorporated into fiscal systems and state monopolies. However, this process did not eliminate local and traditional practices of brine use, which persisted alongside organized mining and later industrial extraction. Ethnographic and ethnoarchaeological data reveal long-term continuity in the use of saline waters for food preservation, animal husbandry, and therapeutic purposes, as well as adaptive changes in exploitation strategies and in the chemical quality of brines, shaped by both natural and anthropogenic factors. Viewed through the lens of resilience, salt exploitation in the Eastern Carpathian space illustrates a dynamic trajectory of continuity, adaptation, transformation, and occasional disruption. This long-term perspective highlights how human communities negotiated environmental constraints, technological innovation, and socio-political pressures while managing a critical resource, offering transferable insights into socio-ecological resilience.

2309. Shift or Adaptation? Spatial Patterning of Middle-Upper Paleolithic Transition in Southern Iberian Peninsula.

Authors: Daniela Maio – João Cascalheira – Célia Gonçalves (ICArEHB, University of Algarve)
Format: Poster

Southern Iberian Peninsula represents the last refuge of Neanderthal populations, as modern humans advanced across Eurasia. While both Neanderthal and modern human populations relied primarily on locally available resources (Cascalheira et al. 2021), the spatial organization of their settlement systems may have differed significantly. Differences in land use and mobility may have been a key behavioral separation between Middle and Upper Paleolithic humans (Carvalho et al. 2025), likely shaped by climatic and demographic pressures that required flexible adaptive responses. These turnover periods can be explained by the emergence of new techno-complexes. For instance, the replacement of Mousterian by Aurignacian during Heinrich Event 4 was marked by a decrease of archaeological sites, suggesting that environmental deterioration and reduced resource availability drove changes in settlement logic. These shifts in both material culture and ecocultural niche are interpreted as responses to worsening ecological conditions. Although some of these topics have already been the subject of in-depth studies, very few have focused on how settlement patterns as indicators of resilience at a larger geographical scale. This poster tests whether Upper Paleolithic site locations in southern Iberia follow the same territorial logic as Middle Paleolithic ones — suggesting adaptive continuity — or whether they indicate a reorganization of occupation strategies regarding raw material sources, watercourses, and topographic prominence. This project is based on a multi-source GIS approach, integrating chronological, geographic, geomorphological, and archaeological data. The resulting models, simulation and dynamic modeling including analyses of visibility, landscape exposure, and accessibility, aim to reveal the flexibility and constraints of hunter-gatherer adaptive systems in the Southern Iberian Peninsula, offering new insights into how reorganization operated as a mechanism of resilience in the face of shifting ecological and population pressures.

2577. The Limits of Adaptation: World War II and the Demise of the Olender Settlements in the Łódź Region

Authors: Anna Olczyk (University of Lodz, Doctoral School of Humanities)
Format: Poster

Olender settlements appeared in the area of present-day Łódź and its surroundings at the end of the 18th century. The "hard-working Olendrzy" were considered experts in the economic integration of previously unused land. Since the 16th century, landowners had been signing settlement contracts with newcomers from Friesland and the Netherlands, who, thanks to their land reclamation skills, were unrivalled in the cultivation of wetlands. In exchange for rent, settlers could settle in a designated area, cultivate the land there, and enjoy a number of privileges, including personal freedom, freedom of religion, and no serfdom. This model proved effective, and Olender settlement spread from its original cradle – the Vistula Fens and the Lower Vistula Valley – to further areas, not only wetlands but also forested areas, reaching, among others, the vicinity of Łódź. Over time, the term Olender ceased to refer to an ethnically homogeneous population and became a marker of a legal and social system. The Olenders continued to be characterized by a strong sense of community. For instance, they manifested their shared responsibility towards the landowner and their form of self-government. Over the years, Olenders and their descendants faced challenges related to reforms concerning the enfranchisement of peasants (loss of the privileged position of the Olenders), World War I (war destruction), and Poland's regaining of independence (new political system). However, it was the extreme trauma of World War II that led to the collapse of the settlements, both socially and materially. Social aversion and distrust of the population perceived as German (which included the Olenders) and legal regulations led to the migration of the population that formed these settlements. Social ignorance, strong aversion, political conditions, and urbanization processes also led to the fading of the landscapes of Olender settlements in the Łódź area and their relics.

147 ECHOES OF THE STEPPE: INTERDISCIPLINARY APPROACHES TO CENTRAL ASIAN SOCIETIES

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Ptolemaios Paxinos (Bavarian State Collection for Palaeoanatomy) – Júlia Olivé-Busom (University of Bonn) – Delgermaa Lkhagvadorj (Mongolian Academy of Sciencies)
Keywords: Central Asia, bioarchaeology, paleoenvironment, landscape archaeology, 3D reconstruction, remote sensing
Format: Regular session

SESSION ABSTRACT

From prehistory to the present day, Central Asia has been the birthplace of complex and influential polites, the bridge between eastern Asia and the Europe, and the home of a variety of peoples and religions, all of which were interconnected through economic, cultural and linguistic ties. Central Asia is also a hotspot of recent archaeological activities by a diverse scientific community with a background in bio- and geoarchaeological sciencies. In this session, we welcome any papers that revolve around the many nomadic societies that flourished in modern-day Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Turkmenistan, Uzbekistan and northern China. We are interested in approaches that incorporate the bio- and geo- into archaeology, and welcome contributions that revolve around human-plant and human-animal interactions, patterns of resources consumption and management, demographic and paleopathological trends both in animals and humans, and kinship dynamics, landscape management and evolution, paleoenvironment reconstruction, and the telematic detection and reconstruction of buried landscapes.

CONTRIBUTION ABSTRACTS

1302. Approaches to Stature Estimation in Ancient Mongolian Populations

Authors: Erdene Myagmar – Ariulzul Otgonbaatar – Ulziikhishig Janchiv (National University of Mongolia) – Erdenechimeg Vanchindorj (Monsta Audit)
Format: Oral

Accurate reconstruction of human stature from skeletal remains has long been recognized as a fundamental objective in bioarchaeology. Stature estimation not only provides a proxy for understanding the biological profile of past populations but also serves as an indirect measure of health, nutrition, and social conditions. As such, it is a critical parameter for reconstructing lifeways and for comparing populations across different temporal and geographic contexts. In Mongolia, archaeological discoveries of ancient human remains present a valuable opportunity to investigate the biological characteristics of populations inhabiting the Eurasian steppe. Despite the region's significance in world history, relatively few studies have systematically examined the stature of ancient Mongolian populations. Existing approaches to stature estimation typically rely on regression formulas developed from reference populations in Europe or North America. While these formulas are widely applied, their accuracy may be limited when used for populations with distinct morphological and genetic backgrounds. To address this issue, the present study employs two complementary methods: (1) commonly used anthropometric regression formulas, and (2) anatomical reconstruction techniques based on skeletal measurements. By applying both approaches to ancient individuals recovered from Mongolian archaeological contexts, we aim to evaluate the consistency and reliability of stature estimates. Comparative analysis of these methods will highlight potential biases and limitations inherent in using non local reference formulas. Ultimately, this research seeks to develop a population specific regression formula tailored to the physical characteristics of Mongolia's ancient inhabitants. Such a formula will not only improve the accuracy of stature estimation for future studies but also contribute to a more nuanced understanding of the biological adaptations and physical diversity of populations in the Mongolian steppe. In doing so, the study advances methodological rigor in bioarchaeology while enriching our knowledge of human variation in Inner Asia.

610. Nomads or Settlers? Insights from the Andigen Barrow Necropolis in Southwestern Kyrgyzstan (3rd-4th century AD)

Authors: Klementyna Mackiewicz (Department of Archeology, University of West Bohemia in Pilsen) – Kadicha Tashbaeva (Department of Archeology, National Academy of Sciences of the Kyrgyz Republic)
Format: Oral

From 2023 to 2025, a research project including an archaeological intervention was conducted at a burial mound necropolis in the Andigen area of the Batken region in southwestern Kyrgyzstan (Central Asia). The burial ground, dating to the 3rd–4th centuries AD, is clearly visible in aerial photographs and from a nearby road. However, it had never previously been investigated. During fieldwork, 54 of the 120 burial mounds in the cemetery were excavated. Of these, 51 contained undisturbed archaeological burials. Three types of burial structures were identified within the cemetery. Although all burials contained nearly identical grave goods, significant variability in funerary practices was observed. The anthropological study revealed that the population buried at the Andigen necropolis was generally robust and presents a better osteological health status when compared to contemporaneous populations. According to historical and archaeological data, the materials obtained from the Andigen burial ground attested to the arrival of a new ethnic group with previously unknown cultural and funerary elements. Those observations and the location of the site between mountain ridges combined with noteworthy observation of high frequency of non-metric cranial traits specific for the East Asian and Mongoloid populations may support the thesis about nomadic lifestyle and community's migration into the Batken region. The paper presents the evidence of the population's origin, as well as the main elements of their cultural identity and funerary practices.

43. Reaching for paradise. The inhabitants of the Muslim cemetery of Karakorum

Authors: Julia Olive Busom – Alice Toso (University of Bonn) – Dunburee Batsukh (Institute of Archaeology, Mongolian Academy of Sciences) – Susanne Reichert – Jan Bemmann (University of Bonn)
Format: Oral

With the start of the Arab conquests in the 7th century, Islam steadily advanced towards the east, entering into contact with the Mongol Empire around the 13th century. Although this interaction is often seen as hostile, Islam became one of the many religions of the peoples of the empire. During the years 2023 and 2024 a Mongolian-German expedition excavated two different locations at the northern cemetery of Karakorum, the capital of the Mongol Empire. During these, two different burial complexes were uncovered, revealing Islamic burials. Although the burials themselves showed the key characteristics of all Muslim burials, several funerary, anthropological, palaeopathological and isotopic findings indicated that the individuals uncovered in the cemetery may have undergone a preselection process. Namely, the distribution of the graves stood out from that seen in western maqabir, with men occupying a central position, while non-adults, which were mostly under the age of 3 years, surrounded them and women were scarce and found in the periphery. More importantly, child mortality as derived from the data collected in the cemetery stood out, even in pre-industrial and pre-antibiotic societies. In conjunction, the palaeopathological analysis of the inhumated individuals revealed instances of severe, extensive and chronic diseases, and the isotopic findings may indicate a clear stratification of the population.

2522. The Prehistoric Origins and Development of Mongolia's Earliest Settled Economies

Authors: Christina Carolus – Asa Cameron (The Pennsylvania State University) – Bukhchuluun Dashzeveg (Yale University) – Jargalan Burentogtokh – Altanbayar Zoljargal – Byambatseren Batdalai (National University of Mongolia) – Isabelle Holland-Lulewicz – Jacob Holland-Lulewicz – Matthew Picarelli-Kombert (The Pennsylvania State University) – Chunag Amartuvshin (National University of Mongolia)
Format: Oral

Research into dispersals and socioeconomic impacts of major domesticated plant and animal taxa across the ancient Inner Asian steppe zone has gained significant momentum in the past decade. Improved field methods and archaeometric developments have begun to clarify the antiquity and breadth of these processes in many regions, particularly the Mongolian steppe, revealing the contours of broad changes throughout the Bronze and Iron Ages and linking them to a broader trans-Eurasian system of dynamic long-term social, economic, and biogeographic interactions with cascading effects into the present. Nevertheless, archaeologists and historians still struggle to dispel essentialist notions about "pure nomadism" in ancient steppe livelihoods and thoroughly explain the role of plant and animal economies in the region's initial major sociopolitical formation. This paper centers emerging evidence for the origins of the first settled economies known on the Mongolian steppe, which appeared in the final centuries of the first millennium BC and are often viewed as isolated and few. New cross-regional syntheses and ongoing excavations in Dornod Province allow us to explore the basis of this poorly understood phenomenon and reveal new insights into dynamics of scale, networks and

distributions, populations, and significant economic transformations directly linked to the formation of eastern Eurasia's earliest state. The sudden and poorly understood appearance of multicropping regimes, expanded herding economies, and sedentarization of highly mobile populations represented a substantial shift in livelihoods and sociopolitical organization. We suggest that ancient Mongolian communities have always practiced more diverse locally situated multiresource modes of landscape exploitation and patterns of mobility than typically recognized. These were contingent on deep long-term knowledge of ecological affordances, flexible practice, and mastery of biotic management strategies. However, we contend that this novel, dynamic mix of settled and nomadic systems provided a socioeconomic model that endured among all subsequent centralized political formations to follow.

2628. Vertical Archipelagos of Ancient Inner Asia: Investigating Long Term Socioecological Dynamics at Kyzyl Unkur-1, Kyrgyzstan

Authors: Asa Cameron – Christina Carolus (The Pennsylvania State University) – Sergei Ivanov (Kyrgyz National University) – Malike Piridinova (Kazan Federal University) – Isabelle Holland-Lulewicz – Jacob Holland-Lulewicz (The Pennsylvania State University)
Format: Oral

Often conceived of as the first true link between "East" and "West" and the premodern foundation of our globally interconnected world, the famed networks of the "Silk Road" linked distant kingdoms across Afro-Eurasia through movement, interaction, and exchange. Well known ancient oasis centers attest to this shared history and importance, yet highland regions of Central Asia with equally significant roles remain underexplored and understudied. Recent research has begun to reveal the contours of an interconnected, deep-time geography of high-altitude centers along the mountainous crossroads of Central Asia. Southern Central Asia, and particularly the area surrounding Lake Issyk-Kul in eastern Kyrgyzstan, represent critical yet poorly understood participants. This position along the vast Tien Shan Mountain range formed a vital corridor of interaction between Eurasian frontiers as early as the 3rd millennium BC, where migration routes through eastern Kyrgyzstan linked parts of western China, Mongolia, and Southern Siberia with the Hindu Kush. The following paper presents a preliminary overview of rich floral, faunal, and material cultural datasets from ongoing excavations at Kyzyl Unkur-1 (c. 2000 masl), a stratified cave site located in the Juuku Valley of eastern Kyrgyzstan with evidence of long term human and livestock occupation from the present day through to at least the Late Bronze Age (2000-800 BC). Subject to an extensive AMS dating regimen, this developing case study provides a sequence of temporal anchors to better understand late Holocene social, economic, and environmental trends throughout the greater Inner Tian Shan region and Central Asia more broadly. These trends include the development of agricultural and pastoral systems in ecologically variable and challenging highland environments, evolving landscape uses and modifications, and the changing roles of montane Central Asian societies in the movement of goods, biota, ideas, and people throughout Eurasia prior to and during the Silk Road phenomenon.

1102. Human and livestock activity in the Orkhon Valley during the Mongol Empire revealed by waste biomarkers

Authors: Ramona Mörchen – Inga Koch – Jan Bemmann – Susanne Reichert – Stefan Pätzold – Wulf Amelung (University of Bonn)
Format: Oral

During the 13th and 14th centuries CE, the Mongol Empire emerged as the largest contiguous land empire in world history. Despite its vast extent, the mechanisms that sustained an urban lifestyle in its first capital, Karakorum, located in the core of the Mongolian steppe, remain poorly understood. In particular, questions persist concerning food provisioning systems and the supply of raw materials required to support the urban population. To address these issues, we investigated the topsoil at Sarlag Tolgoi, an ancient settlement situated approximately 50 km northwest of Karakorum. Soil samples were collected along a transect crossing the settlement and complemented by reference samples from nearby locations assumed to be minimally disturbed. Phosphorus concentrations were used to detect anthropogenic waste input, followed by sterol and bile acid analyses of samples showing elevated phosphorus levels in order to reconstruct former settlement structures and their environmental imprint. Phosphorus concentrations in surrounding topsoils were up to ten times higher than those measured within the settlement itself, providing strong evidence for human-induced modification of the site. Sterol and bile acid analyses of phosphorus-enriched samples revealed distinct hotspots of ancient faecal input from grazing livestock, predominantly cattle and sheep, within the settlement area. In contrast, biomarker ratios showed no indication of horse faeces, suggesting that horses were either kept outside the settlement or played a less central role than in nomadic subsistence strategies commonly associated with Mongol populations. Only minor proportions of the human faecal biomarker coprostanol were detected, implying that facilities for human waste disposal were likely located beyond the settlement boundaries. We conclude that anthropogenic activity during the Mongol Empire left persistent and clearly detectable signatures in the soils of Sarlag Tolgoi. Soil-scientific approaches combined with targeted biomarker analyses can refine archaeological interpretations of settlement organization and human-environment interactions in the Mongolian steppe.

2546. Feeding cities, creating foodscapes: the urban animal cycle in Karakorum

Authors: Ptolemaios Paxinos (Bavarian State Collection for Palaeoanatomy) – Joris Peters (Bavarian State Collection for Palaeoanatomy | ArchaeoBioCenter, LMU Munich)
Format: Oral

Karakorum, one of the most important settlements of the Mongol Empire, was planned and erected from scratch alongside the newly emerged empire and is an example of an "implanted city", a characteristic urban development of the Mongolian plateau. The establishment of a new city in the Mongolian steppe represents in many regards a logistical challenge. Archaeozoological analysis can help us better understand the role of animals in the urban life cycle, and the resulting foodscape: which animal products were primarily consumed? Were animals imported into the city or were they kept on-site? Were people processing animal products for purposes other than food, e.g. using bones in the craft industry? Age and sex distribution analysis can answer questions related to animal management and economic practices. Differing management strategies is particularly evident when contrasting the most commonly found species at Karakorum, sheep with cattle. Sheep show a double-peaked age culling profile suggesting that young animals were slaughtered as soon as they reached maximum meat yield, whereas older animals, possibly ewes, were kept longer in order to produce milk and offspring. In contrast, cattle were being used primarily as labour animals, as suggested by the degree of labour-related pathologies. Across all species, only few remains of young animals are present in the material, suggesting that raising animals inside or nearby the city was not a common practice. Leaving the possibility of intensified animal husbandry in the Orkhon valley during the Mongol Empire aside, a dense network of herders, probably in combination with the import of goods from the eastern provinces of the Mongol Empire, was required in order to supply the city with a steady flow of meat and other animal products.

1733. Multifaceted animals: The role of livestock in Xiongnu burial rites

Authors: Simon Trixl (State Office for Cultural Heritage Management Baden-Wuerttemberg | Ludwig Maximilian University of Munich) – Eric Crubézy (Centre for Anthropobiology and Genomics of Toulouse | Institut Universitaire de France)
Format: Oral

In all pre-modern communities, animals were crucial for shaping the economic and social life. This is particularly true for Central and East Asian nomadic societies with their highly specialised subsistence strategies, which have been perfectly adapted to strong continental climate conditions. In addition to their economic significance, domestic mammals and the horse and sheep in particular were an important part of burial rites, as shown by the archaeological record from different chronological and spatial contexts in regions such as present-day Mongolia, Transbaikalia, and Kazakhstan. However, reconstructing the specific role of livestock in funerary assemblages is challenging as there are various possible interpretations regarding the deposition of meat offerings, steeds or isolated bones/associated bone groups with "magical" or symbolic functions. In addition, activities connected to the faunal remains during or after the funeral must also be taken into account. We will discuss this multifaceted role of livestock by the example of animal remains from cemeteries associated with the Xiongnu confederation (3rd/2nd century BCE to 1st/2nd century CE) on the basis of zooarchaeological and taphonomic data. A focus will be on the site of Tamir Ulán Khoshuu (Arkhangaï/Mongolia), for which abundant zooarchaeological data from 46 graves allow a detailed reconstruction of burial rites and possible animal offerings, which we will compare with results from further Xiongnu necropolises such as Gol Mod and Tsaraam. This inter-site comparison will furthermore allow to follow the question, to which extent regional, chronological or social patterns occur in the use of animals by the Xiongnu burial communities.

1401. The Tin 'Rush' in East Kazakhstan: New Evidence for the Scale of Cassiterite Mining in the Bronze Age

Authors: Evgeny Vodyasov – Olga Zaitceva (East Kazakhstan technical university)
Format: Oral

The paper focuses on the Eastern Kazakhstan Bronze Age tin-mining center. This region is characterized by numerous rich and easily accessible tin deposits, which became one of the main sources of the formation of the Eurasian metallurgical province. Between 2022 and 2025, the analysis of satellite imagery and field verification led to the identification of several thousand ancient mining features, with a total cumulative length exceeding 30 km. Based on the analysis of remote sensing data, geoarchaeological surveys, and 3D documentation of tin mines, we address the question of the enormous scale of tin extraction, which allows Eastern Kazakhstan to be regarded as one of the largest mining centers in the ancient world. We provide a cultural and chronological overview of tin mines in the region and present newly discovered mining sites for the first time. Special attention is given to the problems of reconstructing tin production volumes and to the technological characteristics of mining during the prehistoric period.

1541. Remote sensing of the landscape of the eastern Kugitang piedmonts: Archaeological potential

Authors: Nikola Mořkovská (Institute of the Classical Archaeology, Charles University)
Format: Poster

The Surkhandarya province, southern Uzbekistan, holds great importance for the understanding of history and landscape use in Northern Bactria, as proven by previous projects of the Czech-Uzbekistani Archaeological Expedition. However, agricultural activities from the Soviet era had changed the land of this region significantly, especially in fertile lowland areas. Eastern foothills of the Kugitang piedmonts, that had been notably less affected by such damage, therefore represent an area with high archaeological potential. The aim of the remote sensing survey presented in this poster is to demonstrate and quantify this potential, specifically the ability to bring new knowledge and valuable information in possible future research. To achieve this, a ratio of the number of documented objects to the extent of surveyed zones is considered, along with their nature, interpretation, and relation to the landscape.

The survey is focusing on two defined areas in the vicinity of the archaeological sites of Kulal Tepa and Panjob Tepa. For the remote sensing Soviet military maps, CORONA, HEXAGON, and modern satellite images were implemented in ArcGIS Pro program. A total of 520 terrain anomalies were documented, and both surveyed areas revealed a high number of objects interpreted as cairns, kurgans, and shelter imprints, i.e. remains of seasonal campsites used by mobile communities. Such types of objects have been only rarely documented by previous archaeological activities so far. Results of the ratio calculation show the area of Panjob Tepa having total of 12,32 objects per km2, and the area of Kulal Tepa having 8,48 objects per km2. Both areas thus prove to be rich in quantity of archaeological anomalies and having great potential. For further research following up to the survey and its results, the use of other (preferably field) methods is proposed to verify and correct the acquired data.

1687. Bioarchaeology of Xiongnu Nobility at Yamaan Us, Mongolia

Authors: Erdene Myagmar (National University of Mongolia) – Khatanbaatar Dorjpurev (Mongolian University of Science and Technology) – Munkhdelger Jigjjav (Institute of History and Ethnology, Mongolian Academy of Sciences) – Bolormaa Sakhiya (Mongolian University of Sciences and Technology) – Jacqueline Eng – Michelle Hrivnyak (Western Michigan University)
Format: Poster

Studies of Xiongnu elite burials hold particular importance in Mongolian bioarchaeology. Over the past 120+ years, 14 such sites have been discovered and investigated across Mongolia and Russia: 10 in Mongolia (over 2,380 burials total), three in Buryatia (338 burials), and one in Tuva (16 burials). Through national and international collaborative projects, Mongolian archaeologists have excavated more than 30 elite tombs and over 200 associated satellite tombs. The Yamaan Us site, located in Mongolia's western region, was discovered in 2021 and excavated over three seasons (2022–2024). These efforts uncovered two elite burials, five satellite burials, and five commoner burials—totaling 12 features—from which skeletal remains of 12 individuals were recovered. This report presents preliminary bioarchaeological and demographic analyses of the 2023–2024 human remains. Elite Burial 68 yielded the skeleton of a middle-aged male, accompanied in two satellite tombs by elderly and young adult males. Commoner burials produced exclusively male remains spanning ages 11–12 to 50+. Preliminary assessments indicate a pastoralist diet typical of nomadic herders, inferred from dietary stress markers and pathology. In contrast to prior Mongolian Xiongnu elite sites, which have yielded scarce or poorly preserved remains, Yamaan Us offers vital primary data on the health, diet, social structure, and biological affinities of elites, retainers, and commoners.

148 DWELLING IN COASTAL PLACES: POSSIBILITIES AND CHALLENGES OF ADAPTING TO A DYNAMIC AND CHANGING ENVIRONMENT

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Kelly Gibbons (University of Oslo) – Claudia Finocchiaro (University of Cantabria) – Giada Pirrone (CNRS) – Almut Schülke (University of Oslo)
Keywords: Coastal, Past-present-future, Dwelling
Format: Regular session

SESSION ABSTRACT

The coast has been significant to human societies since time immemorial for many purposes including settlement, resource exploitation, transport, leisure and for more intangible, symbolic reasons. This is evidenced by the diversity of archaeological sites attesting to human-environment interaction found along coastlines all across Europe. However, the coast is also a very vulnerable ecotone and an ever changing and dynamic environment which requires constant adaptation and resilience in the face of uncertainty and potential threat, for past present and future habitation, where the issue of sustainability plays an important role. The dual and shifting nature of the seascape, and its interplay between the marine and the terrestrial also demands a specific set of technical and experiential skills from coastal dwellers. Using a past-present-future perspective this session aims to address the following topics from a variety of methodological approaches: • Different ways of adapting to dwelling by the coast including different forms of settlement, resource exploitation and technological innovation • Coping with climatic and environmental changes over time; archaeological, historical and contemporary examples, including coastal heritage at risk • Human-animal interaction in coastal ecologies • The symbolic expressions of coastal communities such as artistic representation and ritual practices related to the sea • Moving/getting-around in coastal areas • The exceptional requirements of living on the coast We welcome papers which focus on these topics in any period or region, to explore the different areas of enquiry and a variety of applied methodologies and current research within the field of coastal studies.

CONTRIBUTION ABSTRACTS

347. Like a stone: persistent identities of coastal dwellers on Lolland, Denmark

Authors: Daniel Groß – Bjørnar Måge (Museum Lolland-Falster) – Satu Koivisto (Museum Lolland-Falster | Helsinki University)
Format: Oral

This paper examines long-term human adaptation and identity formation in dynamic coastal environments through archaeological and environmental evidence from the southern Baltic region. Focusing on the Syltholm Fjord on the island of Lolland, Denmark, our recent research highlights how coastal landscapes have served as persistent habitation places and have been subject to intense resource exploitation. Moreover, the archaeological evidence grants great insights into the use of the land- and seascapes over the course of several millennia and the populations self-understandings. Despite continuous archaeocultural change, socio-cultural practises seem to have been persistent over a significant period and highlight persistent practises of the coastal population. In our presentation we discuss the inherent meaning of the coast for dwellers from the Late Mesolithic to today and how seascapes have formed the identity of people from different periods. We argue for a nuanced understanding of coastal adaptation that supports empirical archaeological data with perspectives on intangible aspects of human-environment interaction and identity creation.

781. The islands of Atlantic Europe in the 1st millennium BCE: centres or peripheries?

Authors: Marie-Yvane Daire (CNRS | UMR 6566 CReAAH) – Hervé Duval-Gatignol (Société Jersiaise) – Jean-Paul Le Bihan (CRAF)
Format: Oral

Current research shows that, overall, Europe's Atlantic coastline has been densely populated over the millennia. The numerous islands and islets dotted along the French coastline have yielded a wealth of archaeological remains, which generally benefit from optimal taphonomic conditions but are now under threat, mainly from the effects of climate change. This has led to an intensification of research over the last few decades through dedicated projects which highlighted the roles of these islands during the 1st millennium BCE. The authors propose to present a synthetic view of the occupation of these maritories (maritime territories) during the Iron Age. The diversity of settlements forms identified raises questions about the location choice, the nature of occupation, and the relations between the islands and the mainland, within an environmental and socio-economic context undergoing profound change in the last decades before our era. The paradigm shifts invite us to consider the status of these islands, not only as spaces constrained by their geographical position, but also as strategic maritories that were part of the dynamics offered by such a specific context, with all that this implies in terms of opportunities for exploitable marine resources, sea routes and navigational knowledge essential to maritime exchange.

855. Marine Resource Exploitation during the Lower Magdalenian (ca. 19,000 cal BP) in Cantabrian Spain: Evidence from Tito Bustillo Cave (Asturias)

Authors: Alberto Marchán-Fernández (University of Salamanca | GIR PREHUSAL, University of Salamanca) – Jesus Tapia (Aranzadi Science Society, Gipuzkoa) – Marián Cueto – Esteban Álvarez-Fernández (University of Salamanca | GIR PREHUSAL, University of Salamanca)
Format: Oral

Tito Bustillo Cave is located in Ribadesella (Asturias, northern Spain), approximately 200 m from the mouth of the River Sella and 1 km from the present-day coastline. It is a karstic cavity renowned for its Upper Palaeolithic parietal art and human occupations. The most important archaeological deposit within the cave, known as Área de Estancia, is situated only a few metres from the original entrance, which is now collapsed. Since the discovery of the paintings, several archaeological interventions have been carried out, documenting occupations dated to different phases of the Magdalenian period (ca. 19,000–15,300 cal BP). This communication presents the preliminary results of the archaeomalacological analysis of remains recovered during recent archaeological interventions conducted at the Área de Estancia (2020–2024 campaigns), where occupations dated during the Lower Magdalenian have been identified. The assemblage has been analysed from taxonomic, quantitative, taphonomic and biometric perspectives. In the analysed sample, species collected for their nutritional value predominate, mainly Patella vulgata and Littorina littorea, although taxa with no apparent dietary interest have also been identified. Evidence for the selective collection of large-sized limpets and periwinkles has been documented. In addition, various anthropogenic and non-anthropogenic shell modifications (including epifauna, fragmentation and thermal alteration) have been analysed. The results are compared with existing archaeomalacological data from other Magdalenian sites in the Sella valley and the wider Cantabrian region.

1875. Subsistence in coastal-mountain ecologies. Zooarchaeology and taphonomy of vertebrate remains in Cova Rosa (Asturias, Spain) during the Late Glacial period

Authors: Marco Arones Abad – Marián Cueto Rapado (Universidad de Salamanca) – Rosana Cerezo-Fernández (Universidad de Salamanca | Université Toulouse Jean Jaurès-CNRS TRACES UMR) – Alberto Marchán-Fernández (Universidad de Salamanca) – Jesús Jordá-Pardo (Universidad Nacional de Educación a Distancia) – Esteban Álvarez-Fernández (Universidad de Salamanca)
Format: Oral

Cova Rosa is one of the main Upper Paleolithic sites in Asturias (northern Spain). The site is located approximately 4 km apart from the present coastline, in a transitional setting between coastal and mountain ecosystems. This paper presents new zooarchaeological

and taphonomic data of the assemblages belonging to the layers excavated during campaigns conducted in 1975–1979 and 2019, corresponding to Solutrean, Early and Lower Magdalenian occupations (layers dated between 22 and 18 ky cal BP). The faunal assemblage from Cova Rosa includes mammals, fish, birds, amphibians and molluscs, indicating exploitation of both inland and coastal areas. This contribution focuses on the analysis of vertebrate remains, with particular emphasis on large mammals, which represent the main exploited animal resource. Red deer is by far the dominant taxon, followed by Iberian ibex and other ungulates such as roe deer, chamois, and horse, while carnivores are only marginally represented. Through taphonomic analysis we have identified anthropogenic modifications on bone surfaces, including cut and percussion marks, and thermally altered remains, indicating systematic carcass processing and consumption by hunter-gatherer groups. These results provide insights into the ecosystem surrounding Cova Rosa during a period of climatic instability and highlight the role of a mosaic environment, where resources from the valley, mountain, and coastal zones were integrated into subsistence strategies. Furthermore, information from the study of marine invertebrates found in the site (mainly limpets and periwinkles) will also be included to provide a more complete picture of the diet of these hunter-gatherers and the coastal ecosystem near Cova Rosa. Finally, the assemblage is compared with contemporaneous sites in the Sella Valley with available data on both terrestrial and marine faunal remains, such as El Cierro or Tito Bustillo, to assess regional patterns of settlement and environmental exploitation during the Solutrean and the Magdalenian.

613. Life on the edge : Neolithic coastal occupations in the Guernsey Archipelago

Authors: Hélène Pioffet-Barracand (French Ministry of Culture | UMR 6566 - CReAAH) – Gaël Barracand (Eveha | Associate member UMR 6566 - CReAAH) – Chris Scarre (University of Durham)
Format: Oral

This presentation focuses on the study of insular occupations in the Guernsey archipelago during the Neolithic period, whether domestic or funerary. Our attention is primarily directed toward the islands of Guernsey and Herm. At this scale—and even if sea level was probably lower during the Neolithic than it is today—the coastline was omnipresent in the lives of these populations, exploited as a source of animal, plant, and mineral resources. Nevertheless, the natural barrier formed by the sea, particularly around the islets of the archipelago, raises questions about access to other resources. This is notably the case on Herm with regard to the consumption of freshwater (even today, a single spring supplies the islet). This isolation also calls into question the notion of insular identity (expressed, for example, through material culture?). Since 2024, this research program has been supported by several archaeological excavations at Neolithic coastal sites. On Guernsey, earlier excavations at the megalithic site of Les Fouaillages revealed material possibly originating from a nearby settlement. Recent excavation campaigns led by Gaël Barracand in the immediate vicinity of the monument have demonstrated the presence of later Neolithic domestic occupations. On the island of Herm, the resumption of investigations (initiated under the Island of the Dead program, directed by Prof. C. Scarre 15 years ago) has made it possible to re-examine several of the island's megalithic monuments and to highlight the establishment of domestic buildings during Middle and Late Neolithic (excavation directed by H. Pioffet-Barracand). The placement of these buildings—due to their location close to the beach, behind the present-day dune ridge—perfectly illustrates the issues of rising sea levels and access to the coastline at the heart of the daily lives of these populations.

483. Documenting Maritime Techniques of Hunter-Fisher-Gatherers: An Archaeo-Anthropological Approach

Authors: Giada Pirrone (CNRS)
Format: Oral

My PhD research focuses on the techniques of prehistoric coastal hunter-fisher-gatherer communities in Europe, specifically those inhabiting the coasts of Brittany (France), South-East Norway, and Western Latvia. The starting point is archaeological data scattered across diverse sources, including excavation reports and published literature. These data are recorded, standardized, and organized using a dedicated open-access tool, the NAUTICC relational database (Norms and Uses of Techniques in Prehistoric Coastal Communities), designed specifically to address the research questions underlying the project. Data collection follows an archaeo-anthropological approach, focusing particularly on remains linked to techniques performed within specific tasks at these sites. The project centers on key aspects of Mesolithic life, including hunting, fishing, cooking, dwelling, tool-making, and symbolic practices. Its aim is to reconstruct the taskscape and generate new archaeological insights into the social structures of coastal communities at local scales, as well as to identify patterns of cultural continuity and change across regions. In this presentation, I will provide a brief introduction to the theoretical framework of the database, describe its structure, and explore the potential applications of this tool for archaeological research.

991. Focus on continuity and repetition among Late Stone Age Fishers in North Norway gives new perspectives on coastal dwelling

Authors: Signe Terkelsen (UiT - The Arctic University of Norway)
Format: Oral

Late Stone Age fishing sinkers from North-Norway are apparently trivial objects with minimal variation. Typical sinkers are oblong stones with a pecked groove, that are near impossible to differentiate from sinkers from later periods. Though being common finds on settlement sites all along the coast, the sinkers have drawn little attention from archaeologists and have in most cases been utilised solely to infer a direct parallel between premodern jigging and LSA fishing. This one-sided view of one of the most significant aspects of LSA coastal life may however be broadened by instead analysing the sinkers and the seascape they were a part of from an everyday perspective with a focus on continuity and repetition. The apparent sameness of the sinkers through time encourages attention to the minute details and differences in the sinkers and in the seascapes, they were a part of. And to how these details and differences affected and were affected by the LSA fishers. Through paying attention to and adapting to the constituents of the seascape, the seasonal migrations and the ways different fish species behave, the actions of sea birds, the continuous mapping of the seabed and the fishing grounds, the LSA fishers created a lifeworld that still unfolds today. The analysis is based on an investigation of 1028 fishing sinkers from North-Norway. Much of the discussion is also informed by historical and ethnographic literature from the region.

1153. All at Sea: Coastal mobility and access in the Mesolithic of southeastern Norway

Authors: Kelly Gibbons (University of Oslo)
Format: Oral

In the last few decades large-scale infrastructure projects in southeastern Norway have resulted in the excavation of hundreds of Mesolithic sites dating to the period 9,300 to 3,900 BC. This growing body of evidence overwhelmingly indicates the significance of the coast for Mesolithic settlement. The majority of documented sites are located in areas that were likely very close to the shoreline at their time of use, although many are now located inland as a result of postglacial land uplift. Artefactual and environmental evidence, although sparse due to poor preservation conditions, also attest to this strong marine orientation, including the remains of marine shell, fish and marine mammals, and objects such as fishhooks. Coastal settlement appears to have become increasingly sedentary and focused around natural harbours throughout the Mesolithic, therefore we can conjecture that marine travel, both in terms of short trips and as part of larger mobility patterns, was crucial to the way of life for these hunter-fisher-gatherer communities. However, we are missing direct evidence, in the form of boats or associated artefacts and we know little about coastal access. This paper will present the approach taken to this enigmatic subject by my PhD project which is part of the HORIZON MSCA Doctoral network ArCHe. The overall project goes beyond site-specific and resource-based investigation to re-evaluate existing data with a view to better understanding human-environment interaction in the Mesolithic. This paper will specifically present results from a series of GIS-based analyses to investigate coastal mobility and access. This includes coastal reconstruction, topographic analysis, viewshed analysis and least cost analysis, which aim to shed light on how and where Mesolithic coastal communities accessed and utilised the coastal and marine environment.

2285. Ports and Prosperity: Coastal Adaptation and Trade in Central Italy

Authors: Melissa Ludke (Grand Valley State University)
Format: Oral

Traditionally, coastal trade routes were deemed more efficient and safer, bypassing available roads. However, these routes also seem to shift over time based on ecological factors (changing sea levels, silting of harbors, etc.) and demand that appear to affect the preferability of certain networks over others. This paper uses the Latin colony of Cosa and its harbor, located on the Tyrrhenian coast of Italy, as a long durée case study, which experienced eras of prosperity and decline that were dictated by a change in trade networks (from coastal to inland and vice versa), popularity of its small port, and elite families monopolizing production and export. Although originally intended for defensive purposes, the small town exhibited signs of continuous adaptation to their circumstances, often through reuse in construction, and production and consumption of desired goods, such as wine, olive oil, and garum. As the Portus Cosanus was not the first harbor in the area, and the lagoon used for its fisheries eventually silted over in late Antiquity, this paper also examines the change in the flow of goods from Cosa's port to others nearby at certain points in time, such as in Albinia and the Feniglia, dictating where the inhabitants obtained certain items. Since Cosa maintained coastal connections with Tarquinia, Populonia, and Telamon, these port cities serve as important points of comparison to determine whether Cosa reflects similar means of adaptation along the same coastal stretch, especially as the coastline changes over time.

603. From fresh- to saltwater environment – Mesolithic settlement in a coastal microregion of the western Baltic Sea

Authors: Svea Mahlstedt – Daniel A. Hepp (Lower Saxony Institute for Historical Coastal Research, NIhK) – Agata Feldens (Leibniz Institute for Baltic Sea Research, IOW)
Format: Oral

The Wismar Bay is hosting some of the most thoroughly studied Stone Age underwater sites along the German Baltic Sea coast. In the ERC project SUBNORDICA we are collecting data to model human inhabitation preferences in changing coastal landscapes of the early Holocene. A detailed landscape reconstruction around known sites in the Wismar Bay is an important prerequisite for this approach. By integrating legacy data on archaeological details and chronological input from dendrochronological and radiocarbon dating, we have set up a survey strategy targeting former lakes and shore lines in the vicinity of several Stone Age sites. Some sites are situated along a larger channel network that likely played a significant role in the context of rising sea levels other sites were found in an area so far reconstructed as a lagoonal lake. Using newly acquired sub-bottom sonar data, we identified substantial sediment infills in these depressions. By sampling these layers with a diver-operated vibrocorer we recovered a variety of organic and mineral deposits, enabling further sedimentological, geochemical and botanical analyses. Comparing on-site and off-site samples, we gain

insights into the environments chosen by Stone Age inhabitants for their stays in these dynamic landscapes and bring those together with our knowledge of human activities and land-use over several centuries from the 7th to 5th millennium BC.

916. Living in a changing landscape – The Mesolithic and Neolithic on the southern North Sea coast

Authors: Moritz Mennenga – Svea Mahlstedt – Anja Behrens – Steffen Wolters (Lower Saxony Instiute for Historical Coastal Research)
Format: Oral

The southern North Sea coast is a long-established coastal landscape shaped by continuous interaction between humans and a highly dynamic environment. During the Middle Holocene, the coastal plains of what is now north-western Germany were initially inhabited by mobile Mesolithic hunter-gatherer groups and later by settled Neolithic farming communities, as evidenced by numerous settlements, activity areas and megalithic tombs. This period was marked by climatic and environmental changes, including a shift towards more oceanic conditions and transformations in local hydrology. Processes such as paludification, terrestrialisation of shallow lakes, intermittent marine incursions into the Pleistocene mainland and the widespread development of raised bogs fundamentally altered coastal and near-coastal landscapes. These dynamics may have posed challenges for dwelling, mobility, land use and resource exploitation along the southern North Sea coast and its hinterland. This talk explores how coastal communities adapted to these changing conditions on a micro-regional scale. It addresses questions of land loss and gain, shifting settlement patterns, changing land-use strategies and the resilience of coastal dwelling practices in the face of environmental uncertainty. The contribution draws on the results of two archaeological research projects in the region between the Elbe and Weser estuaries, combining the re-evaluation of legacy data with new excavations, geophysical prospection and an extensive coring programme of nearly 1,000 boreholes integrated with detailed peat-stratigraphic analyses. By integrating archaeological and palaeoenvironmental data, time-sliced reconstructions of human–environment interaction can be achieved. The results demonstrate that, despite phases of wetland expansion, marine inundation and raised bog growth, the region remained persistently attractive for human habitation.

1199. Marine Mammal Behaviour Shaping Prehistoric Encounters

Authors: Don Sleebos (University of Latvia)
Format: Oral

The dwelling perspective in zooarchaeology emphasizes human–animal relations as emerging from everyday interactions, facilitated through overlapping individual lifepaths shaped by seasonal rhythms and environmental affordances. Around the Baltic Sea, ringed seal (Pusa hispida) remains are common in Stone Age coastal assemblages. In the present, this species is closely tied to seasonal sea ice, yet little is known about the behaviour of ancient seal populations during phases interpreted as ice-free. In the absence of phylogenetic studies of ancient Baltic populations, I examine subspecies-level variation and behavioural plasticity, drawing on ethological and ecological studies of several landlocked as well as Arctic populations. A more nuanced understanding of behavioural plasticity may help us better interpret the encounters between prehistoric humans and marine mammals and allow us to consider the tools and techniques that were used to facilitate, and made possible by the constraints of, these interactions, as well as the traces and markers they may have left behind.

681. Lost Beads from the Coast: Shell Ornaments and Symbolic Behaviour at the Late Mesolithic Site of Beg-er-Vil, Brittany

Authors: Claudia Finocchiaro (Instituto Internacional de Investigaciones Prehistóricas de Cantabria | University of Cantabria) – Catherine Dupont (CReAAH UMR 6566 - CNRS, University of Rennes)
Format: Oral

The study of prehistoric shell middens allows to explore the everyday life of coastal communities, shedding light on the exploitation of aquatic resources, subsistence strategies, and the use of specific technical practices. At the same time, marine resources hold significant potential for understanding the symbolic dimension of the sea within the ritual practices of late hunter-fisher-gatherer communities. The sea, while representing a primary source of sustenance, also became a symbolic scenario associated with death and identity construction. The widespread distribution of similar artefacts along the Atlantic coasts of Europe, together with the recurrence of specific practices—such as the selection and use of shells as personal ornaments—demonstrates how the integration of marine elements into both daily life and funerary contexts reflects shared belief systems connected to the sea. These traditions appear to have originated during the Upper Palaeolithic and continued to evolve throughout the Mesolithic. The shell midden of Beg-er-Vil, dated to the Late Mesolithic, although lacking clear evidence of burials, nonetheless confirms the existence of a symbolic relationship with the marine environment, expressed through aesthetic choices. The analysis of shell beads accidentally lost by the site's occupants suggests that wearing such ornaments was a widespread practice within the community. This pattern is consistent with evidence from other shell middens in Brittany and from contemporaneous sites along the Atlantic façade of Europe. This paper aims to further explore the symbolic significance of the sea and its aesthetic expressions within the communities who frequented Beg-er-Vil, highlighting their importance during the Mesolithic as a key period of cultural transformation.

2298. Feasting in the Margins. A unique Iron Age deposition pit in the remote coastal landscape of southwestern Netherlands

Authors: Richard Jansen – Joanne Mol – Corrie Bakels (Leiden University)
Format: Oral

It may be hard to believe, but not all parts of the Netherlands have been excavated yet. The southwestern part is a rural area that still reveals archaeological surprises, such as an impressive deposition pit dating to the Late Iron Age, that appears to be a unique find in Northwestern Europe. It was placed in a remote, coastal wetland which was considered uninhabitable, before the Romans arrived and cultivated the area. Recent research indicates more human occupation displaying that this remote region consisting of several islands was not a periphery, but rather a crucial hub in the globalised Iron Age habitation and exploitation of Northwestern Europe despite the ever changing environment. The area connects the densely populated higher parts of the southern Netherlands with their connections overseas. It also forms an important production area of salt. It is hypothesised that the content of the pit was the remaining materialisation of a feasting practice, maybe related to the sea and its dual nature. To fully understand this event, we place this remarkable find in a larger cultural landscape, emphasising the value of an interdisciplinary approach, studying the landscape at different scales by different specialists. This includes geophysical prospecting, palaeolandscape reconstruction, archaeobotanical research and archaeological excavations.

329. Skulls in the Gods' Fjord – Marine deposition of human remains during the Iron Age at Korsvik in Gullmarn, Sweden

Authors: Anton Larsson – Astrid Lennblad (Lödöse Museum)
Format: Oral

The deposition of human remains, particularly crania, in inland wetland environments (such as bogs, ponds, and lakes) was a widespread phenomenon in Iron Age Scandinavia and reflects a range of complex social practices. Comparable finds from marine environments are, however, far rarer. This pattern has been challenged by two Swedish discoveries of partially preserved human skulls, one found in the 1980s (but forgotten until the 2020s) and the other in 2018. Both finds were recovered from the small cove of Korsvik, situated at the foot of the Korsborg hill fort, which like the skulls most likely can also be dated to the Roman Iron Age (c. 1–400 AD) or Migration Period (c. 400–550 AD). In this paper, we present preliminary findings (including radiocarbon dating and aDNA analysis) relating to the Korsvik skulls, and consider their wider context within the fjord in which they were found. Gullmarn – the only sill fjord within the modern boundaries of Sweden – is noted for its distinctive visual character and unique marine biology. Its theophoric toponym derives from the Old Norse Goðmarr, which may be translated as 'the Fjord/Sea of the Gods'. Several additional archaeological finds and monuments along the fjord's shores further point to the significance of this dynamic seascape during the tumultous Iron Age.

461. The Ecology of the Dead: Living and Dying with Birds in Late Iron Age Åland

Authors: Marcus Frid (Stockholm University)
Format: Oral

Avian remains are regularly found in Late Iron Age Scandinavian cremation burials, yet discussion has often centred on a limited group of visually distinctive or culturally charged taxa, with the broader range of avian species receiving less attention. Focusing on the Ålandic archipelago, this paper examines the role of birds in Late Iron Age mortuary practice and how ecological conditions and everyday interactions shaped ritual selection. Adopting a multispecies perspective, the study explores how ecological familiarity, seasonal rhythms, and recurring human-bird encounters influenced the inclusion of birds in burial contexts. During the Late Iron Age, Åland (c. 500/550–1050 CE) formed within a maritime environment shaped by mobility, mixed subsistence practices, and the predictable seasonal arrivals of migratory species. Osteological data from three Ålandic settlements are integrated with material from two fully excavated cremation cemeteries. The results are then compared with published settlement and burial data from mainland Sweden. This approach evaluates whether birds included in graves reflect locally embedded relationships formed through everyday engagement with a fluctuating coastal ecosystem, rather than separating ecological relations from symbolic interpretation. Bird remains are interpreted as traces of lived human-bird relations through which Ålandic communities lived with seasonality, mobility, and environmental change, linking everyday ecological relations to the treatment of the dead.

149 STANDING AT THE CROSSROADS: ARE WE HEADED TOWARDS AN INFORMATION REVOLUTION OR COLLAPSE?

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: John Hanson (University of Oxford) – Kelly Mcclinton (SUNY Binghamton) – Chloe Oxborrow – Eva Hayward (University of Oxford)
Keywords: AI, Archaeological theory, Synthesis, Big data
Format: Discussion session

SESSION ABSTRACT

Is the archaeological record entering a state of plateau, and what implications does this carry for the future of archaeological evidence? With the expansion of archaeological discovery in decline (Surovell et al. 2017), archaeological literature is becoming saturated with repetitive treatments of the same objects (Noy 2010). Finding the material record and use of archaeological methods alone inconclusive, scholars have increasingly turned toward interdisciplinarity to address lacunae. Biomolecular analyses of osteological materials have enabled the scientific investigation of human mobility and diet in the deep past (Killgrove 2010), while statistical and ethnographic methodologies have been used to discuss the character of Graeco-Roman cities (Hanson 2022), and computational models have been constructed to simulate ancient economic activity (Brughmans and Poblome 2016). Yet, with neural networks and large language models developing in sophistication, AI usage represents an alternative approach to the declining utility of the archaeological record, alone. An LLM has been used by the Roman Provincial Coinage Project to recognise and recover coinage legends, whereas generative neural networks have also been applied to contextualise Latin inscriptions (Assael et al. 2025). However, many individual scholars, academic institutions, and publishers seem poised to turn their back on the technology, for fear of misleading or incorrect information produced via 'hallucination'; its implications for critical thinking; and its threats of divorcing the archaeologist from physical, experiential engagement with the material record, and with archaeological sites. Archaeology, therefore, stands at a crossroads regarding its use of AI and related tools. In this session, we invite papers exploring the implications of AI for approaches to the ancient world; interrogating the dialogue between AI usage and interdisciplinarity in archaeological research; and debating the wider moral, ethical, epistemological, and existential consequences of AI for the field. How might applications of this resource address an impending 'information collapse' in archaeology?

CONTRIBUTION ABSTRACTS

61. AI, automation, and archaeology: practices, concerns, and perspectives from the community in light of the AUTOMATA project

Authors: Ariane Menu – Amala Marx – Kai Salas Rossenbach (Inrap)
Format: Oral

Ever since Open AI's public release of ChatGPT in November 2022, the field of study known as artificial intelligence (AI) in general, and its sub-genre of general artificial intelligence in particular, have experienced a surge in attention from the media, researchers and general public alike. Archaeologists make no exception. If artificial intelligence techniques (natural language processing, computer vision, and so on) have been experimented on in the domain for many years, the current AI boom has drawn in its wake both enthusiasm and hostility from the community, which sees it as a new realm of possibilities for some, and as a threat for others. Building on the results of a survey and an interdisciplinary scientific workshop on AI and automation in archaeology, organised last year by the Horizon Europe AUTOMATA project, this presentation intends to delve into the community's practices, interests and concerns related to AI, robotics and automation, and initiate a discussion through three main focus areas: first, knowledge creation and the human role in AI and automated workflows; second, issues of governance, law and scientific ethics in the age of AI; and finally, the question of archaeologists' training and education. This communication thus aims to contribute to a constructive and critical reflection on the responsible integration of AI and automation in archaeology. Through a consortium of archaeologists and specialists in robotics and artificial intelligence coming from seven countries, the AUTOMATA "AUTOMated enriched digitisation of Archaeological liThics and cerAmics" project (2024-2029) seeks to develop an augmented digitisation process for lithic and ceramic archaeological artefacts, capable of generating 3D models enriched with archaeometric data acquired autonomously by the system. Developed with objectives of accessibility, adaptability and efficiency in mind, AUTOMATA explores concrete ways to democratise these technologies for archaeologists, and assist them in their research.

2777. Modelling Post-Vesuvian Migration: A Computational Approach to Surviving a Volcanic Event

Authors: Chloe Oxborrow (University of Oxford)
Format: Oral

Many archaeological treatments of the eruption of Mount Vesuvius in 79 CE have sought to define the event by its catastrophic mortality. Causing the destruction of person and property across interior Campania, the type and scale of the disaster were unprecedented, allowing subsequent inquiries into the survival of affected populations to be eclipsed by discourse instead resembling a 'culture of bodies' (Lazer 2009). 'Outside the city gates,' wrote Charles Pellegrino, 'ten thousand—perhaps twenty thousand and more—no matter which way they ran, were cut down by the volcanic death cloud' (Pellegrino 2004). Yet, recent contributions have sought to reframe this volcanic event as the catalyst for one of the most overlooked migration events in Roman history (Tuck, Forthcoming). While more than 1500 sets of remains have been excavated across the Vesuvian sites, archaeologists have been faced with a relative dearth of material evidence for popular survival. Scholars, in turn, have questioned the fates of contemporary individuals who chose to flee when confronted by this disaster. In response, and following principles of urban science and network dynamics, this presentation approaches the mystery of survivorship in the populations of Pompeii and Herculaneum using computational methods, and examines whether simulation could extend the declining utility of the archaeological record (Surovell et al. 2017). Drawing upon the computational modelling of population displacement in the modern humanitarian aid sector (Hoffman Pham and Luengo-Oroz 2022), this study simulates patterns of post-eruption migration from the Vesuvian cities. It provides a preliminary quantification of Pompeian and Herculanean survivors, and, following applications of settlement scaling theory to the study of ancient urban systems

(Hanson and Ortman 2017), examines a possible relationship between the acute population displacement inflicted by the eruption, and the subsequent (re)development of the built landscape of Latium and Campania across the high Roman Empire.

2783. Modern Identity Theory and Second Temple Jewish Ethnicity

Authors: Nathan Mintz (University of Oxford)
Format: Oral

How do communities sustain a coherent collective identity under conditions of dispersal, political subjugation, and existential threat? This question, urgent in the study of post-Holocaust Jewish identity, is no less central to understanding Judaism in the Roman period of the Second Temple (63 BCE – 70 CE). As the archaeological and textual record for this period approaches the limits of what established methods alone can yield, and as the field more broadly confronts the declining utility of the material record, scholarship on Second Temple Jewish identity may turn to engage with the theoretical mechanisms by which identity is actively constructed and maintained. This paper proposes that interdisciplinarity offers a productive path through this evidential impasse and engages with the question of how the field might respond to an information collapse. In examining the dialogue between new methodological resources and archaeological research, it raises broader epistemological questions about how knowledge of the ancient world is generated when the material record reaches its limits, including what role AI might productively play in that process and where its limitations lie. Drawing on ethnicity studies and social identity theory, it examines three mechanisms of identity formation (boundary marking, the use of religious practice as an ethnic signifier, and the negotiation of diaspora and homeland tension) as they operate across two historically distinct but structurally resonant contexts: Roman-period Second Temple Judaism and post-Holocaust Jewish identity. It argues that these mechanisms function in strikingly similar ways across both periods, suggesting that the pressures of minority existence and communal fragmentation generate comparable identity strategies regardless of historical context. In doing so, it moves beyond treating modern theory as merely a lens onto antiquity, proposing instead a genuinely bidirectional dialogue in which the ancient evidence illuminates, and is illuminated by the modern.

2784. The disappearing landscape: data erosion in the Roman construction industry

Authors: Eva Hayward (University of Oxford)
Format: Oral

In order to meet the demands of the early Imperial construction boom, brought on by increasing levels of urbanisation, the Romans extracted vast quantities of raw materials such as stone and clay from their local landscapes. Quantifying the extent of the subsequent landscape change provides information both on the extent and efficiency of the Roman construction industry, as well as data which can be subjected to ecocritical analysis. Recent geomorphological analysis through multidisciplinary studies has been carried out at several quarries (Carfora et al. 2016; Carfora et al. 2018) and at clay beds (Vanzani et al. 2025) in Italy. However, these projects also note a growing concern at the increasingly rapid level of data erosion occurring at the sites due to recent anthropogenic activities. Construction, agricultural expansion, deforestation and erosion from anthropogenically-induced weather phenomena such as flooding and acid rain have all contributed towards the concealment, erosion and destruction of sites that could provide valuable quantitative data on the Roman construction industry and its environmental impact, risking an 'information collapse' of sorts in this sector. There have been calls to prevent site degradation through the creation of geoarchaeological parks and other protective measures that would preserve these sites for future research. If the erosion continues, however, we face not only a collapse of information on these sites, but the destruction of physical evidence pertaining to Roman interaction with the landscape, the construction industry, and the wider Roman economy. My presentation seeks to determine the extent to which contemporary anthropogenic activity affects archaeological sites which still hold information on the Roman construction industry, examine the possibility of data erosion if the sites are left undefended, and ask whether preventative measures will prove effective in their long-term conservation.

2286. Dataset Engineering and Pattern Recognition in the Cn. Ateius Ceramic Workshop: An Interdisciplinary Approach to the Classification of Archaeological Finds

Authors: Maria Messineo (University of Florence) – Roby Stuani (University of Barcelona) – Miguel Ángel Cau Ontiveros (Catalan Institution for Research and Advanced Studies | University of Barcelona) – Andrea Barucci ("Nello Carrara" Institute of Applied Physics, IFAC-CNR) – Maria Gatto (Regional Directorate of National Museums of Tuscany) – Costanza Cucci ("Nello Carrara" Institute of Applied Physics, IFAC-CNR) – Fabrizio Argenti (University of Florence) – Juri Agresti ("Nello Carrara" Institute of Applied Physics, IFAC-CNR)
Format: Oral

In the study of ceramic artefacts, research is progressively shifting from classification based on direct autoptic observation towards integrated analytical processes, in which traditional archaeological methodologies are brought into dialogue with experimental sciences. This paper presents the preliminary results of the Arretino modo project, a research initiative developed within the framework of a Marie Skłodowska-Curie Postdoctoral Fellowship (HORIZON-MSCA-2024-PF-01). The project, hosted by the University of Barcelona in collaboration with the Institute of Applied Physics "Nello Carrara" (IFAC-CNR), focuses on the digital conversion and analysis of approximately 2,000 ceramic fragments from the Archaeological Museum of Arezzo. The core of this contribution explores the challenges of Dataset Engineering: the critical process of transforming physical fragments from the Cn. Ateius workshop (20/15–5 BC) into structured, "machine-ready" information. This requires moving beyond simple digitization to establish

rigorous criteria for image consistency and annotation, bridging the gap between traditional cataloging and the structural requirements of Computer Vision. Using a representative sample of the corpus, we evaluate a multi-scalar computational approach to identify and attribute decorative motifs. While figurative elements are generally recognizable to scholars, phytomorphic and filler motifs—though more common—pose significant attribution challenges. By comparing Unsupervised Clustering (PCA, K-means) for pattern recognition against Deep Learning architectures (CNNs, Vision Transformers) for automated feature extraction, we analyze how different algorithmic "lenses" reshape our understanding of decorative registers. Furthermore, we address how these structured datasets facilitate long-term digital curation and cross-institutional data reuse, ensuring that specialized ceramic knowledge remains findable and interoperable. This case study demonstrates that archaeological data work is a central, interdisciplinary practice. Moving beyond simple automation, this project illustrates how interdisciplinary data workflows constitute a new and essential pillar within the framework of modern archaeological knowledge production.

150 LINKING LIVES, LANDSCAPES, AND ENVIRONMENTS USING OPEN COMPARATIVE ISOTOPE DATA

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Hannah James (Vrije Universiteit Brussel) – Lisette Kootker – Maura De Coster (Vrije Universiteit Amsterdam) – Mackenzie Masters (University of York | Vrije Universiteit Brussel)
Keywords: Isotopic analysis, Open data, Bioarchaeology, FAIR and CARE, Mobility, Diet
Format: Regular session

SESSION ABSTRACT

Isotopic analysis has become one of the most powerful tools in bioarchaeology, providing insights into diet, mobility, kinship, and human-environment interactions. While isotopic analysis can be applied on a site level to examine intrapopulation differences, it has great potential when applied across time and space. Regional differences, connections between communities, and changes over time can be revealed. But these studies require large datasets, often beyond the scope of one project. Comparative data made available through open-access collaborations are essential to facilitate such multi-faceted studies. This session invites contributions that explore how open and comparative isotopic datasets (of any system, e.g., carbon, nitrogen, sulfur, oxygen, strontium) can transform our understanding of the past. We particularly welcome papers that: • demonstrate the value of inter-site or inter-regional comparisons; • examine diachronic changes using isotopic data • reflect on the challenges and opportunities of open access databases, data standards, and FAIR and CARE principles; • show how isotope studies resonate with, and enrich, other bioarchaeological, archaeological, and historical lines of evidence; • critically assess the ethical, methodological, or interpretative implications of data sharing in this field. This session aims to foster discussion on how collaborative and open practices can enhance not only the scientific robustness of isotope studies but also their broader archaeological and societal relevance.

CONTRIBUTION ABSTRACTS

778. Assessing Macro-scalar Isotopic Variation in Middle America: Implications for Isotope Bioarchaeology

Authors: Jason Laffoon – Tamara Michaelis (Leiden University | Vrije Universiteit Amsterdam) – Yadira Chinique De Armas (University of Winnipeg)
Format: Oral

Isotope analyses have a long history of contributions to archaeological research and have become exponentially popular in the last two decades. The successful application of isotope methods in bioarchaeological research is highly dependent on the nature and extent of underlying isotope variation at scales that are appropriate to archaeological research questions. Recently, several large-scale (sub-continental to continental scale) compilations of archaeological isotope data from North America South America, and Middle America have been published. In this presentation, we collate, integrate, and assess large-scale data sets of human and 'baseline' isotopic variation for Middle America (Mesoamerica, Central America, and the Caribbean). The aim is to assess the nature of spatial and chronological isotopic variation for strontium, oxygen, carbon, nitrogen, and sulfur. We reflect on how the distribution of isotopic data enables or inhibits the successful application of different types of isotope bioarchaeological research at varying scales. We additionally explore the interplay between the spatial-temporal structure in the isotopic data and the scale of our research questions, as well as the potential for large-scale data sets to address research questions beyond the scale of local cases studies.

68. Beyond the Local: Designing a Regional Strontium Baseline Map for the Baltic Sea Region

Authors: Raivo Suni (Institute of History and Archaeology, University of Tartu | Archemy Lab)
Format: Oral

Strontium isotope analysis often indicates that ancient societies were surprisingly mobile: alongside "local" individuals, we encounter a considerable number of "non-locals." There is a temptation to search for the provenance of these outsiders, using various datasets for this purpose. In some cases, researchers rely on a few elsewhere-published reference values that seem to match well with their results. In other cases, they use existing regional or global baseline maps (e.g., Hoogewerff et al.'s European soil study, 2019; Bataille et al.'s global bioavailable strontium study, 2020). A third option is to collect as much data as possible from the regions of interest and, taking into account the geological information of those areas, interpolate a hypothetical baseline map. The advantage of creating such maps is that they allow the use of continuously updated datasets. However, this approach also presents challenges: the dataset is highly heterogeneous (as baseline values for bioavailable strontium come from various sources), its overall quality is difficult to verify, and the data points are sometimes too sparsely distributed - with large areas lacking any measurements - which causes the baseline map to be biased by the interpolation methods. The aim of this presentation is to introduce the development of a bioavailable strontium baseline map for the Baltic Sea region that was generated for an Estonia-based case study. To create the map, we used previously published reference values from more than 400 locations. What did the design of such a baseline map teach us, and what are the greatest challenges in this process?

1535. At the Land–Sea Interface: Sea Spray Effects on Coastal Plant Cellulose($\delta^{13}C$, $\delta^{18}O$) and Their Link to Sea Spray DIC($\delta^{13}C$)

Authors: Henriette Brandt (Kiel University | Cluster of Excellence ROOTS) – Saskia Weitkamp (Kiel University) – Christoph Mayr (Friedrich-Alexander Universität Erlangen-Nuremberg | Ludwig-Maximilians-Universität München) – Harald Strauss (University of Münster) – Andrea Göhring (Kiel University | Cluster of Excellence ROOTS)
Format: Oral

Bioarchaeological studies of coastal regions rely on stable isotope data from terrestrial and marine food sources to reconstruct dietary and mobility patterns. However, the influence of sea spray on the isotopic composition of terrestrial plants remains poorly understood and could pose a challenge for such reconstructions. This study investigates how sea spray causes variability in δ13C and δ18O values in plant cellulose of shallow-rooted plants, including beach grass, rushes, and Poa species, collected in March, May, July, and September of 2024 and 2025 across regions near the Baltic and North Sea coasts. The sampling sites are located around the archaeological sites of Haithabu, Schleswig, Elisenhof, Ribe, and Starigard/Oldenburg in Northern Germany and Southern Denmark, dating into Viking to Medieval times, with varying distances to the sites as well as the Baltic or North Sea coast. This data is combined with δ13C measured for dissolved inorganic carbon (DIC) in surface water sampled nearby the plants to determine how this influences cellulose δ13C. As sea spray contains a high concentration of carbonate, the isotopic signature of water DIC could potentially affect the isotopic composition of the plants via sea spray aerosols. Recent research has demonstrated that sea spray causes distinct enrichment in 13C and 18O in plant cellulose. However, as terrestrial plants assimilate carbon as atmospheric CO2 rather than directly utilising carbonate species, the effect observed on the stable isotopic composition of terrestrial plants remains to be evaluated. The magnitude of this effect would vary due to differences in wind direction and strength, ion concentrations in local seawater, distance from coastline, and salinity stress in plants. By examining regional, seasonal, and species-specific variations affected by sea spray, this research provides the context for interpreting isotope fingerprints in coastal archaeological assemblages, crucial for accurately reconstructing mobility and subsistence patterns.

1720. Beyond Binary Classification: Machine Learning Detection of In-Between Instances with Mixed Isotope Signals Induced by Sea Spray

Authors: Andrea Göhring (Kiel University | Cluster of Excellence ROOTS, Kiel University) – Daniyal Kazempour – Bahne Thiel-Peters (Kiel University) – Steffen Strohm (Kiel University | Cluster of Excellence ROOTS, Kiel University) – Claudius Zelenka (Kiel University) – Matthias Renz – Peer Kröger (Kiel University | Cluster of Excellence ROOTS, Kiel University)
Format: Oral

The recently established machine learning concept of In-Between Instances (IBIs) allows a new interpretation of multi-isotope fingerprints. Going beyond a binary classification, IBIs exhibit shared characteristics of two (or more) clusters, but also additional characteristics not explained by the clusters separately. From an isotope perspective, IBIs show a mixed isotope signal of the clusters they are in-between of, with potentially additional information not explained by the clusters. In coastal regions, the so-called sea spray effect results in seemingly marine isotope signatures in terrestrial individuals although never consuming any marine food. When applying the IBI definition on isotope data from coastal regions, it becomes visible that terrestrial individuals more or less affected by the sea spray effect, with accordingly shifted isotope signatures, fall between clusters representing terrestrial and marine diet or habitat groups. Dependent on the respective sea spray magnitude, individuals show different levels of sea spray-related shifts in their isotope signatures. The identification of individuals (potentially) affected by sea spray is mandatory for a more detailed and actually correct analysis of, e.g., their diet, habitat, or provenance, since the sea spray effect leads to misleading or even incorrect isotope patterns. Without considering the bias introduced by sea spray, the interpretation of the isotope data may be misleading. However, a major task is also the identification of those individuals falling close to the (actually correct) terrestrial cluster, thus exhibiting a minor sea spray impact. They should not be grouped with those individuals actually not affected by sea spray, but still need at least some (minor) correction against the sea spray effect. The IBI approach shall, thus, enable a better approximation as well as understanding of the sea spray impact on the isotopic fingerprints of the individuals under study.

1769. Assessing the Feline Surrogacy Approach from the Bronze Age to the Medieval period using

open-access isotopic databases

Authors: Gene Shev (University of Rome Tor Vergata, Department of Biology) – Benjamin Fuller (Aarhus University, Department of Archaeology and Heritage Studies) – Bea De Cupere (Royal Belgian Institute of Natural Sciences, Brussels) – Eric Guiry (Trent University, Department of Anthropology, Peterborough | Simon Fraser University, Department of Archaeology, Burnaby) – Wim Van Neer (Royal Belgian Institute of Natural Sciences, Brussels) – Steven Bouillon (Department of Earth and Environmental Sciences, KU Leuven) – Marcello Mannino (Aarhus University, Department of Archaeology and Heritage Studies) – Claudio Ottoni (University of Rome Tor Vergata, Department of Biology)
Format: Oral

Although domestic cats (Felis catus) are among the most widespread companion animals globally, stable isotope analyses of archaeological domestic cats are somewhat limited. Understanding cat–human dietary relationships through stable isotope analysis is critical for reconstructing when and how cats became such a ubiquitous component of the human niche. Bone collagen stable isotope values of domestic cats and humans analysed by the Royal Belgian Institute of Natural Sciences, the University of Rome Tor Vergata, and Aarhus University have been compiled as part of the ERC FELIX project, spanning from Bronze Age Lebanon to Classical and Medieval period Turkey, Tunisia, Italy, Germany, and Belgium. To assess cat–human isotopic relationships, the use of large reference catalogues and open-access human and fauna isotope databases, including IsoArcH, Isotòpia, and IsoMedIta, have proven crucial for assessing this relationship at multi-regional and multi-temporal scales. We determined that there are 14 sites/periods that contain bone collagen carbon (d13C) and nitrogen (d15N) values of cats and humans. When combining our data (n=88) with online databases (n >750), cats predominantly cluster with humans, being on average only 0.3‰ higher in $\delta^{13}C$ values and 0.3‰ lower in $\delta^{15}N$ values. These results suggest long-standing commensality between domestic cats and humans, and support the potential application of an isotopic Feline Surrogacy Approach, albeit with important caveats relating to archaeological context and physiological differences between cats and humans. Moreover, this study highlights the value of open-access isotope databases for addressing key questions concerning the long-term history of human–animal interactions.

921. Investigating Millet Introduction into Bronze Age Europe: A Large-Scale Multi-Tissue and Multiple Isotope Approach

Authors: Margaux Depaermentier (Faculty of History, Vilnius University) – Christophe Snoeck (Archaeology, Environmental changes and Geo-Chemistry, Vrije Universiteit Brussel) – Michael Kempf (Department of Geography, University of Cambridge | Faculty of History, Vilnius University) – Marine Morvan – Giedrė Motuzaitė Matuzevičiūtė (Faculty of History, Vilnius University)
Format: Oral

During the second millennium BCE, a large-scale and particularly rapid change in subsistence practices has been evidenced by archaeobotanical and stable isotope studies paired with radiocarbon dates. This dietary transformation is linked with the spread of millet across Europe. However, it remains unclear how this previously unknown crop got integrated so widely and suddenly into existing agricultural traditions. To investigate this intriguing transformation, we carried out a large-scale and diachronic multi-proxy isotope study on over 500 Bronze Age individuals originating from the eastern half of present-day Europe, spanning from Latvia to Bulgaria and from Poland to Ukraine. In particular, we address the following questions: Who were the first people who ate millet during its earliest introduction in Europe? What was their socio-cultural or mobility background? Did the introduction of new crops follow a demic or a cultural diffusion model? Are there site-based or regional specificities? We use stable carbon (δ13C) and nitrogen (δ15N) isotope analyses of both dentine and bone collagen, coupled to enamel δ13C and stable strontium (δ88Sr) data to accurately identify dietary shifts related to the introduction of millet at the community and individual levels. Paired with radiocarbon dates, we further track human mobility background using dental enamel 87Sr/86Sr and δ18O data. We complete these results with existing open access isotopic datasets and information from archaeology, anthropology, and genetics. Both an opportunity and a challenge, this multi-proxy and large-scale dataset implies to consider the environmental diversity affecting local isotope baselines and to reflect on the comparability of datasets produced in various laboratories. This approach enables us to investigate millet introduction and related shifts in subsistence and mobility habits at the individual, site, regional and supra-regional scales.

628. Growing Up in the Middle Bronze Age: Diet and Population Change in the Southern Levant

Authors: Lev Cosijns (University of Oxford)
Format: Oral

The Middle Bronze Age (MB, c. 2000/1900–1600 BCE) marks a period of demographic expansion and renewed socio-political complexity in the southern Levant following the depopulation of the preceding Intermediate Bronze Age. Migration has often been proposed as a factor in this resurgence, yet direct, comparative bioarchaeological evidence from modern-day Israel and the southern Levant remains under studied. This paper presents a multi-site isotopic study of MB communities across diverse settlement types and ecological zones in Israel, drawing on funerary assemblages from sites including Ashkelon, Rishon Le Zion, Nahal Refaim and Sasa. Carbon and nitrogen collagen isotopes (δ^{13}Ccol, δ15Ncol) were employed to reconstruct dietary practices and assess inter-site variability. Teeth were preferentially sampled owing to their superior preservation and because dental tissues record

isotopic values from the period of formation. To ensure comparability and avoid weaning effects, adult teeth which are formed post weaning (canines, second premolars, and second molars with similar developmental ages) were targeted. As these teeth mineralise during childhood and adolescence, their isotopic signatures capture dietary and ecological inputs from those life stages, enabling cautious inference about whether individuals spent their formative years with different diets or in different environments. While such offsets do not on their own demonstrate migration, consistent intra-site and inter site differences, evaluated against published, open-access human and faunal baselines, can indicate population heterogeneity and patterns consistent with possible mobility. By examining isotopic variation between smaller rural sites and larger urban centres, as well as across distinct ecological regions, this study assesses whether MB dietary patterns suggest continuity or population change. The paper argues that comparative carbon and nitrogen isotope datasets provide a critical, yet underutilised, means of addressing questions of migration and social change in the MB, while also underscoring the importance of open-access data for strengthening regional and diachronic interpretations.

2706. Compilation of Stable Oxygen Isotopes from Human Sources across Medieval Scandinavia

Authors: Eve Jefferies – A. Ja'Net Baide – Alexandra Greenwald (University of Utah)
Format: Poster

Stable isotope analysis (SIA) is a scientific technique that utilizes natural ratios of chemical elements, such as 18O to 16O, to determine the signature preserved in, for example, human tissues. In archaeology, SIA of teeth and bones can offer insight into mobility, dietary habits, social and environmental interactions (Bataille et al 2021). With the growing interest in understanding human past behaviors, such as migration patterns, utilizing multiple isotopes is the most insightful method. Oxygen is one of the most commonly found isotopes since it reflects the composition of local waters and precipitation, making it strongly influenced by climatic and geographic factors (Bataille et al 2021). This project focuses on the compilation of human sources oxygen data dating to the Medieval Period (1050 -1536 CE) and from across Scandinavia, including Sweden, Norway, and Denmark (Britannica Editors 2026). The archaeological record indicates prominent human activity in association with the Medieval Warm Period (WMP) and continued population expansion following the Little Ice Age (LIA) that emerged around 1300 CE (Primeau et al 2019). Taking all of these factors into account gives a perfect baseline for a research review to deepen our understanding of mobility patterns in the past. We present a compilation of stable isotope oxygen data sourced from human enamel and bioapatite to examine regional differences and diachronic changes across this climatic shift.

151 EXTENDING OUR IMPACT: NEW CASE STUDIES IN APPLIED BIOARCHAEOLOGY

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Catriona Mckenzie (University of Exeter) – Charlotte King (University of Otago)
Keywords: Engaged research, Community Bioarchaeology, Interdisciplinary, Decolonisation
Format: Regular session

SESSION ABSTRACT

Applied Bioarchaeology is research that addresses matters of relevance today, and which actively engages people in the research process in ways that are respectful and relevant to the studied population, their communities, and their descendants. This definition of Applied Bioarchaeology encourages us to expand the type and range of research questions explored, enabling multi-vocal perspectives to enrich approaches and interpretations, to aid us in becoming more creative, imaginative, and inclusive in our approach to science, data, and the creation and dispersal of knowledge. We are seeking papers that (1) demonstrate the important insights that bioarchaeology can provide to modern-day challenges; (2) showcase rich research collaborations which involve the community or people most closely connected to the human remains; (3) explore arts-based interdisciplinary collaborations which enable community groups and/ or bioarchaeologists to tell authentic stories from human remains; (4) provide examples of bioarchaeology affecting change through advocacy and activism; and, (5) address novel approaches for decolonising bioarchaeology. We hope this session will prompt thoughtful discussion from researchers across the EAA community and inspire future research endeavours.

CONTRIBUTION ABSTRACTS

363. A Theory of Change model for community informed repatriation of African American cemetery remains from central North Carolina

Authors: Anne Marie Sohler-Snoddy (University of North Carolina Greensboro) – Kelly Hoag (Smithsonian Institution, National Museum of Natural History) – Derek Skillings – Gwen Robbins Schug (University of North Carolina Greensboro)
Format: Oral

African American cemeteries have long been targeted for exhumation in the face of municipal development in the United States. The Piedmont-Triad region of central North Carolina saw significant expansion in the early-mid 20th century with multiple African

American cemeteries exhumed. These individuals were often given to universities for teaching and research without the knowledge of their relatives. In 2021, G.R.S. was approached by a faculty member from Wake Forest University (WFU) who had used some of these individuals for teaching and was unaware of their complex history. Custody of approximately 30 individuals was transferred from WFU to the University of North Carolina Greensboro (UNCG) where they are now cared for in the Department of Biology. Some of these people will have living relatives in the Piedmont-Triad region who are unaware of their location or even that they were ever exhumed. It is imperative that we 1. Learn as much as possible about the individuals in our care 2. Identify local communities of origin, including any descendants 3. Give communities of origin agency in deciding the best outcome for these individuals and involve them as active collaborators in the project implementation. Here, we propose a Theory of Change informed model for community engagement where custody of unethically sourced legacy collections is concerned. We employ a "backwards mapping" strategy with the desired outcome of repatriation of these individuals to their origin communities and a stepwise approach to achieving this through bioarchaeological analysis, archival research, collection of oral histories, public meetings, and active collaboration with local African American community leaders. We present a framework that can be adapted for use by other researchers who are responsible for the curation of historic human remains acquired without appropriate consent via state sanctioned structural violence.

656. Community-Led Archaeology at Yakmuy 'Ooyákma-tka: Integrated Perspectives at an Ancestral Native American Cemetery

Authors: Ihuixaya Tapia – Gary Velasco (California State University, Monterey Bay) – Alan Leventhal (California State University, San Jose | Muwékma Ohlone Tribe) – Charlene Nijmeh (Muwékma Ohlone Tribe)
Format: Oral

This study highlights and exemplifies the progressive vision and goals of the California Muwékma Ohlone Tribe as it relates to their ancestral heritage sites. In situ burial documentation and laboratory examination of human remains and associated burial practices at site CA-SCL-215 Yakmuy 'Ooyákma-tka (Place of the East Ridge Site) located in San Jose, California, inform this study. The work and research efforts completed here showcase ongoing collaborative efforts with community members most closely connected to the individuals buried at Yakmuy 'Ooyákma-tka and the field of archaeology. Previous collaborative community-led archaeological analysis produced biological profiles to assess the age/sex distribution of the burial population at the site, as well as Isotopic analysis on δ13C and δ15N values to examine dietary variation. Yakmuy 'Ooyákma-tka featured 27 interment burials and 30 non-burial features, which were radiocarbon dated to A.D. 680-990. Burial and laboratory analysis recorded a variation in burial practices, including differences in body positions ranging from supine and flexed to prone. Moreover, based on skeletal positions recorded during excavation, this study suggests that some individuals may have been interred while bound. Grave inclusions and burial practices were also documented; worked shell, lithic artifacts, faunal remains, and antler were recovered and analyzed. Laboratory analysis revealed evidence of various skeletal and dental pathologies, which were interpreted within their mortuary and demographic contexts. Further, patterns observed at Yakmuy 'Ooyákma-tka are contextualized using burial and occupation data from contemporaneous sites within the region. This study constitutes a collaborative community-led archaeology and the Muwékma Ohlone Tribe's efforts to preserve their cultural heritage, inform and educate the scientific community and the public, and further their dedication and persistence toward regaining their federally recognized status.

1692. Whose bones are they anyway? Legal boundaries between person, property and specimen in New Zealand legislation governing human remains

Authors: Charlotte King – Benjamin Dudley Tombs (University of Otago) – Jamie Metzger (Experience Wellington) – Siân Halcrow (University of Otago | Durham University)
Format: Oral

The law governing conduct with anatomical remains for scientific purposes and display has developed over centuries. However, the evolution has been uneven. On one hand, explicit obligations around source donor consent are traceable throughout the 150 years of legislative development. By contrast, legalities underpinning anatomical collections, specifically 'private' collections remain legally ambiguous. As bioarchaeologists seek to further their ethical curation and sometimes repatriation of anatomical collections, they increasingly face this legal grey area between custodianship, possession and ownership. Progress requires engaging with 'property', the laws governing ownership and possession. Theoretically, human remains cannot be 'property' proper, because humans (even dead ones) cannot be 'owned'. This raises initial questions about how a collection can be 'private' in the first place. That said, deceased bodies have no agency beyond those interests articulated by a legally defined 'possessor'. Someone must be in charge. It is a delicate theoretical and practical balance. In New Zealand the topic has the added dimension of some familial tikanga Māori (culturally-correct protocol) rights and interests around the body of the deceased explicitly provided by legislation. This talk outlines the development of the legal expression and practice of bioethical considerations in legislation over time. Exploring where and how the law has navigated issues of consent, disposal, duty of care, possession and ownership. First, we provide a broad overview to the general arc of legislation concerning human tissue. We then highlight and discuss some specific statutory amendments that have demonstrably impacted the practice and curation of human anatomy. We then link the development of bioethical considerations in New Zealand legislation with the introduction of Māori cultural considerations.

1693. Hands-on history: engaging bioarchaeology to connect with our colonial past

Authors: Ruth Warren – Hallie Buckley – Nancy Longnecker – Charlotte King (University of Otago)
Format: Oral

Bioarchaeology has enormous potential to engage audiences beyond academia, bringing past lives into the present. Realising that potential requires moving our work out of laboratories and lecture halls and into communities, inviting people to investigate, interpret, and make meaning from the past themselves. To explore this, we developed Digging up Otago's Past, a multi-week school outreach programme in Aotearoa New Zealand, positioning students as bioarchaeological investigators of nineteenth-century colonial-era life. Guided by ethical protocols for working with human remains, students (ages 7–12; N>70) undertook mock excavations, bone and artefact analysis, archival research, and reflective activities to reconstruct the lives of three real individuals while exploring health, migration, labour, and domestic life in gold-mining and farming communities. Working with deliberately incomplete evidence, they experienced the realities of bioarchaeological interpretation and reflected on why some lives (particularly those of women and marginalised communities) are harder to trace in historical records, and why uncovering and sharing these stories matters. The programme culminated in students creating museum-style displays that presented the lives they had pieced together to peers, teachers, and family, allowing them to experience firsthand how bioarchaeology can bring forgotten histories back to life. Evaluation using pre- and post-participation surveys, alongside a longer-term follow-up, showed high levels of student enjoyment and engagement, alongside measurable gains in understanding bioarchaeological methods, stronger emotional and intellectual connections to people of the past, and sustained interest in archaeology and family history beyond the classroom. This presentation shares the programme's design and evaluation outcomes, offering a practical, evidence-based model for bioarchaeological research that engages communities as active participants and fosters inclusive, multi-vocal perspectives on past lives

1736. Decolonising bioanthropology: Using bioanthropological tools to re-individualize remains from colonial collections and prepare their return

Authors: Sarah Fruendt (German Lost Art Foundation | Expert Network on the Care of Human Remains)
Format: Oral

In recent years, German anthropological collections have come under close scrutiny: Many of them contain human remains collected during colonial times. They were stolen from graves against the explicit wishes of their relatives and were often used for racialized re-search. Often, the shelves of German institutions also store the remains of victims of violent colonial encounters, when they were acquired, for example, during and in the aftermath of the genocide in present-day Namibia. Anthropology as a discipline has slowly come to acknowledge its entanglement in colonial atrocities. However, while it is paramount to assume responsibility in academic and public debates or university education, anthropologists can and should do more. They need to be-come proactive and directly employ their abilities to address past wrongs. Anthropological methods for analysing individual remains can add to the reconstruction of victim's biog-raphies, create enough knowledge for identification of descendants or larger communities of care, and in general help to document past injustices that might not be written down in the (colonial) written record. In this paper, I will draw from my own experiences doing this line of anthropological work, but also offer a bird's-eye perspective on other case studies. I want to show how anthropo-logical methods have aided and prepared repatriation of ancestral remains to descendant communities, and how anthropologists themselves have profited both from the resulting dialogues as well as from the broadening of perspective on the past of their discipline. I want to argue that understanding past research conditions will make us more aware of current threats to use bioarchaeology in the service of politics that might not have the benefit of individuals and their communities at heart.

1661. More than a diagnosis: Syphilis, stigma, and constructing the osteobiographies of those affected

Authors: Kirsten Rutten – Ruth Warren – Hallie Buckley (University of Otago) – Jonny Geber (University of Edinburgh) – Charlotte King (University of Otago)
Format: Oral

Osteobiographies reconstruct individual life stories from bones, but aspects of life experience considered taboo, such as sexually transmitted infections, can complicate interpretation. The enduring stigma, moral judgment, and silence surrounding infections such as syphilis have historically led to the erasure of affected individuals, especially women and children. This study draws on consultation (surveys and interviews) with interested parties to understand how their views can shape osteobiographical narratives about 19th-century individuals affected with sexually transmitted infections. The case studies used are an individual from a frontier gold-mining settlement in Aotearoa New Zealand, and four individuals discovered within a crypt under a military barracks in Ireland. Through these two cases, we provide insight into how social, cultural, and colonial differences may influence perceptions of infection and understandings of past lives. We highlight our efforts to avoid the sensationalisation of sexually transmitted infections, framing syphilis as part of a person's life story rather than a defining characteristic. This approach fosters a more compassionate, context-aware account of past people, avoiding stigmatising and reductive narratives. Additionally, it also advances responsible bioarchaeological practice by portraying people with the nuance and humanity they deserve.

1054. Supporting Death Literacy through the Bioarchaeology of Deathways: An Ethiopian Case Study

Authors: Dil Basanti (School for International Training) – Naomi Mekonen (Independent Artist)
Format: Oral

This talk looks at how bioarchaeology and art can aid in death literacy goals through the reconstruction of deathways. This talk derives from two experiences: 1) using art to communicate archaeology in our host community of Aksum, Ethiopia; and 2) taking these ideas to teach a cross-cultural death and dying program as a bioarchaeologist and learning how students, publics, and non-specialists engage with the materiality of death. The rising study of post-mortem processing in bioarchaeology has allowed for a greater study of deathways, or the chain of practices that a departed and their living community undergo upon death. Deathways are valuable for bringing out the experiential qualities of death rite and to reorient focus from belief to practice. The study of deathways also helps move an understanding of death from grim and exotic to rites of care. This talk looks at how the bioarchaeological reconstruction of ancient Aksumite deathways (50-400 CE) in northern Ethiopia through cut-mark analysis, skeletal inventories, archived records, and histological analysis can forward public conversations in death literacy. It also takes the Ethiopianist perspective that intangible practice may be valued over material remains and how art is used to realize this valuation of heritage. A few art pieces will be shared by community and diasporic artists that demonstrate the impact of reconstructing deathways. Finally, these ideas will be recontextualized within the goals of comparative Death Studies to demonstrate the strength of bioarchaeological research in death education.

1119. Insights into dental health from an Ottoman–early modern human skeletal series discovered at "St. Athanasius" Church in Niculițel, Romania

Authors: Paul Donciu – George Merlușcă ("Alexandru Ioan Cuza" University of Iași, Faculty of Biology, Iași) – Aurel Stănică ("Gavrilă Simion" Eco-Museum Research Institute, Tulcea) – Ozana Ciorpac-Petraru ("Alexandru Ioan Cuza" University of Iași, Faculty of Biology, Iași) – Luminița Bejenaru ("Alexandru Ioan Cuza" University of Iași, Faculty of Biology, Iași | "Olga Necrasov" Center of Anthropological and Biomedical Research, Iași)
Format: Poster

Teeth are a valuable source of information for bioarcheologists, providing valuable insights into age at death, diet, lifestyle, non-masticatory activities, dental morphological variations, and dental health status in past human populations. The identification and analysis of dental pathologies contributes to understanding oral hygiene, dietary practices, and the socio-economic factors that influenced the overall health of past human communities. This study focuses on odontopathies and dental abnormalities in a series of human adult skeletons discovered during the archaeological excavations at the "St. Athanasius" Church of Niculițel (Tulcea County, Romania). Preventive archaeological excavations carried out in 2022–2023, in the area surrounding and inside the church, revealed an extensive cemetery dating to the Ottoman and early modern periods (15th-19th centuries). The dental material belonging to 138 human skeletons was examined macroscopically while details were visualized using a Carl Zeiss Stemi 508 stereomicroscope equipped with an Axiocam 208 camera. Part of the material was examined using X-ray medical imaging with Siemens Multix equipment. The human skeletal remains were previously subjected to age at death and sex estimations. Dental pathologies (i.e., dental caries, periapical lesions, antemortem tooth loss-AMTL, dental calculus) are mainly described in terms of prevalence by age and sex. Dental caries with varying degrees of severity were recorded. In some cases, advanced dental caries are associated with periapical lesions. Among periapical lesions, periodontal cysts showed a higher prevalence. The AMTL occurrence was higher in the male dental series compared with the female dental series. Microdontia and impacted teeth were also reported. This study will provide a deeper understanding of how dental pathologies and abnormalities reflect dental health status, hygiene and diet of past human populations during the Ottoman and early modern periods in Southeastern Romania.

2071. Before research: pedagogical, infrastructural, and geopolitical challenges in teaching bioarchaeology at Greek Universities

Authors: Efrossini Vika (University of Thessaly | American School of Classical studies at Athens)
Format: Poster

The study of bioarchaeology in Greece occupies a unique nexus where heritage research, contemporary geopolitical realities, and evolving pedagogical paradigms intersect. While the discipline has been rapidly growing and several large research projects are being implemented in the country, Greek Universities do not offer dedicated Bioarchaeology studies as a norm. As a result, an increasing number of students is pursuing education abroad, and a two-gear trajectory is being developed between early career scholars across Europe. This study explores how national and geopolitical factors—such as heritage legislation, the tourism driven demand for rapid site assessments, and regional funding disparities—shape research and curriculum agendas at Greek Universities compared to Northern Europe. Issues that further constrain the Greek context include a fragmented governmental approach, limited laboratory infrastructure, and the need to embed ethical considerations surrounding the handling of human remains within the national legal framework. Drawing on case studies from several universities, we discuss actionable measures: 1. designing curricula that embed bioarchaeology as a critical contextualization of well-taught archaeological theory, 2. incorporating open access data repositories to mitigate resource constraints and 3. negotiating joint funding mechanisms with EU programs that earmark infrastructure upgrades for Mediterranean institutions. By addressing these intertwined challenges, the study outlines a roadmap for advancing bioarchaeological education in Greece, in order to be able to retain and train Greek students, but also create a Mediterranean learning network, integrated more fully into the course of European bioarchaeology research.

154 CLIMATE CHANGE AND HERITAGE: ADVOCACY, LOBBYING, CAMPAIGNING, AND FUNDRAISING

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Vibeke Martens (NIKU -Norwegian Institute for Cultural Heritage Research | CCH - Community on Climate Change and Heritage) – Peter Biehl (University of California Santa Cruz | CCH - Community on Climate Change and Heritage)
Keywords: Climate Change, Heritage, Advocacy, Lobbying, Campaigning, Fundraising
Format: Round table
Affiliation: Community on Climate Change and Heritage - CCH

SESSION ABSTRACT

Climate change has profoundly affected human life, material culture, and the environment in the past, and it continues to transform archaeological practice and heritage management in the present — with even greater impacts expected in the future. Although the field has made significant progress in articulating and communicating key positions and recommendations for mitigation and adaptation — such as the (2021 EAA Kiel Statement, 2021 SACC Statement, 2022 SAA Statement — implementation remains a challenge. Limited funding and a persistent lack of recognition of archaeology's relevance, both in the public sphere and within the wider scientific community, continue to hinder progress. This tenth roundtable, organized by the EAA Community on Climate Change and Heritage (CCH), builds on the success of previous meetings and will focus on Advocacy, Lobbying, Campaigning, and Fundraising at local, regional, national, and international levels. We invite representatives of major archaeological associations, as well as specialists in climate change and heritage research and policy, to serve as a sounding board for CCH's ongoing and future activities. The roundtable will also provide: • An update on the community's work since the last meeting; • A discussion of follow-up efforts from the 2025 survey; • Discussions on how to handle loss of sites; • An assessment of current opportunities and challenges; and • Suggestions for next steps to expand the CCH's network and impact. Our collective goal is to strengthen the role of archaeology and heritage in addressing the global climate crisis — identifying effective strategies for adaptation and mitigation, enhancing societal resilience, and improving communication within the professional community and with the public.

155 PROTECTING THE ARCHAEOLOGICAL HERITAGE BY LEGAL INSTRUMENTS AND PUBLIC ENGAGEMENT

Theme: 3. Museums and cultural heritage in the era of 'permacrisis'
Organisers: Håkon Glorstad (Community of Archaeological Legislation and Organisation) – Andris Kairiss (Community on the Illicit Trade in Cultural Material)
Speakers: John Carman (University of Birmingham | EAA Heritage Advisory Committee) – Jean-Olivier Gransard-Desmond (ArkéoTopia)
Keywords: International conventions, wars and conflict, citizen science
Format: Round table
Affiliation: Community on Archaeological Legislation and Organisation - ALO, Community on Illicit Trade in Cultural Material, Political Strategies Community - PSC, Public Archaeology Community

SESSION ABSTRACT

Social transformations and escalating crises have created a new awareness of challenges and shortcomings in heritage management and legislation in Europe. Globally, ongoing wars and conflicts have demonstrated the vulnerability of the archaeological heritage despite several international conventions developed and ratified to protect and respect the archaeological heritage. Legislation for protecting the archaeological heritage has also demonstrated shortcomings in relation to an explicit political, scientific and public interest in the archaeological heritage as means for creating a sense of belonging, social cohesion, cultural pride, as well as knowledge democratization through participation in its production. Citizen science is today a fast-growing initiative to engage with research, archaeology and the past that coincide with political visions, but generally lacks an updated juridical framework. At the EAA Belgrade conference, a discussion was initiated for how to highlight the current challenges and find answers to those concerning the juridical management of archaeological heritage. The outcome of this discussion has been to establish two coordinated working groups aimed at establishing pan-European overviews of the situation and a common platform for establishing best practice and policies that may benefit the archaeological communities and make a fruitful starting point for coordinated responses to today's challenges. The aim of this round table discussion is to present status for this work and to prepare the recommendations that have been cultivated for the EAA Board as a general recommendation for archaeological communities in Europe; and to discuss how

these recommendations can be promoted for the Council of Europe and national governments to ensure impact and implementation. The discussion will be introduced by two short key notes summing up the work and status on the ways current international legal instruments and national laws approach: • Cultural heritage in conflicts and wars • Cultural heritage, citizen science and the democratization of knowledge

156 QUANTITATIVE AND EXPERIMENTAL APPROACHES TO USE-WEAR ANALYSIS: METHODS, METRICS, AND WORKFLOWS

Theme: 1. Widening perspectives in material culture studies
Organisers: Tamar Bitchashvili (Institut Català de Paleoecologia Humana i Evolució Social, IPHES-CERCA | Universitat Rovira i Virgili, Dept. d'Història i Història de l'Art) – Julia Cabanès (Histoire Naturelle de l'Homme Préhistorique, HNHP-UMR 7194, MNHN | Institut Català de Paleoecologia Humana i Evolució Social, IPHES-CERCA) – Görkem Yeşilova (Institut Català de Paleoecologia Humana i Evolució Social, IPHES-CERCA | Universitat Rovira i Virgili, Dept. d'Història i Història de l'Art)
Keywords: use-wear, experimental archaeology, surface analysis, microscopy, quantitative analysis, workflow
Format: Regular session

SESSION ABSTRACT

The study of use-wear has advanced significantly with the development of new technologies, particularly in microscopy and quantitative analysis. However, variability in measurements across different types of microscopes and analytical workflows poses a significant challenge to the reliability of interpretations and, above all, the transferability of data. These issues highlight the need for clearer methodological frameworks that connect measurement, analysis, and interpretation in a consistent and reproducible way. This session addresses how quantitative and experimental approaches are reshaping the functional analysis and study of wear formation on stone tools. Recent advances in surface metrology, particularly confocal microscopy, optical light microscopy, 3D digital and scanning electron microscopy, and experimental replication, have made it possible to describe and compare wear traces in a quantitative way. By focusing on the methodological sequence linking surface measurement to analytical outcomes, from data acquisition and parameter extraction to statistical interpretation, the session aims to explore how each step influences our understanding of use-wear formation and variability. It encourages building a stronger bridge between archaeologists and materials scientists on integrating experimental reference data, 3D surface metrology, digital surface analysis, and quantitative modelling to improve functional interpretations. We invite contributions addressing any stage of this process, from experimental design and surface acquisition to data processing and interpretation. Topics may include, but are not limited to, parameter selection, measurement comparability, data reproducibility, and the integration of 2D and 3D image analysis approaches in the experimental context.

CONTRIBUTION ABSTRACTS

838. Effects of Micropolish Sampling Size and Shape on Measurement Reliability

Authors: Antony Borel (HNHP, Muséum national d'Histoire naturelle, CNRS, UPVD, Paris | Institute of Archeological Sciences, Eötvös Loránd University ELTE BTK, Budapest) – Raphaël Deltombe – Philippe Moreau (Université Polytechnique Hauts-de-France, LAMIH, CNRS, UMR 8201, Valenciennes) – Alice Rodriguez – Julie Marteau (UTC, Laboratoire Roberval, Centre de Recherches de Royallieu, Compiègne)
Format: Oral

Quantitative analysis of use-wear traces on stone tools aims to improve the reproducibility of the procedures of data acquisition and data treatment, but it remains highly dependent on the choices made by the analyst at each step of the workflow, from the experimental design to the interpretation of the results. A critical issue is the selection of the measured area, particularly the micropolish extent used as the basis for calculating surface roughness parameters and assigning a wear type. This article assesses the effect of the size and shape of the analyzed micropolish areas on the values of surface roughness parameters. It then examines how representative these values are with respect to the tool's overall wear and discusses potential interpretive biases linked to sampling strategies, especially when phenomena are correlated across multiple spatial scales (micro-roughness associated with gloss, and larger-scale topography influencing contact conditions). Finally, it presents contexts in which the choice of areas is constrained and specifies the conditions under which such areas can nevertheless be used reliably.

1877. New insights into identifying of ichthyofaunal treatment during the Late Mesolithic in south-east Norway through use-wear of knapped stone tools

Authors: Jorge Calvo-Gómez (University of Oslo - Museum of Cultural History) – Ivan Calandra – João Marreiros (LEIZA Leibniz-Zentrum für Archäologie, TraCEr - MONREPOS) – Inger Marie Berg-Hansen – Almut Schülke (University of Oslo - Museum of Cultural History)
Format: Oral

The role of technology in the exploitation of coastal environments by past populations has long been discussed in archaeology. In the Scandinavian Peninsula, due to its distinctive geomorphology, a substantial archaeological record of coastal hunter-gatherers has been preserved. In the contexts dated to Late Mesolithic period (6400-4500 cal. BC), lithic knapped remains represent the majority of technological data available. However, because organic preservation is rare and use-wear analyses on lithic tools are largely unexplored in this region, the role of these artifacts within the technological system remains largely unknown. The MSCA TeCh-Coast project addresses this research gap by developing lithic use-wear analyses at three late Mesolithic sites in the Oslo Fjord area and to characterize the technical choices made by coastal populations. Hence, characterizing the use of stone knapped tools in the processing of marine resources is a key objective for this research. Although previous studies have described microscopic wear associated with ichthyofauna processing, there is still no consensus on qualitative diagnostic use-wear features that reliably distinguish this activity from the processing of other animal soft tissues. This paper proposes a new methodological work to identify quantitative markers discriminating use-wear produced by marine fish processing from that generated by terrestrial animals. An experimental protocol replicating the processing of marine fish and large terrestrial mammals was conducted, and the resulting microscopic wear features were analyzed by laser confocal microscopy. Through surface texture analyses, the study aims to recognize a clear quantitative pattern that allows to distinguish both worked materials. Ultimately, the quantitative texture analyses was applied to archaeological tools showing qualitative use-wear features, interpreted as used for cutting soft animal materials. This data helps to discuss what specific technological choices were made by humans living in the coastal areas, and to understand how technical systems can reflect socially constructed technological knowledge.

2006. How does tribological knowledge impact wear analysis of archaeological materials?

Authors: Görkem Yesilova (Institut Català de Paleoecologia Humana i Evolució Social | Universitat Rovira i Virgili, Dept. d'Història i Història de l'Art)
Format: Oral

Tribology, the study of friction, wear, and surface interactions, provides valuable insights beyond engineering, extending into archaeology for understanding artifact use and production. This review study is discussing wear analysis techniques applied to archaeological materials, focusing on lithic elements, regarding the physical process of formation of wear concept. Both microscopic and macroscopic wear patterns, such as striations, polish, edge rounding etc. are discussed as indicators of material use and production, contact materials, and motion types. Methods such as optical microscopy (OM), scanning electron microscopy (SEM) and 3D profilometer, and experimental replication studies are critically reviewed for their effectiveness in interpreting traces. The synthesis of this review (in the light of experimental and bibliographic data) research highlights how tribological principles can elucidate wear mechanism of archaeological material, while also identifying limitations and challenges in standardizing wear analysis in archaeological contexts. This review highlights the interdisciplinary potential of tribology and wear studies for understanding the physics of wear rather than focusing on the archaeological story telling about the materials.

2118. Frozen in motion: A controlled in vitro experiment on freeze–thaw effects on lithic movement and use-wear patterns

Authors: Areti Leventi (Faculty of Archaeology, Leiden University) – Mickaël Baillet (School of Art and Archaeology, Zhejiang University | Faculty of Archaeology, Leiden University) – Veerle Rots (The Fund for Scientific Research F.R.S.-FNRS | TraceoLab, University of Liège) – Dries Cnuts (TraceoLab, University of Liège) – Joao Marreiros (Universidade do Algarve ICArEHB | Leibniz Zentrum für Archaeologie LEIZA, MONREPOS) – Morgan Roussel – Annelou Van Gijn (Faculty of Archaeology, Leiden University) – Vera Aldeias (Universidade do Algarve ICArEHB) – Marie Soressi (Faculty of Archaeology, Leiden University)
Format: Oral

Frost-induced displacement of artifacts is well-documented at Pleistocene archaeological sites across Eurasia, yet the magnitude of movement and the associated surface alterations produced by repeated freeze-thaw cycles remain poorly understood. Distinguishing use-wear from frost-induced wear traces is therefore difficult. Previous in vivo or in vitro experiments reported minimal displacement, contradicting archaeological evidence for freeze-thaw-driven spatial redistribution at Pleistocene sites. They also described only modest frost-related surface modifications (e.g. polish) due to short experimental durations and few cycles. In addition, many field-based studies offer limited control over key variables. We conducted a long-term in vitro freeze-thaw experiment in a climatic chamber to evaluate frost-driven artifact displacement and surface modifications after 42, 330 and 600 cycles. This controlled design allowed us to assess cumulative effects across contrasting sedimentary contexts and lithic types. Experimental sediments varied in grain size and composition, including fine-grained clay; coarse and fine sands; gravel mixed with clay; and a fine-grained silt-sand fraction sieved from sediments collected at the Pleistocene site of Quinçay cave (France). Sediment volume, water saturation, temperature fluctuations (ambient and within the sediment), and artifact deposition were controlled. The assemblage comprised unused flakes and cut flint blocks of comparable size and weight, as well as scrapers, Châtelperronian-type points, and bladelets previously used on hide, wood and bone. After 330 cycles, lithics in fine-grained sediments showed substantial uplift, commonly reorienting toward vertical positions and migrating toward the surface, whereas movement in sandy sediments remained limited. After 600 cycles, lithics exhibited net downward movement, and smaller pieces rotated more frequently. Microwear analysis indicated that polish formation was strongly sediment-dependent. These results demonstrate that prolonged freeze-thaw activity can significantly redistribute lithics and generate diagnostic surface modifications, providing a robust framework for reconstructing post-depositional processes and interpreting use-wear on Pleistocene lithic assemblages.

2224. Integrating experiments and multi-microscopy approaches to investigate wear formation on different raw materials

Authors: Julia Cabanès (Muséum National d'Histoire Naturelle - UMR7194 HNHP | Institut Català de Paleoecologia Humana i Evolució Social - IPHES-CERCA) – Tamar Bitchashvili (Institut Català de Paleoecologia Humana i Evolució Social - IPHES-CERCA | Dept. Història i Història de l'Art, Universitat Rovira i Virgili)
Format: Oral

Artefacts made from diverse raw materials exhibit different wear formation patterns, even under similar use conditions. Controlled experiments provide a way to observe and describe these differences to understand material-specific wear features. This study presents an approach based on experiments and various microscopic techniques to track wear formation across a variety of raw materials under controlled conditions. Flakes of various raw materials were used in identical actions and conditions, and examined sequentially (before and after use) by combining complementary microscopic techniques, such as optical, 3D digital, and confocal microscopy, to provide a multi-scale and multi-dimensional perspective on wear formation. By integrating qualitative and quantitative analyses, we explore how the combination of different microscopes can capture surface modifications in order to identify characteristic features of use-wear, especially related to the stone tool raw material. Depending on the microscopy technique employed, the data obtained may either be cross-validated or provide complementary information specific to the analytical capabilities of each microscope.

2629. From Data Acquisition to Interpretation: Analytical factors affecting reliability and comparability in quantitative use-wear analysis

Authors: Tamar Bitchashvili – Andreu Ollé (Institut Català de Paleoecologia Humana i Evolució Social, IPHES-CERCA | Universitat Rovira i Virgili, Dept. d'Història i Història de l'Art) – Antony Borel (HNHP, Muséum national d'Histoire naturelle, CNRS, UPVD, Paris | Institute of Archaeological Sciences, Eötvös Loránd University ELTE BTK)
Format: Oral

Quantitative 3D surface texture analysis has become an important tool in archaeological use-wear studies, providing objective data for the functional interpretation of stone tools. However, the analytical process involves multiple stages, from data acquisition to parameter extraction and interpretation, and each can affect research outcomes. The reliability of quantitative use-wear characterisation depends on measurement strategies and analytical workflows. Additionally, differences in data processing and parameter selection may introduce variability that influences the consistency and reproducibility of results across studies. In this study, experimental flint tool surfaces were acquired using high-resolution confocal microscopy and processed with standardised surface texture parameters. By systematically varying analytical procedures, we evaluate how methodological differences influence the recognition and differentiation of use-related surface modifications. The results underscore the value of consistent analytical approaches for strengthening and improving the comparability of quantitative use-wear research. This work contributes to improving methodological transparency and supports the integration of quantitative techniques into functional archaeological interpretations.

187. Setting Clay in Motion: Rotational Devices and Workshop Organisation in Cucuteni-Trypillia Pottery Production

Authors: Pintilie Camelia – Maria Ciobanu (Faculty of History, "Alexandru Ioan Cuza" University of Iași) – George Bodi (Arheoinvest Center, "Alexandru Ioan Cuza" University of Iași) – Adrian Tencariu (Institute of Interdisciplinary Research, "Al. I. Cuza" University of Iași)
Format: Oral

This paper brings together two complementary lines of inquiry into Chalcolithic pottery production in the Cucuteni-Trypillia world. On the one hand, it examines the technical evidence for the use of rotational devices in vessel manufacture; on the other, it places such tools within the broader evolution of pottery workshops, from small-scale and probably mobile production contexts to more structured intra-settlement environments. Recent excavations at Cucuteni-Cetățuia, together with older finds from Buznea, Costești and Brânzeni, have revealed large vessel bases bearing spiral mat impressions and internal thinning marks. These traces suggest the use of a rotational device equipped with a woven mat fixed to the moving surface, likely functioning as a precursor to the potter's wheel. To test this hypothesis, we carried out an experimental programme involving the reconstruction and use of such devices in combination with coiling techniques and surface treatment with wooden tools. The experiments showed that rotational support not only facilitated and accelerated modelling, but also reproduced the macroscopic traces observed on the archaeological material. These results are considered within a wider interdisciplinary research framework on pottery production centres in Chalcolithic eastern Romania, combining excavation, geomagnetic survey, archaeometry analyses, ethnoarchaeological analogy and experimental archaeology. Settlement expansion, increasing standardisation and the emergence of larger communities appear to have been accompanied by changes in workshop organisation, resource management and firing infrastructure. In this context, rotational devices can be understood not simply as isolated technical improvements, but as part of a broader reorganisation of ceramic production. By linking tools, gestures, workshop settings and production demands, the paper explores how innovation was embedded in technological traditions and in the social worlds of prehistoric potters. This work was supported by a grant of the Ministry of Research, Innovation, and Digitization, CNCS-UEFISCDI, project number PN-IV-P1-PCE-2023-0040.

157 SENSE & SUSTAINABILITY II: ARCHAEOLOGICAL TOURISM FOR PEOPLE, PLACES, AND PLANET

Theme: 3. Museums and cultural heritage in the era of 'permacrisis'
Organisers: Sofia Fonseca (ICArEHB, Algarve University | German Archaeological Institute, DAI) – Sanjin Mihelić (Museum of Arts and Crafts in Zagreb) – Ben Thomas (Society of Architectural Historians)
Keywords: Archaeological tourism, Sustainable heritage management, Community engagement, Resilience, Museums and climate adaptation
Format: Regular session
Affiliation: Community on Archaeology and Tourism

SESSION ABSTRACT

In an age increasingly defined by permacrisis—a condition of ongoing environmental, social, political, and economic instability—archaeological tourism and heritage management must reimagine their purposes and responsibilities. This session, proposed by the EAA Community on Archaeology and Tourism, explores how archaeological sites, museums, and cultural landscapes can remain agents of resilience, learning, and regeneration amid overlapping crises. Building upon the discussions leading to Sense & Sustainability II (Split, 2027)—marking the UN International Year of Sustainable and Resilient Tourism—this session invites contributions that rethink tourism as a tool for sustainability rather than strain. We welcome case studies and critical reflections that illustrate inclusive governance models, value-based management, climate-aware operations, and community participation in decision-making. Contributors are encouraged to show how archaeological tourism can support the protection of heritage while generating social and environmental benefits—ensuring that visitor engagement strengthens rather than undermines conservation goals. Emphasis will be placed on lessons learned, adaptable methodologies, and cross-sector collaborations that turn fragility into opportunity. By integrating research, practice, and policy, the session aims to outline a collective agenda for archaeological tourism that serves people, sustains places, and safeguards our shared planet—affirming the continuing relevance of heritage in a world of permanent change.

CONTRIBUTION ABSTRACTS

298. Resilient Archaeological Tourism in Styria (Austria) under Conditions of Permacrisis

Authors: Marko Mele (Universalmuseum Joanneum)
Format: Oral

The archaeological landscapes of Styria (Austria) encompass key periods of European prehistory and antiquity, from the Roman municipium of Flavia Solva to the Iron Age burial mounds and settlement remains of Großklein. Despite their high archaeological value, much of archaeological heritage remains poorly visible and insufficiently recognised—often even by local communities—as a potential resource for social, cultural, and economic development. These challenges are intensified by climate change, land-use pressure, limited resources, shifting visitor expectations, and growing competition within the tourism sector, conditions increasingly described as permacrisis. This paper explores how archaeological tourism can be repositioned from a potential source of strain into a tool for resilience and sustainability. Drawing on case studies from Flavia Solva and Großklein, and on the institutional framework of the Universalmuseum Joanneum, it examines value-based and climate-aware heritage management approaches that balance conservation priorities with public engagement. The two sites illustrate complementary challenges: the presentation of extensive but largely invisible archaeological remains and the long-term management of a sensitive archaeological landscape. Particular emphasis is placed on inclusive governance models involving museum professionals, heritage authorities, local communities, and regional tourism stakeholders. The paper argues that sustainable archaeological tourism depends on empowering local actors through dialogue, capacity-building, and shared decision-making. Initiating conversations with local stakeholders emerges as a key step in raising awareness of heritage values, strengthening local identification, and developing realistic, place-based tourism initiatives such as slow tourism and participatory interpretation.

1157. Little Did She Know. From Stone Age Life to Sustainable Tourism

Authors: Christina Toreld (Picea Kulturarv) – Pia Hansson (Inredningsarkitekt SIR) – Cia Säll (Lysekils Municipality)
Format: Oral

10000 years ago, an old woman lived on a large island where resources were plenty, both on land and in the sea. The woman died in her eighties and her dear ones buried her at the beach. Thousands of years passed, and the island eventually became mainland. The remains of the Stone Age woman were preserved in the seashells at a place we now call Österöd, situated in Lysekils municipality on the Swedish west coast. The story and the impact of the Stone Age woman have engaged a wide range of people, from heritage professionals to local citizens, municipalities and national media. From the dramatic discovery of her remains by farmers digging a post glacial shell bank to gather material for chicken feed production in the early 20th century, to her playing a significant role shaping an Experience Development project aiming to strengthen culture, tourism and places in a sustainable ecosystem. This paper will present a woman's journey in time, and how to manage a woman´s legacy in a dignified, sustainable, participatory,

educational and yet, attractive way.

1618. Community-Led Archaeological Tourism as a Strategy for Sustainability and Resilience in Nigeria and Southern Europe

Authors: Zainab Popoola (Community Integrating the Management of Archaeology and Tourism)
Format: Oral

Archaeological tourism is increasingly promoted as a pathway for heritage sustainability, education, and local economic development. However, in an era of ongoing permacrisis, characterised by climate change, economic uncertainty, governance instability, and social transformation, the long-term viability of archaeological tourism depends on more than visitor numbers or institutional management. This paper examines community-led archaeological tourism as a strategic response to sustainability and resilience, drawing on comparative reflections from Nigeria and Southern Europe. The paper explores how local communities in urban and peri-urban contexts in Nigeria shape archaeological tourism through grassroots custodianship, informal governance structures, and everyday heritage practices, often in the absence of strong institutional support. These experiences are contrasted with selected cases from Southern Europe, where archaeological tourism is typically embedded within formal heritage frameworks, professional management systems, and regulatory institutions. While European contexts benefit from policy continuity and resource investment, they frequently face challenges related to overtourism, climate vulnerability, and limited community agency in decision-making processes. By placing these contexts in dialogue, the paper argues that community-led approaches are not peripheral or supplementary but central to sustaining archaeological tourism under conditions of prolonged crisis. Grassroots participation fosters adaptability, local relevance, and environmental sensitivity, while institutional frameworks offer protection, visibility, and long-term planning, yet risk disconnect from lived heritage realities if not meaningfully inclusive. The paper contributes to debates within archaeology and tourism by reframing sustainability as a governance and value-based challenge, rather than a purely managerial one. It proposes that resilient archaeological tourism emerges through negotiated relationships between communities and institutions, offering transferable insights for archaeologists, heritage managers, and tourism practitioners seeking inclusive, climate-aware, and socially grounded approaches to archaeological tourism across diverse regional contexts.

1892. Using archaeological heritage in the city as a sustainable solution to the threat of overtourism – the example of Wrocław

Authors: Damian Werczyński (Institute of Geography and Regional Development, University of Wroclaw)
Format: Oral

Wrocław, a major city in Central Europe, is becoming an increasingly popular tourist destination year after year. This is evidenced by the record-breaking number of visitors in recent years (6 million in 2023, 6.6 million in 2024), as well as the growing number of new attractions appearing on the city's tourist map. These positive trends also bring certain consequences, including the negative effects of overtourism, which are increasingly noticeable in both summer and winter seasons. At the same time, Wrocław, a very old city with a rich and complex history, boasts a vast number of archaeological relics, only some of which have been utilised so far. Focusing on the archaeological heritage of medieval and early modern times, this article aims primarily to identify the scale and manner of its current use in the creation of tourism products. The analysis highlights both successful examples and those that ended in failure or utilised the potential of archaeological relics only to a very limited extent. A natural continuation of this presentation and the second goal of this article is to identify selected places and objects for the creation of new products, while also proposing the most appropriate ways to present and interpret them to tourists. Utilising the tourism potential of Wrocław's archaeological heritage is one of the solutions that, by proposing new products, such as urban cultural trails, attempts to disperse the excessive concentration of tourist traffic focused on a few main attractions.

2115. Who Is Archaeological Tourism For? Advocacy, Accountability, and Public Interest in Croatian Heritage Practice

Authors: Sanjin Mihelic (ICOMOS Croatia)
Format: Oral

In Croatia, archaeological tourism increasingly operates at the intersection of heritage protection, real-estate development, and destination marketing. While international instruments promoted by ICOMOS emphasise public interest, precaution, and long-term stewardship, everyday practice often reveals a widening gap between declared principles and operational realities. Archaeological sites are frequently mobilised to legitimise development projects, while decisions about their management remain only weakly transparent and insufficiently participatory. Drawing on recent case studies from coastal, urban, and insular contexts, this paper examines how archaeological research and rescue excavations are routinely followed by renewed development pressure and reduced professional influence. It documents recurring patterns in which heritage values are acknowledged rhetorically but subordinated in planning processes, and in which public presentation is treated as a compensatory gesture rather than a core responsibility. At the same time, the paper highlights situations in which archaeologists, conservation authorities, and civil society actors have successfully invoked ICOMOS principles to defend public interest and environmental limits. The paper argues that archaeological tourism must be understood primarily as a governance issue rather than a marketing sector. It advocates for stronger institutional accountability, clearer mechanisms for community participation, and the systematic application of heritage impact assessment and precautionary approaches. Drawing on Croatian examples, it demonstrates how advocacy grounded in professional ethics and international standards can counter extractive tourism models and strengthen local stewardship. Finally, the paper situates these reflections within the lead-up to Sense & Sustainability II in Split (2027), organised in the framework of the UN International Year of Sustainable and Resilient Tourism. It proposes the conference as a platform for consolidating advocacy-oriented practice and reinforcing the role of ICOMOS as an active partner in shaping socially just and environmentally responsible archaeological tourism.

2664. Bridging the Depths: Underwater Cultural Heritage Protection and Mediation at Vrak – Museum of Wrecks

Authors: Susana Vallejos (Vrak-Museum of Wrecks/Swedish National Maritime, Transport and Military Museums)
Format: Oral

Vrak – Museum of Wrecks is the newest addition to Sweden's maritime museum landscape and the first museum to present the underwater cultural heritage of the Baltic Sea as a unified whole. By adopting a transnational perspective that encompasses the entire Baltic Sea region, shared by eight countries and numerous past and present communities, Vrak moves beyond national narratives to frame the Baltic Sea as a shared space that has connected people and shaped human experience for millennia. The museum focuses on maritime archaeology and a submerged cultural heritage shaped by the Baltic Sea's unique environmental conditions: brackish, cold, dark, and oxygen-poor waters largely free from wood-degrading organisms. These conditions have preserved an estimated one-hundred thousand shipwrecks, along with countless other traces of human activity, in exceptional condition. Vrak is grounded in a central question: how can underwater cultural heritage be made accessible to diverse communities, bridging the gap between people and a cultural heritage that many are still largely unaware of, because it lies beneath the surface, including those who will never have the opportunity to dive themselves? Rather than treating this heritage as something to be salvaged, conserved, and displayed, the museum is founded on the principle of in situ preservation. By leaving wrecks where they lie, Vrak supports long-term sustainability of heritage while employing non-invasive methods for research, documentation, and public engagement. Advanced archaeological approaches, combined with innovative visualization and presentation techniques enable Vrak to investigate sites without disturbing them and to render an otherwise hidden heritage visible and meaningful to people. This presentation explores how Vrak integrates research, preservation, and technology to bridge the gap between people and the submerged cultural heritage of the Baltic Sea, while simultaneously challenging traditional museum practices centered on physical collections.

191. INHERIT – Revolutionising Heritage Conservation through Hiking and Digital Innovation

Authors: Marija Maric (University of Novi Sad, Faculty of Philosophy)
Format: Poster

The INHERIT (Hiking Heritage Trails) project, funded by the Creative Europe Programme, introduces a groundbreaking model that transforms outdoor enthusiasts into Hiking Heritage Protectors—certified guides trained to safeguard, document, and promote archaeological and historical sites in remote mountain regions. Heritage sites across Europe often suffer from neglect due to inaccessibility and limited institutional resources. INHERIT addresses this challenge with a sustainable, community-driven approach to heritage preservation. By harnessing the untapped potential of mountaineers, equipping them with cutting-edge digital tools, and fostering cross-sector collaboration, this initiative bridges the gap between adventure tourism and cultural heritage protection. The project, developed by partners from Serbia, Slovenia, Austria, and Portugal, is structured around four key pillars: 1. Education and Training – Establishing a certification program that empowers mountain guides and heritage professionals to become active stewards of cultural sites. 2. Digital Innovation – Creating a Smart Digital EU Interactive Map that connects hiking trails with heritage sites, featuring real-time data collection and a gamified mobile app to engage a broader audience. 3. Public Engagement – Elevating the visibility of neglected heritage through eco-tourism initiatives, media outreach, and community events, reaching thousands across Europe. 4. Sustainability and Policy Impact—Integrating the Hiking Heritage Protector certification into EU policy frameworks will ensure long-term institutional support and economic benefits for rural communities. By redefining the role of outdoor tourism in heritage conservation, INHERIT is setting a new standard for how Europe safeguards its cultural legacy. The project will culminate in a high-profile symposium in Portugal, bringing together policymakers, heritage experts, and outdoor professionals to scale this pioneering model across Europe and beyond. This ongoing initiative is not just setting new standards in cultural heritage preservation—it invites all EU countries to shape its future actively.

160 FEASTING AS SOCIAL IDENTITY AND THE CHANGE IN MATERIAL CULTURE CONSUMPTION IN THE LATE MEDIEVAL AND EARLY MODERN PERIODS

Theme: 1. Widening perspectives in material culture studies
Organisers: Stuart Whatley (Museum of Copenhagen) – Georg Haggren (University of Turku) – Joakim Kjellberg (Medeltidsmuseet Stockholm & Upplandsmuseet) – Tania Casamiro (University of Stirling)
Keywords: Material culture, Consumption, Social Identity, Late medieval, Early modern, Trade
Format: Regular session
Affiliation: Medieval Europe Research Community - MERC

SESSION ABSTRACT

Between the late medieval and early modern periods there was a significant transformation in material culture linked to social identity and the consumption of food. New ceramic forms and styles were complimented by new glass and metal objects and a revolving array of food and drink options. These were combined with new social practices of eating and drinking. These changes were occurring alongside the increasing effects of globalisation where drinks like cacao, coffee and tea were consumed from new porcelain cups and saucers. Recent archaeological excavations in Northern Europe have played an important role in highlighting these transformations. Excavations of households, rubbish pits, harbour bases, moat backfills, and land reclamation sites from the late medieval and early modern periods have provided evidence of evolving personal identities as reflected in material culture. Sites include an early modern landfill excavation site in Copenhagen and harbourside excavations such as Slussen, Stockholm, and the North/South metro line, Amsterdam. Here, finds assemblages are diverse, a combination of local, national, and international objects from different areas worldwide. This session aims to investigate both the causes, timing, and nature of material culture changes alongside food and drink consumption by comparing excavation datasets not only within Northern Europe but also in the Atlantic and Mediterranean zones. It also seeks to identify if there are potential patterns of transformation in material culture. It invites papers from excavations that provide interesting evidence of material culture change that examines consumption habits and the performative aspects of eating and drinking.

CONTRIBUTION ABSTRACTS

1785. Eastern Aesthetics, Changing Manners: How Eastern Ceramics Re-Scripted European Table Behaviour

Authors: Tania Casimiro (University of Stirling)
Format: Oral

Between the late medieval and early modern periods, European dining shifted from relatively stable local repertoires toward rapidly changing global regimes of display. This paper, drawing from Portuguese archaeological contexts, argues that the importation of Eastern ceramics, and the subsequent European appropriation of Chinese symbols in its own productions did more than diversify table wares. It re-scripted the social grammar of feasting. Porcelain's material qualities (whiteness, translucency, thinness) and its visual programs (landscapes, flora, auspicious motifs, pseudo-marks) became legible as cosmopolitan signals, enabling diners to stage identities that were simultaneously domestic and world-facing. I focus on how Chinese forms and iconographies were absorbed into European practices of eating and drinking, shaping the choreography of the table, such as the rise of dedicated drink wares for tea, coffee, and cacao and the multiplication of small, specialised vessels. As Chinese symbols were reinterpreted through European frameworks, first as authentic signs of distant origins and later as stylised chinoiserie, they generated new hierarchies of taste and new forms of sociability, including curated display, conversational referencing of provenance, and the moralisation of restraint and elegance at the table. By treating ceramics as active participants in feasting, the paper links globalisation to embodied conduct and aesthetic judgement, showing how material culture change was inseparable from changing ways of being seen, and seeing oneself, through food consumption.

1912. Social identity and material culture consumption from the late 1500-1750 in Copenhagen

Authors: Stuart Whatley (Museum of Copenhagen)
Format: Oral

Public practices related to eating and drinking underwent significant transformation from the late medieval period to the Early Modern era. Trade and international influences substantially altered local dining customs, fostering an increasingly integrated European approach that incorporated ceramic, glass, and a range of tablewares imported from other European countries and, subsequently, from East Asia. These changes facilitated the introduction of new foods, culinary techniques, and standards of etiquette, all of which contributed to the development of social identities and indicators of status. In this context, it is important to consider Copenhagen's position relative to other cities in Denmark and Northwest Europe: did the city reflect broader continental patterns, or did it exhibit distinctive features? A recent excavation of an early modern landfill site in Copenhagen has initiated an in-depth investigation into social identity and feasting practices of the period. The anticipated recovery of approximately 500,000 artefacts offers a valuable opportunity for comprehensive analysis of consumption patterns, incorporating evidence from local, national, and international sources throughout Scandinavia, Europe, and further afield. This paper investigates the relationship between social identity and changes in material culture related to eating and drinking practices, focusing on glass and ceramic vessels to elucidate broader consumption patterns in Copenhagen. The study incorporates new findings from the Amaliegade 44 excavation alongside data from previous excavations.

1124. "The city between the bridges" – Understanding landfills and material culture consumption in medieval and early modern Stockholm

Authors: Joakim Kjellberg (The Museum of Medieval Stockholm) – Philip Tonemar (Arkeologikonsult AB)
Format: Oral

Stockholm, like many medieval coastal towns, was largely built on landfill composed of mixed soils and household refuse. Archaeological evidence of harbour quays, piled constructions, sunken ships, and buildings erected on platforms extending into the water demonstrates how the medieval town expanded into a maritime environment. In historical sources, Stockholm was known as "the town between the bridges", reflecting how everyday life and livelihoods were closely entangled with water. Despite this close relationship, landfill deposits and submerged urban spaces have remained underexplored in archaeological research on medieval Stockholm. This is largely due to poor documentation of early dredging operations conducted in the early twentieth century. More recent excavations, notably at Helgeandsholmen in the north and Slussen in the south of the medieval urban core, have produced extensive assemblages of material culture that offer new opportunities to investigate urban life, waste practices, and waterside land use. At Helgeandsholmen, excavations conducted between 1978 and 1980 uncovered a large medieval landfill dated to the early fourteenth century, containing ceramics, leather artefacts, and animal bones, likely associated with the nearby House of the Holy Spirit. Interpreted at the time as a secondary and unintentional dumping ground, the assemblage was not prioritised for detailed analysis and has remained largely unexplored. A renewed research project at the Museum of Medieval Stockholm is now re-examining this material for future exhibitions. In parallel, archaeological monitoring of dredging during construction of the new Slussen lock has recovered tens of thousands of artefacts from shoreline contexts along Södermalm. Their volume and spatial distribution allow long-term perspectives on waste management, land use, diet, trade networks, and craft production. This paper presents initial results from ongoing research into Stockholm's medieval landfill sites and discusses their potential for comparative studies in towns around the Baltic and Northern Europe.

2394. Glass finds indicating beverages related to the dining culture in the early modern Scandinavian towns

Authors: Georg Haggren (University of Turku | University of Helsinki)
Format: Oral

Large scale urban excavations have been recently made in several late medieval and early modern Scandinavian towns like Copenhagen in Denmark, Stockholm in Sweden and Turku in Finland. They are flourishing cities still today. Another kind of example is Nya Lödöse which was a small Swedish medieval town founded in 1473 and deserted in the early 1620s. Locating on the estuary of the River Götaälv it was Sweden's gate to the west, and a lively port with close connections to Dutch, Flemish, German and Scottish towns. It was also a predecessor of the later city of Gothenburg founded in 1621. The urban history of Nya Lödöse lasted only 150 years. However, in between there was a 30 years' period when the town was transported to another site and the site was completely deserted. During this period, between 1540 and 1571 several changes related to the dining culture took place. Glass finds illustrate this era of transition, an era when medieval drinking habits turned to early modern dining culture. In the 2010s large scale excavations were made in the site of Nya Lödöse. The area is today known as a suburb of Gothenburg called Gamlestaden. During this rescue archaeological project called "Staden Nya Lödöse" dozens of plots were excavated by modern contextual methods. Analyzing these plots and urban households we can see how glass vessels became more common during the last decades before the town was deserted in the 1620s. Different types of beakers were used when drinking different beverages. Glass finds indicate drinking beer and wine, and probably enjoying stronger spirits too. Recent finds from other northern towns offer us a wider context for making comparative analyses related to changes in the dining culture.

2626. Changing town, changing tableware? The case of Tartu, Estonia from the 16th to the 18th century

Authors: Arvi Haak (Tallinn University, Archaeological Research Collection | Tartu City Museum)
Format: Oral

For Tartu, an inland town in south Estonia, the Early Modern Period clearly meant a decline in significance: a former Hanseatic town became a provincial town of only regional significance. However, the development was more nuanced, as the 17th-century university probably enhanced contacts within that sphere. In spite of the apparent decline in the town's status, the reflections of globalisation can be traced, affecting the dining sphere of the townspeople. While the abundantly excavated cesspit complexes offer a chronologically ordered overview of the changes in the dining sphere, only a few such complexes can be dated to the 17th century. Later developments can be traced from the demolition debris deposits of the Great Northern War (1700–1708 in Tartu) and the subsequent destruction of the town. In recent years, several large-scale urban excavations have provided new material to discuss the development during the Early Modern Period. The changes in ceramic consumption affected both local pottery workshops, which started producing glazed redwares, sometimes also painted, and imports. The latter concentrated on faience and especially from the 18th century onwards, also porcelain. These were symbols of conspicuous consumption which reached the wealthier households of the town. The presentation will include a comparison of the situation in Tartu with the investigated assemblages from other towns, most notably Tallinn, to establish whether there are significant differences between Estonian coastal and inland towns.

2027. European ceramics on the border of the Ottoman Empire: discoveries from the Lower Danube (XVIII – XIX century)

Authors: Niculina Dinu (Museum of Braila "Carol I" Romania)
Format: Oral

Since the conquest of Dobruja and the few points on the left bank of the river, the Ottoman Empire made its presence felt through a change in diet but especially through the fairly early adoption (16th century, most likely towards the end of it) of coffee and the

entire ceremonial for serving it. Once introduced, this custom also involves the import of new utensils and containers. Although for the 16th – 17th centuries the most archaeologically documented are Iznik plates and mugs and only from the 18th century are the coffee cups from the workshops in Kutahya, it is observed that the preference of the capital Istanbul for Chinese or European porcelain cups is also transposed in the Lower Danube area. Archaeological research undertaken in two areas that evolved almost the same way over at least two and a half centuries almost identically – Brăila, a fortress on the left bank of the Danube (1540 – 1821) and the city of Ester, a city in Dobrogea (early 16th – 19th centuries) have indicated this phenomenon. Both cities whose role was mainly commercial knew the ceramics from the Ottoman Empire but also the products of China or Western and Central Europe. For Brăila, since the early 19th century, the transition from Ottoman ceramics to European products is observed; for Ester, occasional discoveries show that the interest in Western products was at the same time as the other cities/territories that were under Ottoman influence: many fragments of Western pottery made especially for the Ottoman world – plates, cups and mugs belonging to the workshops of Sarreguemines, Meissen or those of England and Germany. The multitude of shapes and qualities of the products show that the products of Western Europe are accessible to the population of this part of the empire.

161 CITIES UNDER THREAT (ἐν κινδύνῳ): RESPONSES TO CATASTROPHES, 8TH C. BC–4TH C. AD

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Nadia Coutsinas (CReA-Patrimoine, Université Libre de Bruxelles) – Katerina Panagopoulou (Department of History & Archaeology, University of Crete) – Vassilis Evangelidis (ILSP/Athena Research Center) – Maria Xanthou (University of Bristol) – Nikos Akamatis (Academy of Athens)
Keywords: Resilience, Natural disasters, Catastrophes, Disruptions, Urban studies
Format: Regular session

SESSION ABSTRACT

This panel explores the strategies employed by cities across the Greek and Roman world to recover from natural disasters and violent disruptions of everyday life — including earthquakes, droughts, tsunamis, floods, fire, wars, and invasions. Drawing upon a broad range of case studies, we aim to examine whether, to what extent, and how ancient communities anticipated, experienced, and managed such crises, and to illuminate the social and political mechanisms that sustained urban life in times of acute peril. Key questions include: to what extent did they prepare in advance for natural phenomena or for warfare? When did systematic provisions for such contingencies emerge? Were such measures more coherent or institutionalised in the Hellenistic and Roman periods than earlier? How can we distinguish between individual agency and collective civic initiatives in responding to disruptive events? How did individuals and communities cope with the social, economic and psychological consequences of violent overturns in life (including recovering from post-traumatic stress disorder)? Particular attention will be given to the role of the embedded social and political networks that enabled the effective management of these challenges, shedding light on the diverse ways in which different urban communities fostered resilience and launched collective responses towards recovery. The panel welcomes interdisciplinary approaches and contributions that engage with archaeological, epigraphic, numismatic, literary, and papyrological evidence, in order to advance a nuanced understanding of catastrophe management in the ancient Mediterranean world.

CONTRIBUTION ABSTRACTS

579. Destructive earthquakes in antiquity; the case of Pella, Macedonia

Authors: Nikos Akamatis (Independent Researcher)
Format: Oral

Throughout the ages, natural destructions played a significant role in the evolution of human life. In some cases, their consequences were so severe that even large cities could be wiped out. One such case is ancient Pella, one of the largest and most important cities of ancient Macedonia that was destroyed, almost completely, because of a devastating earthquake in the beginning of the 1st century BCE. After the earthquake the city was only sporadically inhabited. Several years later, a new city was founded, approximately 1.5km to the west, the Roman colony of Pella. In this presentation, the archaeological data that is connected with this destruction is going to be presented. The presentation will focus on the evidence that supports the destruction of the city by an earthquake, otherwise unattested in literary sources, the chronological framework and the response of the citizens to this massive destruction. Furthermore, similar phenomena of approximately the same chronological period are going to be examined and compared.

1829. Affective Scripts: Rebuilding a Sense of Safety After the 62-63 CE Earthquake in Pompeii

Authors: Leonardo Massantini (Institut für Klassische Altertumskunde Christian-Albrechts-Universität zu Kiel)
Format: Oral

Some aspects of affectivity (i.e., emotions, moods, etc.) escape archaeological reconstruction. However, archaeologists can investigate the relations between material culture and affectivity. Bridging philosophy and archaeology, this paper advocates for the notion of

"scripts", which essentially describe how emotions unfold through time in a specific social context. This paper analyzes the affective responses to the 62-63 CE earthquake in Pompeii. In Seneca's Naturales Quaestiones (VI 1,1-8), we see that people not only feared death, but also that in the aftermath of the earthquake they felt considerable distress from losing the sense of security once provided by public and private buildings (Nat. Quaest. VI 1,5-6). In terms of social cognition, Seneca describes a script: the fear during the earthquake and the subsequent distress. However, his script is incomplete. He merely proposes philosophy as comfort, but the archaeological record goes further and testifies to the actual practices that Pompeiians performed after the earthquake for coping with distress. I analyze two of these script-candidates. The first is the Caecilio Giocondo reliefs/lararium complex, often read as a domestic device that ritualizes memory and restores safety through repeated interaction with an image of seismic disorder; this is suggestive, but it risks over-interpretation insofar as it imports modern "therapeutic" scripts into an ancient context. The second is the rebuilding practices documented across the city: the reuse and management of rubble in commercial spaces can be read not only as a building technique but as an affectively charged script of recovery. Rebuilding with rubble does not merely restore walls; it actively removes the persistent reminders of collapse from everyday perception, thereby contributing to the reconstitution of a workable sense of safety in a landscape that had been traumatically disrupted. These practices reveal rebuilding as a civic script of resilience amid acute post-seismic stress.

828. Earthquake at Tralleis: Greek Religion as Mechanism of Crisis Management

Authors: Giulia Nafissi (Scuola Normale Superiore of Pisa)
Format: Oral

The ancient city of Tralleis (modern Aydın) was affected by earthquakes which, as shown by C.P. Jones' study of the evidence relating to a first-century AD earthquake, left lasting traces in civic memory. I.Tralleis 1 preserves a Delphic oracle issued in the aftermath of a later earthquake, dating to the mid-third century AD. The inscription offers a case study of how an urban community experienced and managed a seismic disaster at social, political, psychological, and religious levels. The oracle was delivered to a priest of Zeus who had been sent to Delphi as an envoy from the city. The text is brief but dense. Apollo reassured the community that expiatory sacrifices had appeased Zeus' anger, which had caused previous calamities, thereby mitigating the psychological impact of past and present disasters. At the same time, the oracle implicitly emphasised the importance of individual agency. By bearing witness to the priest's successful negotiation with Zeus, Apollo of Delphi contributed to the consolidation of the authority of the priest and, by extension, the civic elite during the crisis. Apollo then instructs the community to appease Poseidon immediately, dismissing the query posed by the community and directing the community to the self-evident divine agent responsible for earthquakes. Rituals are prescribed under the leadership of a priest, with participation from the wider community in the form of offerings and cultic performances. These rituals serve as instruments of recovery, restoring divine protection and reactivating social and civic bonds. The oracle illustrates how religion functioned as a central mechanism of crisis management, structuring the interpretation of risk, coordinating collective action, and supporting resilience. It highlights the religious, social, and psychological strategies that underpinned urban recovery. Affiliation: Giulia Nafissi, PhD Student Scuola Normale Superiore of Pisa giulia.nafissi@sns.it

1384. Samothracian Resilience in the face of Natural Catastrophe

Authors: Bonna Wescoat (American School of Classical Studies at Athens | Emory University)
Format: Oral

The Samothracians were famously resourceful in naval combat (Herod. 8.36-97). They were equally resilient on the island, where natural phenomena, including extreme weather and seismic events, posed fundamental challenges to their primary sacred and financial asset, the Sanctuary of the Great Gods. Positioned in a cleft at the base of a mile-high mountain and framed and bisected by powerful seasonal torrents, the Sanctuary was vulnerable to the very energies that help embody its sanctity. The Samothracians made concerted efforts to control the force of these torrents and to channel them to shape and enhance the sanctuary, which reached its apex in the Hellenistic period. Earthquake and catastrophic storms caused massive destruction in the early 1st and early 2nd centuries CE. The Samothracians' strategies for repair reflect both financial capacity and hierarchies of value assigned to different areas, monuments, and passages within the sanctuary. Following the 1st century catastrophe, roofs were rebuilt and the sanctuary returned to full working order. Following the 2nd century catastrophe, however, the Samothracians were forced to reevaluate. Selective strategic repairs in the areas deemed of greatest value to the fame and function of the cult ensured its viability as a major sacred attraction in the northern Aegean for another century. As the cult lost efficacy and no longer attracted visitors to the island, the Samothracians no longer maintained the pathways and water channels in the sanctuary. The powerful torrent reclaimed the central valley, knocking over huge sections of the retaining walls as it overflowed the narrow banks. The pattern of ancient destruction looks uncannily like the destruction caused to the modern retaining walls by the catastrophic storms in 2017.

830. Natural disasters and civic responses: The epigraphical evidence of Hellenistic honorific decrees

Authors: Antiopi Argyriou (Independent Researcher)
Format: Oral

In the plethora of inscriptions dating from the Hellenistic period, there is a significant part of honorific decrees concerning benefactions related to natural disasters. These are public decrees, inscribed on stone, that were passed in honour of civic benefactors in return for their services to a community and on account of their virtues. Among the several types of benefactions, that are recorded

in the epigraphical evidence, there are numerous examples of services related to natural disasters, i.e. aid or special services offered to a polis in times of crisis, which is the consequence not of human activity (e.g. war) but of a natural catastrophe. Such cases as earthquakes, food shortage, and epidemics constitute serious threats for the lives of the poleis with social, economic, and political implications. In this paper, I shall attempt through some selected case studies to address the following questions: a) In what terms are natural disasters described in Hellenistic honorific decrees, and in what particular contexts? b) How did the affected populations experience such natural disasters? c) What particular strategies were employed by the poleis across the Greek world in the Hellenistic period to respond to such catastrophes? d) What are the social, economic, and political implications of public honours granted to civic benefactors – euergetai – for their services in times of serious natural crises?

2134. Cities at Risk: Environmental Change, Infrastructure, and Resilience in the Ancient Mediterranean

Authors: Paolo Vitti – Alessandro Pierattini (University of Notre Dame)
Format: Oral

Greek and Roman cities are often celebrated for their longevity and resilience, yet many urban communities lived persistently ἐν κινδύνῳ, exposed to environmental change, hydrological instability, and climatic extremes that repeatedly threatened urban life. This paper argues that episodes of stress, disruption, and recovery—rather than only narratives of continuity—offer a privileged lens for understanding how ancient cities anticipated, experienced, and managed catastrophic risk. Adopting an interdisciplinary perspective that combines archaeological, historical, and environmental evidence, the paper examines two contrasting but complementary case studies: the cities of the Latmic Gulf in western Asia Minor, with particular attention to Miletus and its neighbours, and the Argive Plain in the northeastern Peloponnese. In the Maeander delta, long-term alluviation—accelerated by human impact on the landscape—progressively silted harbours, transformed coastal environments, and undermined the maritime foundations of cities such as Myus, Priene, Heracleia, and eventually Miletus itself. Literary testimony, geomorphological data, and archaeological evidence together reveal both sustained investment in mitigation (dredging, canals, infrastructural adaptation) and the limits of such responses in the face of cumulative environmental change. In the Argolid, palaeoclimatic data and archaeological evidence point to recurrent droughts, flooding episodes, and water-supply crises from the Late Bronze Age through the Roman period. Here, large-scale hydraulic interventions—from the Tiryns dam to Roman aqueducts at Argos and Corinth—demonstrate how communities and imperial authorities sought to manage hydrological risk, stabilize urban life, and project political authority through infrastructure, even as such measures sometimes displaced problems or generated new vulnerabilities.

641. Abandoned cities in Roman Hispania: Revisiting the case of Colonia Victrix Iulia Lepida (Velilla de Ebro, Zaragoza)

Authors: Pepa Castillo (University of La Rioja)
Format: Oral

This contribution examines the origins, development, and eventual abandonment of Colonia Victrix Iulia Lepida, later renamed Celsa. Founded ex novo in 44 BC by Marcus Aemilius Lepidus on an elevated terrace along the left bank of the Ebro River, the colony likely received settlers from southern Gaul. Its strategic position on the Ebro transformed Celsa into a key administrative and commercial hub in the middle valley, serving as a redistribution center for riverborne goods. Its importance was further underscored when Agrippa established the imperial mint there in 19 BC. Despite these advantages, the colony entered a gradual decline and was abandoned during the reign of Nero or possibly Galba. The contribution investigates the environmental factors behind this abandonment. Archival records from the sixteenth to nineteenth centuries show that major floods of the Ebro disproportionately affected the left bank. It is plausible that similar hydrological patterns existed in the first century BC, shaping Roman decisions about settlement placement. The concentration of major Roman sites—including Caesaraugusta—on the left bank, often at points of greater river gradient, supports this interpretation. This pattern suggests a deliberate territorial strategy balancing proximity to the river for commercial purposes with the need to mitigate flood risk. To test this hypothesis, the study employs a digital elevation model to simulate flooding in the area once occupied by Celsa. Combined with archival evidence, the analysis argues that Roman authorities responded to environmental pressures by relocating the colony to a more secure yet still river-adjacent location.

1635. Resilient cities in Chalcidica peninsula: moulding criteria for measuring resilience in ancient and modern societies

Authors: Maria Xanthou (University of Bristol)
Format: Oral

Resilience as a term has been used in many ways in different disciplines. UNISDR (2009) provided a more inclusive definition of resilience as the ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management. After a natural disaster it is typical for most efforts to focus on shelter, recovery and reconstruction without due consideration of a wider framework for building back better buildings and at the same time creating infrastructure and institutions that are resilient to different shocks and stresses. However, resilience a more nuanced term as recent ongoing research shows. My paper sets out to examine the case to two Chalcidic cities, namely Potidaia and Olynthos, with different outsets and evolving civic patterns in diachrony. Since their foundation, the urban clusters of Olynthus

and Poteidaea occupied significant geographical locations with Potidaea being located on the Isthmus of Pallene and Olynthus in the hinterland of Chalcidice peninsula with access to the gulf of Torone. Our critical analysis focuses on the resilient, at times symbiotic relation enjoyed by the two cities since the Peloponnesian war. The paper concludes with critical analysis aiming to offer at least a partial understanding of the dynamics of the city-citizen interaction especially in the 4th and 3rd c. BCE for the two cities of the peninsula. Towards this goal, we examine the interactive relation of the two resilient cities in question, aiming to introduce an integrated, multi-disciplinary approach to the crucial factors that largely defined Potidaea and Olynthus geographically, politically, and historically as two cities embracing a sustainable and resilient environment.

604. Crossing the Event Horizon: Urban Crisis and Irreversible Change in the Greek Polis

Authors: Nadia Coutsinas (CReA-Patrimoine, Université Libre de Bruxelles) – Vassilis Evangelidis (Athena RC) – Giannis Mourthos (Ephorate of Antiquities Xanthi)
Format: Oral

This presentation examines the types of crises to which ancient Greek cities were compelled to respond, the urban institutions most vulnerable to disruption, those that demonstrated the greatest adaptive capacity, and the archaeological and historical indicators that signal a threshold beyond which a city's traditional functions could no longer be sustained. Drawing on the concept of the event horizon in physics—the point beyond which escape from a black hole becomes impossible—the study conceptualizes moments of acute urban crisis as critical thresholds after which established political, economic, and social systems either collapsed or underwent irreversible transformation. Rather than treating crisis as a uniform or monolithic phenomenon, the article proposes a typology of archaeologically attested urban "event horizons," including systemic colonial failure, externally induced political collapse, environmentally triggered catastrophe, and shock-driven structural reconfiguration. Indicative case studies range from early Greek colonial settlements and Archaic poleis to urban centres of Late Antiquity. These examples are not intended as exhaustive narratives, but as analytical probes through which broader patterns of vulnerability, resilience, and transformation may be assessed. Situated within current theoretical debates on collapse, resilience, and societal transformation in antiquity, the article argues that the concept of the event horizon provides a productive analytical framework for identifying moments of irreversibility in urban history. By moving beyond binary models of decline versus survival, it offers a more differentiated understanding of crisis as a catalyst for structural change in the ancient Greek world.

805. Craft, Trade, and Urban Space in Wartime Athens (430-380 BCE): The case of the Eastern Workshops of the Athenian Agora

Authors: Aspasia Efstathiou (University of Thessaly | ASCSA)
Format: Oral

The political conditions and the economic difficulties during and immediately after the Peloponnesian War affected all categories of social and economically active groups, as is vividly recorded in the ancient sources. Yet the material evidence for how Athenians and metics (resident aliens) responded to the wartime economic implications remains less clearly understood. How were commerce and craft production organized within the city of Athens during this period? In what ways commercial activities continue during the war and in post-war Athens, and if so, to what extent? What forms of economic activity can be identified in the archaeological record? In this paper, I attempt to shed light on the commercial and craft-based activities and to provide insight into the social and political mechanisms that shaped daily life in the center of Athens during the Peloponnesian War and its aftermath. The study focuses on a complex of largely unpublished Classical-period shops and workshops on the eastern side of the Athenian Agora, dating to 430-380 BCE. A 3D video visualizes the architectural evolution and interior spaces of these buildings, while a detailed archaeological analysis of the material recovered from the fill of a well (U 13:1) in the courtyard of one structure allows the reconstruction of a wide range of production and retail activities. These include a bone- and horn-working, probably associated with a butcher's shop, a tavern, a wine shop, a coroplastic workshop, another producing and selling wedding vases and a possible establishment for weaving. Continuously evolving over some fifty years, these shop buildings at the eastern edge of the Agora tell a story of resilience and sustained productivity, demonstrating how the Athenian marketplace continued to thrive and adapt despite the realities of war.

997. Harbour Defence in The Aegean The Battle Of Ipsos: The Cases Of Ephesos, Asine and Gerakas

Authors: Firat Baranaydin (Ephesos Coordinator Excavation Project)
Format: Oral

The Battle of Ipsos, one of the major turning points in the political structure of the Diadochoi Period, led to a profound transformation of power relations in the Hellenistic world. Prior to the battle, Demetrios I Poliorketes, son of Antigonos Monophthalmos, issued a call for the Corinthian League, in response to which numerous cities crossed into western Anatolia to participate in the conflict. With the death of Antigonos Monophthalmos at Ipsos, Antigonid dominance came to an end. Demetrios Poliorketes subsequently withdrew to Ephesos with a limited force of cavalry and infantry and attempted to maintain his authority through the coastal cities of the Aegean. From this point onward, the Antigonids adopted a predominantly defensive strategy, focused on preserving control over loyal cities rather than pursuing expansionist policies. This study examines the final defensive network developed by Demetrios Poliorketes in the Aegean through the cases of Ephesos, Asine, and Gerakas. These cities respectively represent a major naval base, a regional harbour centre, and a naturally protected small bay settlement. This study also addresses the continuity and

transformation of Late Classical urban and harbour infrastructures in the early Hellenistic period. The research is based on archaeological data obtained from systematic surface surveys conducted in western Anatolia, Attica, and the Peloponnese since 2022. The analysis focuses on the declining military and economic capacity of Demetrios Poliorketes and evaluates the defensive functionality of natural topography, harbour control systems, urban layouts, and construction techniques. Overall, the study demonstrates that Aegean port cities of the Diadochoi Period developed crisis-oriented defensive models in response to the aftermath of large-scale warfare. These models reflect a forced transition from expansionist strategies to locally based, continuity-oriented, and resilience-focused defensive practices.

1472. "Moving Cities"? Cities in Exile in the Ancient Greek World

Authors: Katerina Panagopoulou – Eirini Stagkouraki (University of Crete)
Format: Oral

The present paper revisits those groups of citizens who, on account of some severe military threat or attack, or indeed because of some internal social conflict in their hometowns, were forced to relocate collectively to different cities, but eventually returned to their homelands or refounded them at a later stage. Through cases spanning from Northern Greece through to Crete, this research explores how citizens' mass relocations were inflicted and occurred from the Archaic through to the late Hellenistic period. Instances such as Ichnai (Macedonia), Athens, Sparta, Megalopolis, Lyttos, Andros, and several Thessalian cities after 198 BC will be laid out and compared, in order to grasp the underlying mechanisms that sustained these wandering civic communities during exile and which eventually enabled their return. We will address issues such as: what role did the polis's oikoi structure play in facilitating or blocking mobility? In how many cases, and in which, was there any prior preparation for citizen relocation? How, and why, did exiles maintain their initial civic identities, and respect their homeland's allies and treaties? Ought their attitude to be interpreted as lack of adaptability to the new circumstances? What was the longer-term impact of such civic destructions and exiles? In what ways were exiled communities manipulated by external players? In what ways did philanthropia and religion comfort those communities, enabling their return preference over staying in host cities?

812. Coins of Crisis: Urban Resilience in the Third-Century Roman Balkans

Authors: Evdoxia Mintzaridou (Aristotle University of Thessaloniki)
Format: Oral

Throughout the third century AD, cities of the Roman Empire faced prolonged pressures from military insecurity, political instability, economic disruption, and recurrent epidemics. Urban communities negotiated these conditions not as isolated crises but as sustained vulnerability requiring coordinated strategies for survival and continuity. Numismatic imagery offers a window into how civic authorities articulated resilience, mediated social stress, and projected urban identity during periods of uncertainty. Coinage from Thessaloniki, Perinthus, Sparta, and Nicopolis is analyzed as part of these material practices. In Thessaloniki, fortification imagery combined with the city's patron deity signaled collective protection and civic preparedness under heightened military pressure. Spartan coin types featuring Hermes and Dionysus are interpreted in relation to recurrent epidemic outbreaks and elevated mortality, emphasizing health, regeneration, and demographic continuity. In Perinthus and across the Balkan provinces, shifts in metal supply, denomination, and circulation patterns reflect localized economic adjustments to inflation, resource scarcity, and imperial demands. A comparative perspective demonstrates that coinage functioned as a civic medium, embedded in everyday economic and social practices, through which urban authorities communicated stability, reinforced institutional cohesion, and facilitated recovery. Integrating numismatic, archaeological, and historical evidence, the study shows that resilience in the third-century Roman Balkans was enacted more through negotiated, place-specific strategies than through centralized imperial intervention.

881. Antioch AD 384 to 385

Authors: Kristian Christensen (Stellenbosch University)
Format: Oral

This paper investigates the response to famine in the city of Antioch in Roman Syria in AD 384 to 385. The evidence derives from five Orations (26, 29, 27, 28, 50; their numbering is not chronological) by the city's teacher of rhetoric, Libanius. Through these we are given a highly partisan view of the Count of the East, Icarius. The changing mood of the orations (which progress from praising the Count to holding him blameless while condemning his subordinates for mistakes to denouncing the Count himself by name to the emperor Theodosius) shows the fault lines of the 4th century civic order being laid bare by the sudden outside pressure of the famine – and, in its wake, of an epidemic as well. Thus, in Libanius' condemnation of the theatre claque and their demand for caps on bread prices, one sees the Count responding to popular demands that contradict the interests of Libanius' clients among the bakers. Similar criticisms elsewhere in the orator's oeuvre indicates that the direct communication between Count and populace in the theatre was in general considered a threat to the role of the Antiochene curial class (to which Libanius belonged) in the administration of the city. Furthermore, Libanius' complaints about the company kept by Icarius and the dinner invitations he accepts reveal a second threat at the other end of the social scale: the establishment of private relations between the Count and prosperous individuals that allow the latter prestigious roles in city management. While these conflicts must have existed both before and after the famine, it is the famine that brings them into the light. Libanius' Orations thus show us an ancient community responding to a crisis, but also that crisis tearing at the seams that hold the community together.

864. Oresteion: Views on the abandonment of an Arcadian city during the foundation of the city-state of Megalopolis after 371 BC

Authors: Stamatis Fritzilas (Research Center of Antiquity, Academy of Athens)
Format: Poster

This essay examines the historical context of the abandonment of Oresteion, a town in the Maenalia district of south-western Arcadia, after the establishment of Megalopolis. Oresteion is also known as Oresthasion. According to legend, the city was founded by Orestes. The remains of the Arcadian town were uncovered between 2008 and 2014. Oresteion played a part in the creation of Megalopolis. Mainalian Oresteion was a precursor to Megalopolis. When Megalopolis was founded in 371 BC, it was the first large-scale urbanisation project in rural Arcadia and remains one of the best-known examples of classical Greek synoecism. The city was eventually abandoned, with the inhabitants removing valuables and weapons from the houses. The Mainalian city and its territory, Oresthis, probably came under Megalopolitan control. The excavated buildings date to the years before and after the Battle of Leuktra in 371 BC. Most of the artefacts found are unpainted pottery and black-glazed vases, which were used for serving food and drink, lighting, and transporting and storing solid and liquid products. The layer of the city's abandonment can also be dated using coins. Uncovering the Oresteion settlement sheds new light on the archaeology of the Peloponnese. The old city was uninhabited during the Hellenistic and Roman periods. The inhabitants of ancient Oresteion played a part in creating the famous city of Megalopolis. It is no coincidence that the entire southern part of Arcadia's federal capital was named Orestia. The last historical evidence for the city of Oresteion dates to June 362 BC. During the sudden invasion of Laconia by Epaminondas, King Agesilaus II of Sparta (c. 400–360 BC) advanced from Oresteion and caught up with the opposing troops that had set off from Tegea. New data from the fourth century corroborates ancient sources on catastrophe management in the ancient Mediterranean world.

1899. Late Antique Thessalonica after the Notorious 620's Earthquakes: Strategies, Measures and Rehabilitation Works towards Urban Recovery

Authors: Konstantinos Raptis (National and Kaposistrian University of Athens)
Format: Poster

During the third decade of the turbulent seventh century CE, and just after the fifth attempt of the Avars and Slavs to besiege the city, the urban history of Thessalonica was marked by intense seismic activity, described in the second book of St Demetrius's Miracles. These notorious 620's series of earthquakes, proven by archaeological evidence and the architectural analysis of the city's surviving structures, seem to have destroyed large part of the city, including sections of the fortification, urban infrastructure and most of the private and public, both secular and ecclesiastical buildings, shifting Late Antique Thessalonica into the Early Middle Ages. The proposed poster —acting as a chronological epilogue to the discussion of this panel on the response to natural catastrophes in Greek and Roman Antiquity— examines the extent of the seismic damage hazards and effects on the urbanscape of a continuously active urban center, as Thessalonica, by the aforementioned natural disaster. On the basis of literary sources, archaeological data and the documentation of the traces that this catastrophe and the subsequent damage rehabilitation have left on the masonries of the city's monuments, the poster also traces and discusses the subsequent response to the natural disaster, the administrative strategies, measures and restoration projects undertaken in a short period of time towards urban recovery.

162 WHAT CAN THE FUNERARY MONUMENTS REVEAL?: MATERIALS, ICONOGRAPHY AND IDENTITY

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Vasiliki Anevlavi (National Hellenic Research Foundation | Austrian Archaeological Institute, Austrian Academy of Sciences) – Petya Andreeva (National Archaeological Institute With Museum, Bulgarian Academy of Sciences) – Chiara Cenati (University of Vienna)
Keywords: Funerary monuments, Graeco-Roman world, Archaeometry, Iconography, Epigraphy, Connectivity
Format: Regular session

SESSION ABSTRACT

Funerary monuments constitute one of the most enduring and informative categories of archaeological evidence for reconstructing ancient societies. This session aims to explore their diachronic importance in the Graeco-Roman world, from the Archaic to the Late Antique period, through an integrated examination of their materials, iconography, and inscriptions. By approaching funerary stelae, sarcophagi, slabs, altars, columns, mausolea, etc., as composite artefacts—products of artistic, economic, cultural, political, and social processes—the session seeks to highlight the multiple dimensions of identity they express. Particular attention will be given to the provenance and selection of materials, including marble, limestone, and other stones, as well as terracotta and mixed media. Recent archaeometric studies show that material choices were not only aesthetic or practical, but also deeply connected to trade networks, local availability, and expressions of status, community and belonging. These production and distribution patterns offer insights into regional self-sufficiency, long-distance connectivity, and workshop organisation. Equally significant is the iconographic

and epigraphic evidence: the depiction of the deceased, the divine figures or mythological motifs that accompany them, and the language, names, and dedications inscribed on the stone. Such evidence provides a refined understanding of social and familial identity, professional role, and ethnic or geographic origin. This session invites contributions combining archaeological, archaeometric, art historical, and epigraphic perspectives, encouraging comparative approaches across regions of the Mediterranean and beyond. By integrating material, visual, and textual analyses, the session seeks to reframe funerary monuments not just as commemorative objects, but as complex vehicles of memory and identity—artefacts that link personal commemoration with broader social, cultural, and economic networks.

CONTRIBUTION ABSTRACTS

2512. The Funerary Monument of Lysis and Fourth-Century Athens

Authors: Geoffrey Bakewell (Rhodes College | College Year in Athens)
Format: Oral

The funerary monument of Lysis (Piraeus Museum 3281) reveals more about fourth-century Athens than about the deceased. Literary sources contain considerable information about Lysis. The main interlocutor in an eponymous Platonic dialogue, he belonged to a hippic family whose members included victors at Delphi, Isthmia, and Nemea. He was well-educated and musical, with looks and manners that made him a sought-after eromenos. Association with Socrates eventually won him a reputation for morality (D.L. 2.29). Yet his funerary monument is unremarkable. Its upper portion is a stone loutrophoros made of white Pentelic marble; it bears a dexiosis relief in which the seated, elderly Lysis extends his hand to his adult son Timokleides. Both men wear himatia; an unidentified, younger woman stands behind Lysis' klismos. The base, made of bluish-gray Hymettian marble, is inscribed with four brief lines containing the two men's names, patronymics, and demotics. The ordinariness of the monument is however revealing about aspects of life in fourth-century Athens. Its resemblance to other contemporary funerary monuments (including Agora S 2213), along with the generic depictions of the three figures, suggests the purchase of a semi-finished loutrophoros, perhaps from stock, to which individualizing touches were then added. The surviving lead in a circular cutting atop the base indicates that the two pieces were likely joined at the grave site. The inscribed lines on the base identifying Lysis are more carefully cut than those identifying Timokleides; the father's grave site and monument may have been reused for his son. The striking color contrast between the top and bottom parts demonstrates the migration of an artistic motif from expensive public buildings to cheaper private monuments. Finally, the find spot of the gravestone at the intersection of Taxiarchon and Thessalonikis Streets in Moschato hints at yet later reuse in repairs to the Long Walls.

1398. From Fragmentation to Form: Funerary Klinai and Cultural Transfer in Hellenistic Callatis

Authors: Maria-Magdalena Stefan (National History Museum of Romania) – Dan Stefan (National Museum of the Eastern Carpathians) – Laurentiu Angheluta (Luthonium Virtual Heritage) – Valentin Stefan (Metamorfozys)
Format: Oral

We will present two newly discovered funerary stone beds from Callatis – ancient Greek polis on the western Black Sea – currently the only fully reconstructable examples of this category known in the region. The klinai were identified last year in a vaulted tomb covered by a monumental tumulus dated to the 3rd century BC. Looted in antiquity, the tomb's disturbance severely affected the structural integrity of both beds, which were preserved in a highly fragmentary state. Functionally, they were used as sarcophagi for wooden coffins with inhumed deceased. They reproduce the form of funerary couches, with close analogies in Macedonian elite contexts, pointing to the circulation of architectural models associated with high-status burial practices. Their execution, however, differs markedly: one monument displays more refined workmanship and the use of red pigments, while the second reflects a more local interpretation of the same formal prototype. This contrast offers a rare opportunity to examine workshop practices, production networks, and local adaptations of prestigious Mediterranean forms within a frontier environment. The painted funerary bed was moved from the tomb and has just been reconstructed in the permanent exhibition of the National History Museum in Bucharest. Prior to restoration, the monuments were digitally documented through high-resolution 3D scanning in situ and piece by piece after removal. Pigment and organic deposit analyses were carried out, enabling their reconstruction as composite artefacts integrating architecture, colour, and associated grave goods. The presentation aims to foreground digital documentation as a critical interpretive tool, enabling the reassessment of dispersed fragments and the formulation of multiple restoration hypotheses. Our contribution argues that elite funerary monuments from the edges of the Greek world acted as agents in negotiating identity, hierarchy, and belonging, revealing Callatis as a dynamic zone of cultural transfer rather than a passive periphery.

101. The sarcophagi of the Philippopolis gerousiastai and the construction of a group identity

Authors: Lyuba Radulova (Sofia University "Sv. Kliment Ohridski")
Format: Oral

The paper examines a group of three inscriptions (IGBulg III, 1, 992, 995, AE 2005: 1389) from Philippopolis which present striking similarities regarding both the physical characteristics of the monuments and the form and contents of the funerary inscriptions. After a brief presentation of the monuments, the study focuses firstly on the onomastic and prosopographic analysis of the persons involved, observing closely their legal and social status and ethnic background. Secondly, a textual analysis of the epitaphs aims at

individuating local and foreign linguistic and conceptual patterns, mainly related to the sphere of Greco-Roman funerary law. At last, the paper tries to find parallels of the social, linguistic and legal phenomena attested in the texts, both in the area of Philippopolis and elsewhere. The study of the selected epitaphs allows us to reconstruct a complex social and cultural reality in which the funerary monuments act as both means and visible expression of the construction of a group identity.

1801. Data on two graves of the western necropolis of Novae, Northern Bulgaria

Authors: Marin Marinov (Museum of History - Svishtov)
Format: Oral

In 2025, rescue archaeological excavation was carried out at the western necropolis of the Roman legionary fortress and a later Roman and early Byzantine town Novae, Northern Bulgaria. All the graves investigated had been previously looted. Among them, two stand out, discovered dug next to each other, at different stratigraphic levels. The earlier grave is built mostly of bricks, some of which have stamps of the First Italic Legion stationed in Novae. The only legible stamp is dated to the first quarter of the 3rd century. A bone hairpin, dated to the late 3rd - early 4th century, found among the scattered skeletal remains in the grave, provides the earliest possible date of its construction. Similar graves have been archaeologically excavated in the southern necropolis of Novae, the latest funerary monuments from which date back to the late 3rd century. Data on the eastern necropolis indicate that it ceased to exist in the early 260s due to the Gothic invasions. Possibly, the western necropolis was also affected by these invasions. It is assumed that the repair of Novae after the invasions began after 280 and before 310. No earlier than then, in, on and around the looted brick grave, was rammed loess, into which the later grave was dug. It is a cist, built with reused limestone slabs. Two of them are stelae from earlier graves: that of a Roman soldier and that of a veteran of the Claudius' Eleventh Legion. Cist graves have not been archaeologically excavated in the other necropolises of Novae; two accidental discoveries are known. The design of both graves and especially the materials chosen for the construction of the cist suggests a preference for efficiency over quality. A possible reason is a change in the socio-economic status of the population to which the necropolis belonged.

2644. The Mound of the Griffin in the Crati valley and the questions it raises

Authors: Diana Gergova (National Academy of Art Sofia) – Massimo Massimo Di Salvatore, Historian And Archaeologist, (University of Macerata) – Vincenzo Rizzo (CNR)
Format: Oral

The monumental Mound of the Griffin, near Bisignano, province of Cosenza, Italy, has raised many questions, caused by its impressive size of 22m height and by the fact that it is an "anomalous" presence in the archaeological landscape of Calabria. A complex of interdisciplinary investigations have answered to some of the questions. Lithological, geomorphological and morphogenetic studies have highlighted its natural geological composition, but its artificial shape, perfected by remodelling a natural slope. The date of the colluvium by thermoluminescence methods around the middle of the first millennium BC suggests the date of these activities. The very limited archaeological excavations at the base of the mound have revealed stone structures that are difficult to date and identify. This "anomalous" for Calabria tumulus demonstrates morphological, constructive and symbolic affinities with the tumuli of the Hellenistic Thrace and Macedonia, in the similar approaches in the modelling of the natural reliefs, in the building mounds on rock formations, etc. The dating, the symbolism and construction methods give reasons to some archaeologists and historians to raise the hypothesis that The Mound of the Griffin might be connected with some historical events that took place at that time – namely with the military campaigns and the tragic end of Alexander I of Epirus on the battlefield in Italy. Future larger-scale studies would certainly provide answers to these assumptions.

1236. Funerary Monuments and Identity in the Argolid, the Northern Peloponnese, and the Corinthian Apoikiai (7th–6th centuries BCE)

Authors: Malwina Grabowska-Zywar (University of Warsaw | The Polish Archaeological Institute at Athens)
Format: Oral

This paper examines funerary stone monuments with verse inscriptions from the Argolid, North Peloponnese, and Corinthian colonies (7–6th century BCE) as composite artefacts, showing how they encompass local identity, regional networks, and the panhellenic influences. This interdisciplinary paper analyses a range of inscribed funerary monuments, which, as the author argues, were clearly influenced by the panhellenic phenomenon of epic poetry while simultaneously rooted in local context through the selection of stone and monument form. The paper presents results from a part of the author's doctoral research, focusing on three key remarks: (A) A comparative analysis of burial markers across regions shows that in the Archaic period both inscribed and non-inscribed monuments were initially produced from locally available stone. In the case of colonies, this usage of local materials was combined with the adoption of monument forms, epichoric alphabet, and literary conventions shared with the metropolis. These results will be considered in the context of cultural mobility, highlighting how social practices and monument forms could circulate within mentioned areas. (B) Analysis of the archaeological evidence for burial customs and the content of inscriptions shows that some formulae, typically interpreted as conventional literary motifs, may in fact reflect local burial practices. (C) The emergence of a new type of funerary monument (i.e., with engraved verse inscriptions) did not lead to changes in burial forms but appears to be closely connected with the establishment of new burial sites in the late Archaic period in the Northern Peloponnese and the Argolid (e.g., Western Cemetery in Troezen). Possible implication of that phenomenon for the perception early archaic communities will be

presented. These preliminary results demonstrate how funerary monuments functioned as the product of both local identity and broader panhellenic cultural connectivity.

1387. Reflections of Local Identity through Representations of Gods in Lycian Funerary Art

Authors: Bilsen Özdemir (Nevşehir Hacı Bektaş Veli University) – Hava Keskin (Akdeniz University)
Format: Oral

The southwestern coast of Anatolia in antiquity was known as Lycia, and its inhabitants were called the Lycians. They are regarded as one of the indigenous peoples of Anatolia. In Late Bronze Age sources, the Hittites referred to them as Lukka; Homer described them as allies of Troy, while Herodotus portrayed them as a people who chose death rather than surrender to the Persians. These accounts emphasize their strong sense of independence. Modern scholarship generally agrees that Lycia possessed a distinctive cultural identity, clearly reflected in its language, belief systems, and especially its funerary practices. Tombs constitute the most significant material remains for understanding Lycian society. The diversity of tomb types—rock-cut tombs imitating wooden architecture, sarcophagi with high chests and saddle-shaped lids, pillar tombs, and monumental tombs with high podiums—demonstrates the richness of Lycian funerary architecture. In particular, the imitation of wooden architecture is crucial for interpreting Lycian beliefs about the afterlife. Reliefs and inscriptions on tombs further enhance our understanding of Lycian concepts of death and religion. However, certain Late Archaic and Classical funerary monuments display god iconographies that appear to challenge the idea of a purely local Lycian identity. A notable example is the Harpy Monument at Xanthos, where Demeter and Persephone are depicted despite their absence in local inscriptions. Similarly, the appearance of the Egyptian god Bes on the Trysa Monument reflects this cultural tension. This complexity is further highlighted by the Bellerophon rock tomb at Tlos, where the Bellerophon–Chimera relief appears in the antechamber, while the Lycian god Trqqas is depicted on the pediment. These cases raise questions about what should be considered "local" in Lycian culture. This paper examines the identities and functions of gods and goddesses in Lycian funerary art, with a focus on cultural interaction and local identity.

650. Dying as a Roman, Dying as a Barbarian: Funerary Iconography as a Marker of Cultural Identity

Authors: Martyna Marszałek (University of Wrocław)
Format: Oral

This paper examines Roman artistic representations of death in the Italian Peninsula during the 1st–3rd centuries CE, focusing on how Romans depicted both themselves and so-called "barbarian". By analyzing visual motifs in monuments, reliefs, and other material evidence, it explores how iconography communicated social, cultural, and political identities from a distinctly Roman perspective. Roman figures are typically depicted in composed, dignified postures, reflecting civic virtue, military valor, and social status. Their deaths are shown as orderly and morally sanctioned, emphasizing continuity, memory, and personal honor, and projecting a self-determined, coherent identity within Roman society. Barbarian figures, in contrast, often appear in dynamic, contorted, and sometimes violent poses, particularly in battle scenes or as defeated foes. These depictions highlight vulnerability, defeat, and the absence of individual commemoration, reinforcing alterity and social marginalization. Interestingly, suicide deaths followed a different logic. In Roman visual and literary culture, barbarian suicide was frequently interpreted as an act of courage or honor, especially in contexts of defeat or captivity. Such representations could depict the act with restraint and dignity, temporarily suspending the usual contrast between orderly Roman and chaotic barbarian death. By integrating archaeological, art historical and epigraphic perspectives, this paper shows that death imagery functioned not merely as commemoration but as a means of expressing social hierarchies, cultural identity, and notions of otherness. It also accommodated exceptional cases, such as suicide, which complicate standard ideas of honor, memory, and belonging, demonstrating the nuanced ways in which funerary and commemorative iconography reflected identity in the Roman world.

1512. Gladiatorial Tombstones in Roman Thrace: Iconography and Material Context

Authors: Petya Andreeva (National Archaeological Institute with Museum, Bulgarian Academy of Sciences) – Vasiliki Anevlavi (National Hellenic Research Foundation | Austrian Archaeological Instiute, Austrian Academy of Sciences) – Walter Prochaska (Austrian Archaeological Institute, Austrian Academy of Sciences)
Format: Oral

This paper examines gladiatorial tombstones from Roman Thrace through an integrated analysis of iconography and material context. While such monuments from other eastern provinces have received considerable scholarly attention, the Thracian material remains comparatively understudied, despite offering valuable insights into provincial visual culture and commemorative practices. The study focuses on the representation of gladiators in relief sculpture, exploring recurring iconographic schemes, attributes, and compositional choices that construct the identity of the deceased. Particular attention is paid to how imagery communicates status, professional role, and memory within a provincial environment shaped by both local traditions and imperial models. Alongside visual analysis, the paper considers the material aspects of these monuments, including stone types, carving techniques, and evidence for local workshops, in order to situate the tombstones within their broader archaeological and economic context. By combining art-historical and archaeological approaches, this research seeks to reassess the relationship between image and materiality in the funerary commemoration of gladiators. The evidence from Roman Thrace suggests a dynamic interplay between standardized imperial iconography and regional adaptations, revealing how provincial communities engaged with the visual language of the arena.

Ultimately, the paper argues that gladiatorial tombstones functioned not only as markers of burial but also as powerful media of social identity, memory, and cultural interaction within the eastern provinces of the Roman Empire.

28. Dining with the Dead: Funerary Banquet Scenes and Social Identity in the Middle Strymon Valley (Roman Macedonia, Southwestern Bulgaria)

Authors: Philip Kolev (National Archaeological Institute with Museum, Bulgarian Academy of Science)
Format: Oral

Funerary monuments represent a crucial source for exploring social identity, cultural affiliation, and connectivity in the Graeco-Roman world. This paper examines funerary banquet scenes (coena funebris) on funerary stelae from the Middle Strymon Valley, a region situated within the Roman province of Macedonia in present-day southwestern Bulgaria. Located along major communication routes between Macedonia and Thrace, the Middle Strymon Valley formed a zone of sustained mobility and cultural interaction. The funerary banquet motif is approached not as a literal representation of ritual practice, but as a symbolic visual language rooted in Hellenistic traditions of heroisation and commemoration. In the Middle Strymon Valley, the motif is attested on 28 complete or fragmentary funerary stelae, suggesting that it was not among the most widely adopted iconographic themes in the region. A similar pattern can be observed in the province of Macedonia as a whole. Although the earliest monument depicting a funerary banquet dates to the Hellenistic period, this iconography achieved its widest dissemination during the Roman Imperial period. Several characteristic regional features may be identified, including the representation of more than one reclining male figure, the presence of female divinities, and the combination of the funerary banquet motif with other iconographic scenes, such as family busts and the Heros equitans. Onomastic evidence further reveals a mixed population, including individuals with names that may be interpreted as Thracian, among them the earliest attested inscription of a person of Thracian origin in the Middle Strymon Valley, as well as persons bearing Greek names. Roman citizens are likewise attested. Notably, two of the funerary stelae record individuals who served in the Roman army. Taken together, the iconographic and epigraphic evidence shows how funerary monuments were used by local communities to articulate identity, memory, and belonging within a culturally interconnected provincial landscape.

87. Sepulchral monuments with a convivium scene in the Roman province of Dalmatia

Authors: Mihajlo Džamtovski (University of Vienna) – Amra Šačić Beća (University of Sarajevo)
Format: Oral

The province of Dalmatia was one of the largest Balkan provinces of the Roman Empire, encompassing the present-day territories of the Croatian littoral, most of Bosnia and Herzegovina, western Serbia, the entirety of Montenegro, and northern Albania. As such, it has yielded a large number of monuments displaying a wide range of iconographic elements and compositional schemes. One of the most widespread motifs on sepulchral monuments throughout the Roman Empire was the convivium (banquet) scene, which evokes the festive consumption of food and drink. Although this motif has eastern origins, it spread widely into the western provinces, including the neighbouring Pannonian provinces. In the Roman province of Dalmatia, however, convivium scenes appear to have been relatively uncommon, with a proportionally small number attested in comparison to the overall corpus of sculpted sepulchral monuments. The majority of examples originate from sites near the Drina River (e.g. Užice–Srebrenica–Prijepolje triangle), but can also be found in the area of Zenica, Tomislavgrad, and Salona. The aim of this study is to analyse the monuments featuring convivium scenes within the territory of Dalmatia, examining their spatial distribution, chronology, and iconographic characteristics, and, where epigraphic evidence permits, to identify the social profiles of the individuals who commissioned them.

592. Epigraphic Evidence and Marble Provenance: A Multidisciplinary Approach

Authors: Chiara Cenati (University of Vienna)
Format: Oral

Funerary inscriptions represent a crucial source for the study of ancient societies. As they often provide precise information on the date, context of production, function, and commissioners, they allow valuable insights into social identity and cultural values. Inscriptions can also reveal variations in marble use linked to trade routes and changing funerary habits. The integration of epigraphic, historical, and archaeometric data allows these aspects to be examined within a unified interpretative framework. A multidisciplinary approach combining material analysis with the study of inscriptions and historical context makes it possible to investigate the social significance of marble selection and dedicatory choices. By systematically analysing funerary inscriptions with known provenance, this type of research can reconstruct networks of trade, patterns of consumption, and cultural meanings attached to marble use in the funerary sphere. Selected case studies will illustrate how this combined methodology can deepen our understanding of the social and cultural dimensions of Roman funerary monuments.

1296. Unpublished funerary inscriptions from the territory of Serdica, 3rd-4th c. AD

Authors: Stefani Daneva (Sofia University "St. Kliment Ohridski")
Format: Oral

The paper concerns a group of funerary monuments with Latin inscriptions from Serdica and its surroundings, which have been

discovered over the past century. The largest number of monuments has been found in the locality of the village of Tchekanchevo, east of ancient Serdica (modern Sofia). The monuments bear specific and unique features and have been dated to the end of the III c. AD and the beginning of the IV c. AD. Despite the fact that this group has been the object of scholarly research, the inscriptions on some of these monuments have not yet been published. All readings presented in the paper are based on direct examination of the monuments (ex autopsia). The author provides new and revised readings for the unpublished monuments and analyzes the texts in a broader local historical context. The inscriptions provide new insights into the prosopography and the social structure of the local community from the surroundings of Serdica.

877. The Pool of Choices: Meaning, Material, and Means in the Commissioning of Stelae at Viminacium

Authors: Ines Ferjan (University of Edinburgh)
Format: Oral

The commissioning of funerary stelae at Viminacium (modern Kostolac, Serbia), a major urban centre of the Roman province of Moesia Superior, was shaped by a complex interplay of economic, social, and practical considerations. This paper examines the factors influencing the commissioning of stelae during the Roman period, with particular emphasis on material selection, the social status of the commissioner, and the labour investment required for production. In order to assess social status, the analysis is restricted to stelae with inscriptions that are sufficiently preserved to allow identification of the commissioner's status. The dataset comprises stelae carved from marble, limestone, and travertine, enabling comparative evaluation across different materials. Following this analysis, the study briefly presents estimates of the labour investment involved in the carving of marble and limestone stelae. Labour estimates are based on Pegoretti (1843-4, Manuale practico per l'estimazione dei lavori architettonici, stradali, idraulici e di fortificazione per uso degli ingegneri ed architetti), whose work has been employed in previous studies of ancient labour and energetics in stone carving. These calculations demonstrate that carving of a one-storey architectonic marble stela at Viminacium required a substantially more labour than producing comparable limestone examples. Despite these differences, the results indicate that most commissioners, irrespective of material choice, belonged to broadly similar social strata. This suggests that factors beyond social status and production costs, such as personal preferences, material availability, and logistical feasibility, played a significant role in the decision-making process underlying the commissioning of funerary stelae in Viminacium.

1530. Apse-sarcophagus workshops in the marble quarries of Thasos during the Roman period

Authors: Manuela Wurch Kozelj – Tony Kozelj (Independent Researcher)
Format: Oral

In our study of the ancient quarries of Thasos, we have identified a few unfinished apse sarcophagi in the quarries Vathy III, Saliara 3 and Saliara 5. Due to their different states, from the first shaped volume to the hollowed-out coffin, we propose to recognize these locations as workshops for carving apse sarcophagi. As no apsidal sarcophagi have been recorded in the Thasian necropolises, consequently, this production of white marble sarcophagus coffins was intended for export; and more specifically for Rome. Some apse-shaped coffins from Saliara-Vathy have been identified in the cargo of the shipwreck San Pietro. Moreover, coffins of this type can be found in the Storage of the National Museum of Rome. Many questions arose, namely how the work could be carried out, taking in account the difference in units of measurement, Thasian or Roman foot? We have highlighted that : -the extraction, the shaping and the hollowing of the coffins within the quarry were carried out by Thasian workers, quarrymen and stonecutters, in the thasian foot, -but at the time the coffins were ready to leave the quarry, -at this state of work-, their measures were in both modules, thasian and roman foot-units. Rather than seeing this as a coincidence, we suggest interpreting it as a mark of knowledge, high level skill of work-streamlining followed by a exquisite craftsmanship. A perfect coordination of the work, so that these coffins correspond to a prepared work done by Thassian quarry-men and stone-cutters using the thasian foot, to be followed by Roman sculptors, who could executing the ornamentation without difficulties, sculpting as usual in modules of roman foot.

189. Materials, Architecture, and Identity in the Tomb of the Scipios: A Diachronic Approach

Authors: Michela Stefani (Independent researcher)
Format: Oral

The Tomb of the Scipios is one of the most important funerary monuments of ancient Rome. After nineteen years of closure, it was reopened to the public on 15 December 2011 following extensive restoration work carried out by the Soprintendenza Speciale di Roma, which respected the layout of the archaeological area designed by A. M. Colini in 1929. Located along the Via Appia, outside the Porta Capena in Rome, the site constitutes a complex funerary palimpsest spanning several centuries. In addition to the celebrated Scipio hypogeum, the area includes a series of Republican tombs, two Augustan columbaria, a large tuff foundation, and a funerary building with a small catacomb dating to the fourth century AD. Together, these monuments offer a unique opportunity to investigate a funerary landscape representing multiple social strata and commemorative strategies. This paper presents an architectural and decorative analysis of the funerary structures within the Tomb of the Scipios complex, examined in close relation to their spatial, historical, and social context. Through a diachronic approach, it explores the evolution of architectural forms, decorative programs, and ritual practices from the Republican to the Imperial period. The study also considers the materials employed—such as tuff, limestone, and other stone types—addressing issues of provenance, availability, and technical choices. By integrating architectural, decorative, and material evidence, the paper aims to demonstrate how funerary monuments functioned as markers of

identity, memory, and social positioning, closely linked to the economic resources and cultural aspirations of their commissioners within the broader funerary landscape of Rome.

1597. Revealing Ritual Landscapes: An Integrated Approach to the Roman Necropoleis of Pisidia and the Kibyratis

Authors: Tamara Dijkstra (Fryske Akademy | University of Groningen) – Caroline Van Toor (University of Groningen)
Format: Oral

The Roman necropoleis of Pisidia and the Kibyratis preserve an enormous and varied corpus of stone funerary monuments. Originating from both major urban centres and smaller settlements, these monuments range from built house tombs and relief-decorated sarcophagi to modest rock-cut niches, stelai, and ostothekai. Most have long been emptied or displaced; they survive today as de-contextualized objects, severed from the spatial and experiential settings that once shaped their meaning. Traditional scholarly divides have reinforced this fragmentation by treating archaeological aspects, iconography, and epigraphy in isolation. This paper advances a holistic approach that treats funerary monuments as composite artefacts-integrating materiality, imagery and text-and reconnects them to their spatial and temporal contexts. Such an approach yields fuller insight into local identities, modes of self-representation, and social strategies, while also illuminating patterns of production and use, regional variation, and continuity and change in commemorative expressions. It further sharpens our understanding of local eschatological expectations—visible for instance in the spatial, visual and textual emphasis on continued coherence of the oikos. Finally, it shows that communities used their tombs to communicate a sense of belonging at multiple scales: from the household, the local community, the region, to the wider Roman world. By reconstructing cemeteries as ritual landscapes, this integrated approach provides new insights into the behaviours, practices, and beliefs enacted within them—it brings into focus different forms of commemoration, networks of connectivity, and localised preferences that have thus far remained obscured.

743. The Evolution of Imagines Maiorum in Roman Funerary Culture

Authors: Martyna Marszałek (University of Wrocław)
Format: Poster

This poster examines the origin, development, and transformation of imagines maiorum — Roman ancestral death masks — as a central element in the culture of commemorating the dead from the early Republic into the Imperial period. Drawing on literary evidence and archaeological sources, it traces how these masks functioned within broader practices of funerary ritual, memory, and identity in the Roman world. The tradition of imagines maiorum likely derives from earlier Etruscan practices of honoring ancestors, with possible influences from Greek funerary customs emphasizing portraiture and commemoration. In Rome, the deceased's face was reproduced in bee-wax, creating lifelike masks that were preserved in the atrium of elite households and displayed during funeral processions. These masks functioned as visual and performative tools, communicating familial lineage, social status, and collective identity across generations. As material evolved, wax masks gradually lost prominence, replaced by more durable media such as sculpted marble portraits and funerary reliefs. Despite the change in material, the underlying Roman concern for preserving the deceased's features and sustaining memory remained central, ensuring continuity between ephemeral ritual objects and lasting monuments. By tracing the evolution of imagines maiorum and their possible Etrusco-Greek tradition this poster highlights their enduring role as vehicles of memory, identity, and social belonging in Roman funerary culture.

931. From Dokimeion to Aphrodisias: A Reassessment of Marble Provenance and Workshop Relations of Roman Period Sarcophagi from Perge (Pamphylia)

Authors: Murat Dirican (Leiden University, Faculty of Archaeology) – Vasiliki Anevlavi (Austrian Archaeological Institute, Austrian Academy of Sciences | National Archaeological Institute With Museum | Bulgarian Academy of Sciences, Sofia) – Walter Prochaska (Austrian Archaeological Institute, Austrian Academy of Sciences) – Taner Korkut (Akdeniz University, Department of Archaeology)
Format: Poster

This article presents a comprehensive re-evaluation of the marble provenance of Roman-period sarcophagi from Perge (Pamphylia), integrating the typological and archaeometric framework established by Korkut and Dirican (2020) with newly acquired multi-proxy analytical data generated at the Austrian Archaeological Institute (OeAW). While the earlier study questioned the long-standing attribution of Pamphylian sarcophagi to Dokimeion, limitations inherent in isotope-based discrimination and restricted reference datasets prevented a definitive reassignment of marble sources. The present study employs an expanded analytical strategy combining stable carbon and oxygen isotope analysis, high-precision ICP-MS trace element measurements, and multivariate statistical modelling based on a global database of over 5,700 geological marble samples. The results demonstrate a strong and statistically robust association of the Perge sarcophagus marbles with the Aphrodisias quarry district, while Prokonnesos emerges as a secondary source for a limited subset of samples. Dokimeion and Ephesian marble sources can be confidently excluded. Beyond provenance determination, these findings necessitate a fundamental reconsideration of workshop organisation, artisan mobility, and material procurement strategies in Roman Pamphylia. In particular, the dominance of Aphrodisias marble suggests sustained inter-regional connections between Caria and Pamphylia, challenging traditional models centred on Phrygian production and reinforcing the role of Aphrodisias as a major sculptural hub with far-reaching economic and artistic influence.

994. White Marble Funerary Monuments from Roman Philippopolis: Provenance and Local Supply in Thrace

Authors: Vasiliki Anevlavi (National Hellenic Research Foundation) – Petya Andreeva (National Archaeological Institute With Museum, Bulgarian Academy of Sciences) – Walter Prochaska (Austrian Archaeological Instiute, Austrian Academy of Sciences)
Format: Poster

Funerary monuments provide valuable insights into material choices and production strategies within Roman provincial societies. This paper examines white marble funerary monuments from Roman Philippopolis (present-day Plovdiv) in the province of Thrace, focusing on the role of local raw material sources during the second and third centuries AD. Although the funerary record of the city is dominated by monuments carved from locally available granite and limestone, particularly sarcophagi, the selective use of marble warrants closer investigation. The study is based on a multi-proxy archaeometric approach combining petrographic analysis, stable carbon and oxygen isotope data, and trace element analysis. A small but representative group of marble artefacts, including funerary stelae and statues, was analysed in order to assess raw material provenance and supply patterns. The analytical results consistently indicate the use of marble from the nearby Asenovgrad quarrying area, highlighting the importance of local stone resources in funerary production at Philippopolis. Equally significant is the absence of Prokonnesian marble within the analysed assemblage, despite its well-documented presence in funerary contexts elsewhere in Thrace, Macedonia, and the Upper and Middle Strymon Valley during the same period. This pattern suggests that access to high-quality local marble reduced reliance on supra-regional supply networks and shaped material selection at the urban level. The findings point to locally embedded procurement strategies, where funerary production was structured around regional resources rather than long-distance trade. By integrating archaeometric data with archaeological context, this contribution sheds light on the interplay between local availability, workshop practices, and connectivity in the funerary landscape of Roman Thrace.

2715. Grave Stelai Adorned with Ribbons on Fifth-Century BCE Attic White-Ground Lekythoi: Ritual and Commemoration

Authors: Justyna Dworniak (Piotrków Academy | University of Łódź)
Format: Poster

This poster examines the motif of grave stelai adorned with ribbons as depicted on fifth-century BCE Attic white-ground lekythoi, with particular attention to their symbolic meaning and ritual function. The presence of ribbons in funerary scenes should not be understood as merely decorative. Within the cultural framework of classical Athens, they carried a distinct semantic weight: they functioned as visible signs of remembrance, mourning, and care for the deceased while, at the same time, acting as a symbolic link between the worlds of the living and the dead. The iconographic analysis of the archaeological material makes it possible to explore the relationship between representation and lived practice. The decoration of the lekythoi is not simply a painterly convention; rather, it reflects specific gestures and actions associated with burial rites and commemorative rituals. Among the 170 representations examined, the ribbon motif appears in several configurations: in 106 cases tied directly around the stele, in 43 held or offered by figures participating in the scene, and in 21 associated with baskets placed beside the grave or carried by ritual participants. This study aims to clarify the ribbon motif's significance in funerary iconography and show how it actively communicates between the living and the dead. From this perspective, the ribbon emerges as an element that integrates ritual, memorial, and social dimensions, revealing the layered and nuanced character of the imagery found on white-ground lekythoi.

163 INVESTIGATING HUMAN PATTERNS IN EURASIA BETWEEN CA. 60-30 KA: BIOLOGICAL, CULTURAL AND ECOLOGICAL PERSPECTIVES

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Silvia Monterrosa Preziosi (University of Bologna) – Maya Oron (University of Haifa) – Juan Ochando Tomás (University of Siena)
Keywords: Palaeoecology, Subsistence strategy, MIS3, Material culture, Palaeobotany
Format: Regular session

SESSION ABSTRACT

The period between 60,000 and 30,000 years ago represents a pivotal timeframe in human ecology, characterised by significant demographic, biological, and cultural transformations across Eurasia, from the Atlantic coast to Siberia and from the Mediterranean to the northern plains. This session aims to integrate multidisciplinary perspectives to explore the complex patterns of human behaviour, adaptation, and interaction during this critical interval. Particular emphasis will be placed on reconstructing palaeoenvironmental and palaeoclimatic dynamics, subsistence strategies, and cultural sequences through multi-proxy analyses. This timespan, corresponding to Marine Isotope Stage 3 (MIS 3), is marked by pronounced climatic instability and rapid oscillations between stadial and interstadial phases. These environmental fluctuations created a dynamic backdrop for human populations, influencing dispersal routes, settlement patterns, and subsistence strategies. The period encompasses key developments including the expansion of Homo sapiens into a wide range of ecological contexts, possible interactions with Neanderthals and Denisovans, and the emergence of distinctive cultural traditions associated with the Middle-to-Upper Palaeolithic transition. The session welcomes contributions examining these phenomena through various analytical approaches, including lithic technology, zooarchaeological and archaeobotanical analyses, symbolic behaviour, ancient DNA studies, palaeoproteomic analyses (particularly ZooMS for taxonomic identification), as well as palaeoenvironmental and palaeoclimatic reconstructions and bioarchaeological research. We particularly encourage integrative, multi-proxy studies that combine diverse datasets to explore how human groups navigated and adapted to Eurasia's varied landscapes during MIS 3's unstable conditions. By fostering dialogue amongst researchers employing diverse proxies across different geographical regions, this session seeks to advance our understanding of the mechanisms that shaped human evolution, cultural development, and dispersal during this transformative period.

CONTRIBUTION ABSTRACTS

1309. Atmospheric Circulation Variability and Regional Climate in Iberia During MIS 3: Implications for Neanderthal Populations

Authors: İNci Özdoğru (ICArEHB, Universidade do Algarve) – Ozan Göktürk (NORCE Norwegian Research Centre AS | Bjerknes Centre for Climate Research) – Chuncheng Guo (Danish Meteorological Institute | NORCE Norwegian Research Centre AS | Bjerknes Centre for Climate Research) – Kerim Nisancioglu (Department of Earth Science, University of Bergen | Bjerknes Centre for Climate Research) – Richard Jennings (School of Biological & Environmental Sciences, Liverpool John Moores University) – João Cascalheira (ICArEHB, Universidade do Algarve)
Format: Oral

Marine Isotope Stage 3 (MIS 3) was characterised by pronounced millennial-scale climate variability, including Dansgaard–Oeschger and Heinrich events associated with changes in the Atlantic Meridional Overturning Circulation and Nordic Seas sea ice extent. These processes influenced atmospheric circulation and regional paleoclimate in Western Europe, affecting paleoenvironmental conditions relevant to Neanderthal populations. Neanderthal disappearance around 40 ka coincided with the Middle to Upper Palaeolithic transition and likely involved regionally variable interactions between climate-driven habitat fragmentation, reduced social connectivity, and demographic processes. Here, we investigate how large-scale atmospheric circulation changes during MIS 3 shaped regional climate patterns in Iberia, which was a potential refugia for Neanderthal populations during climatically unfavourable phases. A freshwater hosing experiment was conducted using the global Earth system model NorESM1-F under boundary conditions representative of Greenland Interstadial 8 (GI-8; 38 kyr BP), capturing the transition from Heinrich Event 4 (H4) to GI-8. Dynamical downscaling was performed using the WRF regional climate model at 9 km horizontal resolution to simulate regional circulation and associated temperature and precipitation patterns. Preliminary results indicate clear stadial–interstadial contrasts across Iberia, including a tendency toward wetter winters and drier summers during H4. These patterns are linked to shifts in the position and strength of the North Atlantic westerly jet and associated moisture transport. By linking large-scale atmospheric dynamics with high-resolution regional climate patterns, this study provides an improved assessment of Iberian climate variability during MIS 3. The results establish a climatic framework for evaluating potential impacts on landscape productivity, habitat connectivity, and resource availability. Ongoing integration with archaeological and paleoanthropological datasets will enable a direct assessment of climate–human interactions especially influences on Neanderthal settlement patterns and behaviour in Iberia.

2541. Human responses to abrupt climate and environmental change at Lapa do Picareiro (Portugal) during MIS 3

Authors: Jonathan Haws (University of Louisville | ICArEHB, Universidade do Algarve) – Milena Carvalho (ICArEHB, Universidade do Algarve) – Maria Ellis (Colorado State University | ICArEHB, Universidade do Algarve) – Michael Benedetti (University of North Carolina Wilmington | ICArEHB, Universidade do Algarve) – João Cascalheira (ICArEHB, Universidade do Algarve) – Lukas Friedl (University of West Bohemia | ICArEHB, Universidade do Algarve)
Format: Oral

During Marine Isotope Stage (MIS) 3, abrupt climate changes repeatedly impacted human and natural systems across Eurasia, leading to changes in human demographics and settlement patterns. Human responses to these abrupt climate shifts varied across the continent. Climate fluctuations created conditions for human population contractions during stadials and expansions during interstadials. This period also witnessed the replacement and assimilation of Neanderthal populations by modern humans. For western Iberia, Lapa do Picareiro, a cave site in central Portugal, provides a diachronic record of MIS 3 human occupation and environmental change. The cave contains a unique, continuous, 11 m stratified sedimentary sequence spanning over 60,000 years of the Upper Pleistocene, making it an ideal locale to track long-term human response to paleoenvironmental change. The MIS 3 sedimentary sequence of Picareiro contains Middle and Upper Paleolithic occupations, extremely rich faunal assemblages, and subtle variations in particle size and geochemistry that record changes in the climate, hydrology, and morphology of the cave environment. Age control is provided by over 100 radiocarbon dates. Sedimentological analyses including magnetic susceptibility link the cave deposits with global scale records of Late Pleistocene climate from the Greenland ice cores and regional-scale ones from deep-sea cores off Portugal and speleothems from caves. With stratified age control, we document changes in occupation intensity, raw

material acquisition, and technology. Taphonomic analyses of the faunal remains inform on local paleoenvironments and human diet choice. We use these data to synchronize abrupt climate changes and human adaptive response during MIS 3.

2341. A glimpse into MIS 3 Neanderthals in Westernmost Iberia: zooarchaeological, isotopic, and proteomic evidence from Lapa do Picareiro

Authors: Milena Carvalho (ICArEHB - Universidade do Algarve) – Jonathan Haws (University of Louisville | ICArEHB - Universidade do Algarve) – Karen Ruebens (University of Reading | Collège de France) – Geoff Smith (University of Reading) – Anna Wagner (University of Reading) – M. Grace Ellis (Colorado State University | ICArEHB - Universidade do Algarve) – João Cascalheira (ICArEHB - Universidade do Algarve)
Format: Oral

Identifying variability in Neanderthal behavior through time during the Late Pleistocene is critical for understanding the processes that ultimately culminated in the disappearance of Neanderthal populations at both local and regional scales. Portuguese Estremadura (central Portugal) represents one such region where the Middle Paleolithic archaeological record has grown substantially over the past decades. Several key sites within this region provide evidence for considerable ecological plasticity in Neanderthal hunting strategies and subsistence practices. Despite this apparent behavioral flexibility, Neanderthal populations disappear from the regional record by approximately ~42 ka cal BP, raising important questions about the nature of their responses to late climatic and environmental instability. Lapa do Picareiro is ideally suited to investigate diachronic shifts in Neanderthal subsistence behaviors and to evaluate whether these practices changed through time. The site contains extensive zooarchaeological assemblages associated with multiple Middle Paleolithic occupations, alongside a suite of paleoenvironmental proxies, well-preserved stratigraphic integrity, and robust chronological control. Together, these characteristics provide a strong framework for integrating behavioral and environmental datasets at high temporal resolution. Isotopic analyses and magnetic susceptibility data from Lapa do Picareiro suggest the presence of environmental disturbance within the sequence, potentially linked to the climatic deterioration associated with Heinrich Stadial 5. Building on this environmental context, we integrate zooarchaeological analyses, stable isotope data, and preliminary ZooMS results derived from archaeofaunal assemblages recovered from stratigraphic levels KK and JJ. Through this multi-proxy approach, we assess how Neanderthal populations responded to the changing environmental conditions of Marine Isotope Stage 3 and evaluate whether their behavioral strategies reflect resilience, resistance, and/or adaptive adjustments in the face of ecological instability.

1016. Decoding Middle Palaeolithic Mobility: A Multi-Scalar Approach to Lithic Procurement Patterns and Settlement Dynamics in Northeast Iberia

Authors: Bruno Gómez De Soler (Iphes | Universitat Rovira i Virgili) – Pablo Rodríguez-Salgado (Icrag | University College Dublin) – Julian Menuge – Maurice Brodbeck (University College Dublin) – Judit Brià (Iphes) – Amèlia Bargalló (Universitat Rovira i Virgili | Iphes) – Francesca Romagnoli (Universidad Autónoma de Madrid) – Palmira Saladié – Josep Vallverdú – Gema Chacón (Iphes | Universitat Rovira i Virgili)
Format: Oral

Understanding mobility patterns is crucial for decoding the complex dynamics of Palaeolithic human behaviour. The study of lithic resources provides a valuable means of reconstructing mobility and, by extension, settlement dynamics. While recognising the limitations of this approach, its integration with other disciplines, such as zooarchaeology, taphonomy, geoarchaeology, in a broad sense, and their spatial distribution, enhances interpretations of occupation types. Lithic raw material sourcing serves as a key marker of human movement across the territory. Variations in distance, distribution, accessibility, and mode of introduction can provide crucial evidence into territorial mobility and type of occupation. This study examines the short-term occupation at Abric Romaní Level N (c. 55 kyr BP), a well-preserved Middle Palaeolithic context, where lithic raw material procurement sheds light on the nature and duration of the occupation. Through a comprehensive multi-scalar approach that integrates macroscopic criteria, thin-section petrography, and minimal-destructive geochemical analyses (p-XRF and LA-ICP-MS), we seek to determine the range of exploited lithic raw materials and reconstruct Neanderthal procurement strategies during this brief occupation. Identifying patterns of local and non-local resource use refines interpretations of mobility and territorial organisation on a short-term scale. Our findings highlight the selective exploitation of lithic sources and their influence on site use and occupation dynamics. The integration of lithic provenance studies with zooarchaeological, taphonomic, and spatial data, including the distribution of combustion structures and wooden remains, validates the interpretation of Level N as a short-term occupation. This interdisciplinary approach provides detailed insights into how Neanderthal groups structured their activities within a short-lived settlement. This research increases our understanding of technological decision-making, mobility, and settlement organisation during the Middle Palaeolithic in Northeast Iberia.

2473. Exploitation of Environmental Resources and Subsistence Strategies in Italy during MIS 3: Insights from Zooarchaeological and Palynological Evidence

Authors: Jacopo Crezzini – Juan Ochando – Francesco Boschin (Department of Physical Science, Earth and Environment - University of Siena) – Stefano Benazzi (Department of Cultural Heritage - University of Bologna) – Omry Barzilai (School of Archaeology and Maritime Cultures - University of Haifa) – Francesco Berna (Department of Physical Science, Earth and Environment - University of Siena | Department of Archaeology, Simon Fraser University)
Format: Oral

This paper integrates zooarchaeological and palynological data to explore patterns of human behaviour and environmental adaptation during Marine Isotope Stage 3 (MIS 3) in Italy. The Italian Peninsula represents a key biogeographical region in southern Europe, having acted as a refugium for flora and fauna and favouring the persistence of human populations throughout the Late Pleistocene. Palynological analyses of coprolites, food remains, and sediments recovered from Italian archaeological contexts provide valuable information for reconstructing past vegetation and environmental conditions. At the same time, zooarchaeological analyses of several Italian sites attributed to both Mousterian and Upper Palaeolithic technocomplexes allow the identification of similarities and behavioural differences in patterns of animal exploitation between Neanderthal and modern human populations. The comparison of these proxies enables the reconstruction of the dynamics of natural resource exploitation by these two human groups, assessing whether such strategies were primarily driven by nutritional requirements and/or by specific adaptations to local environmental conditions. Given that the demise of European Neanderthals occurred at different times and followed diverse trajectories across geographical regions, a detailed regional-scale investigation of changes in environmental resource availability provides an important framework for understanding the complex processes underlying Neanderthal persistence and disappearance in Europe.

1730. New palaeoecological and tephrocronological data from the MIS3 layers of Grotta-Riparo di Uluzzo C (Apulia, southern Italy)

Authors: Juan Ochando Tomás (University of Siena) – Donatella Magri (Sapienza University of Rome) – Biagio Giaccio (Consiglio Nazionale delle Ricerche) – Omry Barzilai (University of Haifa) – Francesco Berna (University of Siena | Simon Fraser University) – Enza Spinapolice (Sapienza University of Rome) – Adriana Moroni (University of Siena | Centro Studi sul Quaternario ODV | Istituto Italiano di Paleontologia Umana) – Gabriele Terlato – Matteo Romandini – Stefano Benazzi (University of Bologna)
Format: Oral

The southern Italian Peninsula plays a crucial role as a biogeographical hotspot in Southern Europe, influenced significantly by the Mediterranean climate. This environment acted as a glacial refuge for diverse flora and fauna, humans included. This study employs pollen analysis on Mousterian and Uluzzian sediments from Grotta-Riparo di Uluzzo C in the Salento Peninsula (southern Italy) to reconstruct the vegetation landscapes encountered by the late Italian Neanderthals (thus far associated with the Mousterian) and early modern humans (linked to the Uluzzian) during the mid Marine Isotope Stage (MIS) 3. Our palynological analyses reveal a distinctive and diverse environment within the Mediterranean landscape. Tephrochronological and OSL constraints and paleoenvironmental variability consistently allow us to date the investigated interval between ~46.6 ka and 43.4 ka, encompassing the second part of the long Greenland interstadial 12 (GI-12) and the onset of the GI-11. Over these three millennia, the environment in the area of Uluzzo C is characterized by a rich flora mainly composed of evergreen elements. Additionally, heliophytes such as Amaranthaceae, Artemisia, and Poaceae are observed. The consistent presence of pollen taxa such as Juglans, and Pinus halepensis/pinea, among others, highlights the importance of this coastal area of Apulia for the long-term persistence of Mediterranean species during the Late Pleistocene. These taxa could be supported by a generally mild climate, as suggested by the occurrence of Olea, Myrtus, and Cistus. These diverse environments would undeniably have offered various opportunities for the survival of Neanderthals and early Upper Palaeolithic hominins, especially during the warm phases and, critically, the cold events of the Late Pleistocene. Our data from Uluzzo C corroborate the previous idea that the climatic and environmental setting were not the main reason for Neanderthals' abandonment of Uluzzo Bay and potentially southern Italy around 45,000 years ago.

1329. Ždrilo Cave (Croatia): New insights into Upper and Middle Palaeolithic occupations in the Eastern Adriatic through multiproxy faunal analysis

Authors: Silvia Monterrosa Preziosi (University of Bologna) – Lia Vidas (Centre for Applied Bioanthropology, Institute for Anthropological Research) – Lisa Brotons – Angelica Fiorillo – Sara Silvestrini (University of Bologna) – Gabriele Terlato (Universty of Bologna) – Omry Barzilai (University of Haifa) – Francesco Berna (University of Siena) – Mario Bodružić (University of Zadar) – Stefano Benazzi (University of Bologna)
Format: Oral

Although known for its Neolithic sequence, recent investigations at Ždrilo Cave, near Rovanjska (Croatia), have revealed significant Upper and Middle Palaeolithic occupations, filling a crucial gap in the understanding of these periods along the Eastern Adriatic coast. Extensive excavations in 2021, 2023, and 2025 exposed stratigraphically distinct UP and MP levels that are directly confirmed by radiocarbon dating, providing rare evidence for human behaviour in this region and currently representing the only site on the eastern Adriatic coast with securely dated deposits from both periods. This study presents a comprehensive zooarchaeological analysis of faunal remains, integrating taxonomic, taphonomic, and ZooMS (Zooarchaeology by Mass Spectrometry) data. The assemblages are dominated by large ungulates, primarily cervids (red deer and fallow deer), with carnivores (mainly cave bear), equids, small mammals, and birds also represented. Taphonomic analysis reveals variable evidence of anthropogenic modifications, including cut-marks, percussion-marks, and thermal alterations, alongside carnivore activity, suggesting complex and potentially different site formation processes between occupational phases. Good collagen preservation has enabled ZooMS to refine taxonomic identifications and enhance understanding of faunal diversity and palaeoecological conditions. Preliminary results suggest adaptation to mixed woodland and open environments, with exploitation of both large and small game alternating with carnivore occupation. These zooarchaeological and ZooMS data provide the first detailed faunal evidence for both Neanderthal and Homo sapiens adaptive strategies in the Eastern Adriatic, offering crucial insights into hominin adaptive responses to the environmental dynamics of MIS 3.

2409. Tool-life of Middle Palaeolithic side-scrapers in the Eastern Adriatic region – A quantitative 3D-based approach

Authors: Francesco Valletta (University of Haifa) – Ana Abrunhosa (University of Haifa | ICArEHB) – Dalma Kerekes Yaara Shafrir (University of Haifa) – Vasilije Marojević (University of Minnesota) – Nikola Borovinić (Centre for Conservation and Archaeology of Montenegro) – Mario Bodružić (University of Zadar) – Ivor Janković (Institute for Anthropological Research) – Stefano Benazzi (University of Bologna) – Francesco Berna (University of Siena | Simon Fraser University) – Omry Barzilai (University of Haifa)
Format: Oral

Side-scrapers are the most common tool type in several Balkan and Eastern Adriatic Middle Palaeolithic lithic assemblages, representing a hallmark of the regional Mousterian. The variability observed in their morphology, frequency, manufacturing process, and modification intensity is often used to extrapolate hypotheses about past hominin behaviour. Yet, when analysing these artifacts, it might be difficult to disentangle the combined effect of multiple factors on the observed features: including the cultural background of their maker, the functional and economic constraints that might have affected their manufacturing and maintenance history, and their deposition context. Additionally, the global and local morphology of side-scrapers and their manufacturing process are traditionally described based on qualitative attributes, possibly masking the variability within categories and the continuity between them and hampering the comparison between artifacts. The present project aims to develop a framework for correlating specific global and local morphological features of side-scrapers with different aspects of their life: from raw material procurement and economy, to blank manufacturing and modification, tool maintenance, discard, and taphonomic history. To test possible geographical variability patterns in different aspects of the tool life, we compare Mousterian side-scraper assemblages from different sites in the Eastern Adriatic region: including the caves of Romualdova (Istria), Ždrilo (Dalmatia), and Bioče (Montenegro). Inter-artifact comparability is addressed based on a standardized set of quantitative descriptors derived from 3D models of side-scrapers, including variables that capture overall tool geometry, the morphology and spatial distribution of retouched edges, and technological attributes related to original blank manufacture, extracted by using available software (e.g., AGMT3-D, Artifact3-D) and purposedly developed digital methods. By means of quantitative inter-site comparison we expect to identify and describe regional techno-morphological patterns and possibly correlate them with variability in local economical constraints and/or the manufacturing traditions of the groups that occupied the sites.

360. Fire use at the Upper Paleolithic site of Românești-Dumbrăvița I (Southwest Romania) inferred through the study of heated lithics

Authors: Adrian Dobos – Alexandru Ciornei (Institute of Archaeology „Vasile Pârvan", Bucharest) – Wei Chu (Leiden University)
Format: Oral

Fire as a tool is intrinsically connected to human evolution throughout the prehistory, but the knowledge on the topic, particularly in the Balkans, is still incomplete. Out presentation explores the relationship between hominins and anthropogenic fire use through the analysis of heated lithic artifacts from the Paleolithic site of Românești-Dumbrăvița I in Southwestern Romania. The aim is to investigate if heated lithics can provide information about the temperatures they were exposed to at a site that preserves no other macroscopic evidence for Pleistocene fires. We hypothesized that lithics exposed to fire show different changes contingent upon temperatures. Our approach focused on experimentally heating lithics knapped in Poieni-Pietroasa fault chert at different temperatures and durations. Changes in color, density and surface morphology were quantified and subsequently applied to the study of the archeological assemblage. Results suggest three combustion zones were present in the proto-Aurignacian level of the site. The research combines experimental pyrotechnology and archeological excavation data to provide insights into past human habitation patterns. The research was funded through the CNCS – UEFISCDI grant TE 99/2022 and ERC-Consolidator grant HOME: Palaeolithic Shelters in East-Central Europe

788. Technological Variability and Adaptive Strategies in the Zagros: Insights from Kunji Cave

Authors: Maya Oron (School of Archaeology and Maritime Cultures, University of Haifa) – John Speth (Department of Anthropology, University of Michigan) – Francesco Berna (Department of Physical Sciences, Earth and Environment, University of Siena) – Stefano Benazzi (Department of Cultural Heritage, University of Bologna) – Omry Barzilai (School of Archaeology and Maritime Cultures, University of Haifa)
Format: Oral

Located at a geographic crossroads between Europe, the Levant, and Asia, the Zagros Mountains may have played a vital role in the movement of early human populations across Eurasia. The region's evidence for long-term Neanderthal presence in the late Middle Paleolithic, as well as Upper Paleolithic cultural entities, provides a potential perspective on questions of continuity and replacement during the transition from the Middle to the Upper Paleolithic. Lithic assemblages of the Zagros Middle Paleolithic have commonly been interpreted through typological frameworks and large-scale cultural classifications (e.g. Mousterian vs. Baradostian) over the past decades. This emphasis on generalized cultural affiliation has, in some cases, obscured the behavioral processes that structured lithic assemblage composition. This paper presents a renewed typo-technological analysis of the Middle Paleolithic lithic assemblage from Kunji Cave, Iran. Kunji cave site was first reported by Henry Field in 1951 and subsequently tested by Frank Hole and Kent Flannery in 1963. John Speth returned to Kunji in 1969 and excavated a larger area of the cave. The material discussed in this paper derives largely from Speth's excavation, with an additional small sample from the initial test excavation. The assemblage is relatively large and unmixed with Upper Paleolithic or later materials, thereby providing a valuable case study for re-evaluating the Zagros Middle Paleolithic. Our analysis of reduction strategies, blank production, and retouched tool frequencies suggests that the Kunji Cave assemblage may have been significantly shaped by its specific role within a mobility-based settlement system. However, the data also reveals distinct technological attributes that may reflect broader cultural traditions. By disentangling the signatures of site function from those of cultural identity, these results provide a more nuanced understanding of technological organization and are suitable for both intra- and interregional comparisons.

879. Szeletian revisited: a combined approach to a transitional industry

Authors: Dalma Kerekes (University of Haifa) – György Lengyel (Hungarian National Museum | University of Miskolc) – Isabella Caricola (University of Bari Aldo Moro) – Francesco Valletta (University of Haifa) – Zoltán Tóth (Independent Researcher) – Michael Hitchcock (University of Haifa | Liverpool John Moores University) – Stefano Benazzi (University of Bologna) – Francesco Berna (University of Siena | Simon Fraser University) – Omry Barzilai (University of Haifa)
Format: Oral

During the Middle to Upper Palaeolithic transition, archaeological data from Eastern Central Europe reflect a complex cultural phenomenon. At this time, three archaeological cultures were present in the region, each combining Middle and Upper Palaeolithic technological and typological elements. One of these is the Szeletian, dated to between 46 and 39 kya, with sites located in Moravia, western Slovakia, northeast Hungary, and southern Poland. The industry was first identified at Szeleta Cave in northeast Hungary at the beginning of the 20th century and has since been central to debates concerning the cultural change that happened during this period. However, despite more than a century of research, its lithic technology remains poorly understood and it is only loosely described as a transitional industry based on the presence of bifacial leaf points, Middle and Upper Palaeolithic tool types, and non-hierarchical flake and blade production. Although, detailed lithic studies have been conducted to uncover the archaeological meaning of the Szeletian, the research has largely remained local, with no efforts made at cross-regional comparison that could provide a comprehensive description of the lithic record. Additionally, while hundreds of Szeletian open-air sites have been reported in Eastern Central Europe, many of them are surface surveys without excavations and are attributed to the industry solely on the basis of bifacial leaf points. Therefore, it is essential to analyse the stratified Szeletian assemblages from Hungary, Slovakia, and the Czech Republic using an integrated approach that combines traditional techno-typological analysis with 3D analysis, use-wear studies, and experimental archaeology. Besides the bifacial leaf points, the research also focuses on the toolkit and the technological aspects of the production sequence to finally provide a clear definition of the industry.

164 DECODING FAUNAL ASSEMBLAGES: SCIENTIFIC APPROACHES TO ANIMAL REMAINS IN ARCHAEOLOGY

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Daniela Cabral (Universidade de Coimbra) – Beatriz Pinto (Universidade do Algarve) – Alejandro Ruiz (Universidad de Cádiz) – Ana Santos (Universidade de Lisboa) – Eva Pires (Universidade NOVA de Lisboa)
Keywords: Zooarchaeology, Faunal assemblages, Interdisciplinarity, Human–animal interactions, Environmental archaeology
Format: Regular session

SESSION ABSTRACT

This session aims to bring together researchers working on archaeological faunal assemblages to explore how animal remains contribute to our understanding of past environments, economies, and cultural practices. Scientific analysis of faunal materials has become essential for reconstructing subsistence strategies, mobility patterns, human–animal interactions, and ecological dynamics in both prehistoric and historical contexts. We invite contributions that combine traditional zooarchaeological approaches with new analytical trends such as isotopic, molecular, Zooarchaeology by Mass Spectrometry (ZooMS), geometric morphometric, and taphonomic analyses, as well as studies focusing on spatial distribution, ethnoarchaeological comparisons, or experimental archaeology. Comparative and interdisciplinary perspectives on terrestrial, aquatic, or integrated systems are especially welcome. By decoding faunal assemblages through multiple scales of analysis and integrating diverse scientific methods, this session seeks to foster dialogue between different specialists and highlight the interpretative potential of combining distinct biological proxies. We also encourage papers that address methodological challenges, sample preservation issues, and strategies for data management and sharing in zooarchaeological research.

1023. From Fragments to Behavior: A Multi-Proxy Zooarchaeological Study of Amud Cave Faunal Assemblage

Authors: Anaëlle Jallon (Hebrew University of Jerusalem | Centre de Recherche Français à Jerusalem, USR3132 CNRS) – Erella Hovers (Hebrew University of Jerusalem | Minerva Center for the Study of Population Fragmentation | Institute of Human Origins, ASU | ICArEHB, University of Algarve) – Rivka Rabinovich (Hebrew University of Jerusalem)
Format: Oral

Amud cave is a site of the utmost importance in the Levantine Middle Paleolithic framework. Dated to the very end of the Middle Paleolithic (ca. 70 to 55 Kyrs BP), a pivotal period in human evolution and population dynamics in the region, this site yielded Neanderthal remains and large amounts of archaeological materials. These findings offer exceptional insights into the technical and cultural behavior of these populations at the very end of their presence in the Levant. Among these materials, the site yielded a substantial amount of faunal remains, which are the focus of the current presentation. The assemblage exhibits some notable features, particularly the absence of carnivores and of carnivore-induced damage to the remains. Additionally, part of the bone fragments shows good cortical surface preservation, which allows the identification and study of surface modifications. However, the archaeozoological and taphonomic study of this assemblage is challenged by the very high fragmentation rate and the possible impact of post-depositional processes on the bones. To overcome these constraints, the project adopts a multi-proxy strategy and emphasizes approaches specifically designed to capture variability within the assemblage and to mitigate biases linked to differential preservation. Through the use of adapted zooarchaeological methods and high-resolution analytical approaches, including 3D microscopy, FTIR, spectrophotometry, and micro-usewear analysis, the study extracts detailed information from these highly altered faunal remains. This integrated framework provides new insights into prey selection, the acquisition and processing of animal resources, site occupation seasonality, and the processes affecting bone preservation. Ultimately, this research aims to contribute to broader discussions on the place of Amud within the Levantine Late Middle Paleolithic context, and to question cultural influences on subsistence behaviors, beyond efficiency.

2167. Integrating minimally-invasive palaeoproteomics and radiocarbon dating to the study of the Neolithic osseous industry at Svinjarička Čuka, Serbia

Authors: Anastasia Papadogianni (Department of Evolutionary Anthropology, University of Vienna | Austrian Archaeological Institute, Austrian Academy of Sciences, Vienna) – Danica Grujić (Institute of Archaeology, Belgrade) – David Blattner (Austrian Archaeological Institute, Austrian Academy of Sciences, Vienna) – Barbara Horejs (Austrian Archaeological Institute, Austrian Academy of Sciences, Vienna | Human Evolution and Archaeological Sciences Research Network, Vienna) – Katerina Douka (Department of Evolutionary Anthropology, University of Vienna | Human Evolution and Archaeological Sciences Research Network, Vienna)
Format: Oral

Post-depositional fragmentation and anthropogenic modifications often present obstacles to the study of archaeological bone artefacts, particularly within museum collections where conservation concerns limit destructive analytical approaches. As a result, taxonomic determination of the raw materials used in prehistoric osseous industries remains challenging, directly impacting our understanding of resource selection strategies. Zooarchaeology by Mass Spectrometry (ZooMS) provides an effective and quick solution for assigning robust taxonomic identifications at the family, genus, and even species level to highly fragmented or modified unidentified osseous materials and faunal assemblages. This innovative approach complements and refines the research findings of traditional zooarchaeological approaches, while remaining compatible with museum curational practices. In this study, we explore the potential of minimally-invasive ZooMS paired for the first time with minimally-destructive radiocarbon dating, conducted entirely within a museum setting, to investigate the Neolithic bone tool industry from Svinjarička Čuka in southern Serbia. Using ZooMS, we provide taxonomic identifications for a selected assemblage of Neolithic unidentifiable bone tools (n=57), including a unique figurine recovered from the Starčevo-Neolithic settlement. Radiocarbon dating establishes a secure chronological framework for the production and use of these artefacts at this key site in the Morava River valley. By integrating palaeoproteomic and chronological data with existing archaeological observations, we reconstruct patterns of raw material selection and manufacturing strategies in bone tool production at Svinjarička Čuka. On a broader level, our findings contribute to discussions on resource management and human–animal interactions during the early stages of Neolithisation in this region of the Balkans. This research demonstrates the potential of minimally-invasive, in situ sampling techniques to integrate diverse analytical proxies while maintaining ethical curational practices.

1898. Multiple animal species used in Corded Ware osseous artifacts: ZooMS evidence from Żurawica

Authors: Weronika Cieszynska (Masaryk University, Department of Archaeology and Museology) – Agnieszka Kubicka-Marek (Pracownia Badań i Usług Archeologicznych, Rzeszow) – Ondrej Šedo (Central European Institute of Technology) – Zuzana Hofmanová (Masaryk University, Department of Archaeology and Museology, Brno | Max Planck Institute for Evolutionary Anthropology)
Format: Oral

Bone artifacts are a crucial part of material culture. While traceological analysis can answer many questions about their use, it is often difficult to determine the exact species from which an artifact was made. Identifying the species can reveal patterns in resource exploitation and distinguish closely related animals, such as sheep and goat. This was the case for an assemblage of artifacts from Żurawica, a Neolithic site in southern Poland. Five bone artifacts, including grave goods, were previously identified as made of bone but lacked diagnostic features that could indicate their animal origin. To resolve this, we applied ZooMS (Zooarchaeology by Mass Spectrometry) to identify the species of each artifact. The method was successful for all samples: three artifacts were made from cattle, the needle from domestic sheep, and one artifact from pig/wild boar. These results demonstrate that multiple animal species were used to produce bone artifacts, suggesting that communities flexibly exploited available resources rather than showing strict preferences for a single species. Direct species identification through ZooMS moves beyond visual or typological assumptions, revealing aspects of Neolithic craft and subsistence that would otherwise remain hidden. The combination of domestic and wild taxa highlights resilient practices, showing how people adapted their material culture to the available resources. Many bone artifacts in archaeological collections remain unanalysed, and wider application of ZooMS promises to uncover further insights into Neolithic economies, craft strategies, and the diversity of animals integrated into both daily and symbolic life.

1039. Animal paleoeconomy of the first Neolithic communities in Dobrogea (6th–5th millennia BC)

Authors: Adrian Balasescu – Franceska Știrbu ("Vasile Pârvan" Institute of Archaeology, Romanian Academy) – Estelle Herrscher (Laboratoire Méditerranéen de Préhistoire Europe Afrique, CNRS, LAMPEA - UMR 7269) – Valentin Radu (University of Bucharest, ICUB, Bucharest | National History Museum of Romania, Bucharest)
Format: Oral

Preventive and systematic archaeological research conducted over the last 15 years in Dobrogea (southeastern Romania) has led to the discovery of new sites as well as the reevaluation of older Neolithic settlements dated to the 6th–5th millennia BC that are included in the Prehamangia culture (the site at Palazu Mare - 5700–5400 calBC) and the Hamangia culture (the sites of Techirghiol, Palazu Mare, Baia - 5400–4700 calBC). This paper reviews over 50,000 faunal remains belonging to various animal classes: molluscs, fish, reptiles, birds and mammals. Their archaeozoological study allowed us to highlight the characteristics of the animal paleoeconomy of these communities over a period of approximately 1,000 years. Within the animal breeding activity, it is observed that cattle and caprines predominante, while pigs have an extremely low share. The study of the slaughter ages of large and small horned animals suggests a differentiated use of the species depending on the economic purposes. Although 15 species of wild mammals were identified, hunting had a minor role (under 10%). The main hunted species are the hemione and the red deer. Other faunal resources, such as molluscs, fish, turtles and birds, do not seem to have contributed significantly to the communities' diet, although the interaction with freshwater environments was constant. The identified aquatic species come from rivers and deep lakes, and the exploitation of marine resources was limited. Isotopic studies (^{13}C, ^{15}N, ^{18}O) were also carried out at Palazu Mare and Cheia for mammals, allowing for the identification of differences in environmental conditions as well as the sesonality of the sheep births. This research was supported by a grant from the Romanian Ministry of Education and Research, CNCS – UEFISCDI, project PN-IV-P1-PCE-2023-1547 (ExLiDo).

1046. Feeding the herd: Reconstructing Neolithic caprine diet of El Portalón de Cueva Mayor (Atapuerca, Spain) through bone collagen isotope analysis

Authors: Juan Antonio Antolinos-Díaz – Carlota Pintado-Laguna – Amalia Pérez-Romero (Human Evolution Laboratory, University of Burgos) – Marta Francés-Negro (Department of Law and Humanities, European University of Madrid) – Cristina Valdiosera (Human Evolution Laboratory, University of Burgos | Archaeology and History Department, La Trobe University) – José Miguel Carretero (Human Evolution Laboratory, University of Burgos) – Colin Smith (Human Evolution Laboratory, University of Burgos | Archaeology and History Department, La Trobe University) – Eneko Iriarte (Human Evolution Laboratory, University of Burgos)
Format: Oral

Neolithic arrived to the Iberian Peninsula 7300 years ago approximately. During this era, groups of farmers and herders introduced new resource management dynamics. Despite the abundance of research on prehistoric human diet, the feeding practices of domestic sheep (Ovis aries) and goats (Capra hircus) in this context have received limited attention. This research aims to study these dietary patterns to better understand early pastoralism. For this purpose, caprine bone collagen from El Portalón of Cueva Mayor site (Sierra de Atapuerca, Burgos) are isotopically analyzed (^{13}C and ^{15}N). Neolithic layers of this site span nearly 2500 years of livestock management (approximately 5000-7400 cal BP). This, coupled with its geographical location, aids in understanding the cultural transfer of livestock practices across Europe, the Ebro River basin, and the Northern Meseta. In addition, modern vegetation from the surrounding of the cave was analyzed to establish a local isotopic baseline. Both isotopic signals, animal and vegetal, combined with MixSIAR software analysis may provide us approximated percentages of consumption of each type of plant. According to the results, the diet of these caprine individuals consisted primarily of shrubby vegetation, making the smallest contribution the pastures. The intake of arboreal plants and seeds varied among individuals. This implies a sophisticated management of domestic caprines during the Neolithic in the Northern Plateau, depending on seasonal changes in vegetation and plant resources throughout the year.

1231. VERA: A new 3D framework for identifying domestication related activities in animals

Authors: Christina Siali (Paleoanthropology Department, University of Tübingen | Paleoanthropology Department, University of Tübingen) – Katerina Harvati – Alexandros Karakostis (Paleoanthropology Department, University of Tübingen)
Format: Oral

Domestication studies employ various methods to identify husbandry practices, including demographic profiles and species representation. Within zooarchaeology, domestication represents the first instance where animal form becomes directly receptive to human action, thus making animal morphology, evidence for reconstructing past human behaviour. Morphological changes associated with domestication usually develop over generations. To investigate the consequences of human management during an animal's lifetime, muscle attachment sites (entheses) provide valuable insight into the animal's activity. Humans restricted animal movement through captivity for taming purposes, especially in early domestication phases, while in later stages, used animals for labour. Using the Validated Entheses-based Reconstruction of Activity (VERA) method, we investigated activity-related skeletal changes in modern reference samples of reindeer and sheep. These included zoo-kept, free-ranging, and - among reindeer - racing individuals as well. Multivariate analyses show that reindeer, a species still undergoing domestication, can be assigned to their respective activity groups with high accuracy (88–100%). In contrast, sheep, a fully domesticated species characterised by extensive breed diversity, show lower classification accuracy (~70%) when multiple breeds are analysed together. However, when comparisons are restricted to the same sheep type (free-ranging versus zoo-kept), classification accuracy exceeds 90%. We further present the first application of VERA to archaeological sheep assemblages from hunting contexts at Göbeklitepe and Gusir Höyük and husbandry contexts at Gürcütepe and Tall Munbaqa. Classification accuracy for these assemblages ranges from 89% to 92%, demonstrating the capacity of VERA to distinguish between wild and managed sheep in archaeological contexts. Based on these results, we discuss the potential of the VERA method for domestication studies, address the importance and limitations of modern reference samples, and emphasise the need to account for morphological variability across time and space, particularly in species shaped by millennia of husbandry practices.

1337. Preliminary Zooarchaeological evidence from Antartes Cave in Northern Greece

Authors: Ioanna Ermioni (LIRA Laboratory, Aristotle University of Thessaloniki) – Soultana Maria Valamoti (LIRA Laboratory, Aristotle University of Thessaloniki | CIRI-AUTH, Aristotle University of Thessaloniki) – Zoi Intze – Anastasios Siros (Ephorate of Palaeoanthropology and Speleology, Ministry of Culture) – George Konidaris (School of Geology, Aristotle University of Thessaloniki)
Format: Oral

Antartes Cave located in Northern Greece, near the village of Loutraki in the Almopia region forms part of a wider karstic cave complex known as the "Cavepark." The paleontological research in Almopia highlighted the importance of the region for the study of the Pleistocene faunas of Greece. Recently, the Ephorate of Paleoanthropology and Speleology of Northern Greece initiated systematic archaeological investigation of the caves. Despite a gradual increase in publications over recent decades, zooarchaeological research in Greece, and particularly as regards caves in the region of Macedonia, remains at an early stage of development. The application of analytical methods to faunal assemblages are still scarce and as a result, the interpretative potential of animal remains for reconstructing past human–animal relationships and subsistence strategies in northern Greece remains largely underexplored. Here we present the first results of the zooarchaeological analysis of the faunal assemblage from Antartes Cave, conducted within the framework of an ongoing master's thesis. The material analyzed is relatively limited, comprising approximately 1000 identified elements at anatomical or taxonomic level, reflecting the restricted extent and duration of previous excavation campaigns. However, the 2025 excavation season yielded a substantial quantity of new archaeological material enhancing the archaeological potential of the site. The main aim of this contribution is to present initial observations from the analysis of the available faunal material and to explore patterns of animal exploitation during the Neolithic occupation of Antartes Cave. By employing standard taphonomic and zooarchaeological methods, the study assesses which animal species were exploited by Neolithic communities and considers the role of the cave within broader subsistence and habitation practices. Although the results remain preliminary due to the small and highly fragmented nature of the assemblage, they provide an important foundation for future, more extensive zooarchaeological research at the site and in the wider region.

1506. Living by the lake - The Mesolithic site of Rothenklempenow

Authors: Natascha Kipke (LEIZA - Schleswig Location)
Format: Oral

Faunal assemblages can offer significant insights into ancient ecological systems that have since disappeared. Beyond this, they also provide a glimpse into economic processes. In addition to established analyses on topics such as methods of slaughtering and bone processing, seasonality and spatial distribution, studies of the decision-making process and its economic basis are also an important part of the analysis of subsistence strategies. With regard to this, the Rothenklempenow site, which boast favourable preservation conditions, offers particularly informative bone inventories and could be a valuable resource for further research in this matter. The bone finds from Rothenklempenow demonstrate a broad spectrum of anticipated bone remnants. Furthermore, they provide an

array of bone instruments and tools as well as artefacts whose function is predominantly presumed to be of a ritual nature. These bone assemblages also point out to an original representation of the fauna of the era, whose distribution and behaviour may have exerted an influence on the population dynamics of humans and shaped the exploitation of their ecological niche. When considered as a whole, these findings have the potential to provide a vivid representation of Mesolithic behaviour and to evaluate the underlying socio-economic trade-offs.

1925. Walls of Privilege? Spatial Zooarchaeology in the origins of the Motilla del Azuer, Spain (2200-1875 cal BCE)

Authors: Alejandro Beltrán Ruiz (University of Granada) – José Riquelme Cantal (University of Córdoba) – Trinidad Nájera Colino (University of Granada) – Nelson Almeida (University of Évora) – Fernando Molina González (University of Granada)
Format: Oral

This communication presents a spatial zooarchaeological analysis of Motilla del Azuer (Spain) and a brief of the general results, focusing on the reorganization of animal management and consumption strategies during the climatic instability of the 4.2k BP event (Phases 1 and 2). By examining the distribution of anatomical skeletal profiles and taxonomic frequencies across the site's fortification rings (Interior vs. Exterior), this study reveals a possible shift in social organization. Phase 1 (2200-1950 cal BCE) displays could be marked by spatial segregation consistent with a hierarchical model. High-value meat cuts and wild game are concentrated within the internal fortification, suggesting elite consumption by a "garrison", while the exterior settlement is characterized by lower-utility portions, likely reflecting a tributary population. In contrast, the transition to the arid Phase 2 (1950-1875 cal BCE) reveals, in part, a "reconfiguration" of these distinct consumption patterns. The analysis shows a more spatial homogenization of meat distribution, where the previous choices regarding hunted game and prime cuts diminish, including when the games are more important than the phase 1. Instead, the internal enclosure appears to shift function towards the protected storage of critical resources, evidenced by the centralized processing of pigs and the specific presence of young horses. The 4.2k BP event may have driven the site's consolidation, establishing resident families with specific functions that reshaped the social landscape. Concurrently, the lack of abundance promoted intensive processing strategies, transforming previous disposal patterns into necessary subsistence practices. Skeletal elements previously discarded were often utilized for broth preparation and grease rendering, reflecting a shift to a resilience-based economy focused on rationing and the maximization of limited resources.

1224. From bones to livestock farming: archaeozoological analysis in the Iron Age settlement of Teso de las Catedrales (Salamanca, Spain)

Authors: Rocío Pazos García – Esteban Álvarez-Fernández (Universidad de Salamanca. GIR PREHUSAL)
Format: Oral

The Teso de las Catedrales (Salamanca, Spain) is a settlement whose long sequence of occupation (from the second Iron Age to the present day) contrasts with the limited archaeological knowledge available about its evolution and internal functioning. In this context, the study of faunal remains from Late Iron Age levels (3rd–2nd centuries BC) is a fundamental way of approaching the economic practices and animal management of one of the oldest documented periods in the area. The recovered assemblage presents significant taphonomic challenges due to intense post-depositional processes, thermal alterations and a high degree of concretion, which condition taxonomic identification and functional interpretation. This paper presents the results of a recent archaeozoological analysis focused on evaluating the representativeness of the assemblage, reconstructing subsistence practices, and examining the role of animals in the daily life of the settlement. Despite preservation limitations, the study combines morphological, metric, and taphonomic approaches. The results point to a diversified livestock economy, dominated by sheep, goats and cattle, together with a significant presence of pigs and wildlife. Likewise, processing and consumption patterns in line with regional models are documented, but with local particularities that reflect the economic and social identity of the site.

2453. Legacy in Bone: The Long-Term Evolution of Animal Exploitation at the "Lužac and Jankovo" Site

Authors: Ivona Jukicic (University of Zagreb, Faculty of Humanities and Social Sciences | Geoarheo d.o.o.) – Jelena Lapic (University of Zagreb, Faculty of Humanities and Social Sciences) – Goran Skelac (Geoarheo d.o.o.)
Format: Oral

The rescue archaeological excavations conducted at the AN 3 „Lužac i Jankovo" site encompassed a total area of 39 270 m2. The primary aim of this paper is to reconstruct aspects of everyday life at the site through the analysis of bones, teeth, and horns, enabling the identification of the animal species present. By analysing the remains, the study aims to understand the human relationship with animals and how they fit into the broader social, economic, and cultural practices of the period. The comprehensive traditional archaeozoological analysis of animal remains from AN 3 site "Lužac i Jankovo" was conducted with the aim of examining changes in the use of animals across different phases of occupation. Based on the analysis of movable archaeological material, four chronological categories were identified: Prehistory, Early Iron Age – Hallstatt period, Late Iron Age – La Tène period, and Antiquity, with an additional category comprising archaeological features of unknown chronological attribution. This classification enabled a diachronic approach to the interpretation of faunal remains and their association with relevant archaeological contexts. Analysed material indicates differences in the representation of individual animal species as well as in patterns of their exploitation

between the identified periods. These differences point to changes in the use of animal resources, which can be considered within the broader framework of the development of settlement at the site. The results of the archaeozoological analysis contribute to a better understanding of the dynamics of animal use at the AN 3 site and complement the archaeological interpretation of the site across multiple chronological phases.

2315. Reading Deep Time Through Small Mammals: Taphonomic Insights from the Faro Daba and Chai Baro Beds, Afar Rift

Authors: Sema Yilmaz (University of Oulu)
Format: Oral

This paper presents a taphonomic analysis of Late Quaternary small mammal fossil assemblages from the Dawaitoli Formation in the Afar Region of Ethiopia, focusing on the Faro Daba (FD) and Chai Baro (CB) Beds of the Halibee Member. These deposits are securely dated to the Late Quaternary and are closely associated with Middle and Later Stone Age contexts and early Homo sapiens occupations in the Middle Awash. The study aims to identify the formation processes shaping these assemblages and to assess their implications for archaeological and paleoenvironmental interpretation. The assemblages comprise over 1,360 specimens, dominated by murid rodents, and provide a rare opportunity to examine microfaunal accumulation and preservation processes in a key region for human evolutionary research. Quantitative zooarchaeological analyses included NISP, MNI, and MNE, supported by a comprehensive taphonomic analysis that examined overall preservation and modification patterns. Multivariate statistical methods were applied to explore internal patterning and inter-site consistency. Both assemblages are characterized by a significant cranial bias, extensive fragmentation, and minimal evidence of digestive modification. Taxonomically, both assemblages are dominated by particularly Arvicanthis and Mastomys, with FD showing moderate diversity (MNI=286) and CB a much smaller, taxonomically restricted sample (MNI=15), a difference best explained by sample size rather than ecology. Skeletal representation and modification patterns show a strong cranial bias at both sites, with mandibles, maxillae, and isolated teeth dominating the assemblages, very low Postcranial/Cranial Index values (PCI=21.5% at FD and 0% at CB), and other taphonomic features consistent with a conservation bias. These findings highlight the need to account for strong taphonomic and recovery biases when interpreting small mammal assemblages from Late Quaternary archaeological contexts in the Afar Rift. By clarifying how formation and preservation processes structure these assemblages, the study provides a more robust framework for integrating microfaunal data into regional archaeological and paleoenvironmental reconstructions.

1037. Fourier Transform Infrared Spectroscopy as a Tool for Identifying Bone Raw Materials: Preliminary Results from Experimental Studies

Authors: Aleksandra Lisowska-Gaczorek (Cardinal Stefan Wyszynski University in Warsaw) – Grzegorz Osipowicz (Nicolaus Copernicus University, Toruń) – Krzysztof Szostek (Cardinal Stefan Wyszynski University in Warsaw)
Format: Oral

The study of prehistoric and historical bone artifacts, such as tools and personal ornaments, contributes to a deeper understanding of past human practices, expressions, and technological progress. The production and use of objects made from bone tissue results in their morphological modification and often the loss of diagnostic features that allow for the identification of the raw material used to produce them and the animal species from which they originated. One of the widely used instrumental techniques for identifying organic and inorganic materials through qualitative and quantitative analysis is Fourier Transform Infrared Spectroscopy (FTIR). In our study, we examined the usefulness of FTIR for species differentiation between samples from genetically similar animals inhabiting the same geographic region. We also experimentally attempted to identify differences between the spectra obtained for antler and bone samples from four European cervids (Cervus elaphus, Capreolus, Alces alces, Rangifer tarandus) that could be used to identify these two types of bone material using FTIR. We also assessed the effect of softening techniques for bone and antler in water, sour milk, sorrel, urine, and lyea on the FTIR spectra. The results of our pilot study indicate that FTIR spectroscopy proved to be a useful tool for distinguishing bone materials, particularly bone and antler, with the height of the amide I peak (approximately 1646 cm^{-1}) being a diagnostic indicator of the material type. Analyses also revealed that softening processes affect the chemical structure of osseous material, causing small but measurable changes in bioapatite crystallinity (CI), particularly in samples treated with sour milk, lye, or water.

2160. An Overview of Zooarchaeological Methods: Advantages and Limitations

Authors: Patrícia Aleixo – Ana Santos (School of Arts and Humanities/ UNIARQ - Centre for Archaeology)
Format: Oral

Zooarchaeology employs a range of methodological approaches to analyse animal remains from archaeological contexts, with variation depending on research questions, preservation conditions, and analytical traditions. This presentation offers an overview of the main methods used in zooarchaeology, focusing on their advantages and limitations. By comparing different approaches, it highlights how methodological choices can influence the interpretation of faunal assemblages. Each method has inherent strengths and weaknesses, making it essential to evaluate them critically and consider their limitations in any study. Some methods provide high precision and detailed information but may require specialised equipment, extensive training, or significant financial resources. Others are more accessible and easier to apply but may produce more general or less reliable results. Environmental conditions,

sample preservation, and the condition of the remains also affect the effectiveness of different approaches, as some techniques perform better with well-preserved materials, while others are more robust in fragmented or degraded contexts. Comparing multiple methods allows researchers to identify potential biases and select approaches that complement one another. By combining different techniques, it is possible to balance precision, cost, and feasibility while obtaining a more comprehensive understanding of the archaeological record. Assessing the advantages and limitations of each method also contributes to more transparent and reproducible research, ensuring that interpretations of past human behaviour are supported by solid evidence.

2373. Life in a seashell: Study of Funerary Mesolithic Shell Assemblages from Muge (Portugal) and other Atlantic European case studies

Authors: Beatriz Pinto (ICArEHB, University of Algarve) – Maria João Valente (CEAACP, University of Algarve) – Célia Gonçalves (ICArEHB, University of Algarve)
Format: Oral

The Mesolithic shell middens of Atlantic Europe often incorporate human burials within dense accumulations of mollusc remains, as exemplified by the sites in the Tagus and Sado valleys. However, the comparative role of shells in funerary contexts remains insufficiently explored — whether they were intentionally placed or incidentally deposited. Drawing on a detailed malacological study of the burials at Cabeço da Amoreira (Muge, Portugal), this paper compares the shell assemblages associated with burials from Muge to those documented in other Portuguese and European Mesolithic shell middens. Through taxonomic, taphonomic, and biometric analyses of shells directly associated with individual burials, combined with spatial and contextual data, the study investigates patterns of shell selection, treatment, and deposition across sites. Particular attention is given to surface alterations, fragmentation, and modifications that distinguish dietary refuse from ornamental items and deliberate offerings, highlighting both convergences and contrasts in funerary practices. This comparative approach helps assess how age, identity, and possibly social status influenced the curation and placement of malacological materials in mortuary contexts, situating the Muge record within a broader Atlantic framework of Mesolithic symbolic behaviour. By addressing burial-specific shell assemblages across multiple sites, the study contributes to ongoing debates on social differentiation, ritual practice, and the role of coastal resources in shaping Mesolithic identities in Atlantic Europe.

791. Chthonic Sacrifices: Canine Offerings in the Punic Ritual Wells of Gadir (Cádiz, Spain)

Authors: Rodrigo Portero Hernández (Universidad de La Rioja) – Ana María Niveau De Villedary Y Mariñas – Carolina Pérez Infantes (Universidad de Cádiz)
Format: Poster

This paper presents the zooarchaeological and taphonomic analysis of canid remains recovered from the Punic ritual wells of the Gadir necropolis in Cadiz, dated between the 5th and 3rd centuries BC. The research focuses on the contexts of Abarzuza, Palacio de Justicia and San Severiano. These wells were originally constructed for water collection but were later transformed into ritual structures and filled through successive episodes that included libations, offerings and sacrifices. Each of these actions was sealed with deposits of clean sand or stones, creating a well-documented chthonic and funerary setting characteristic of Punic ritual practices in the city. The assemblage comprises 1,545 bone fragments belonging to more than 20 individual canids. Anatomical and taxonomic analysis has revealed a deliberate selection of small sized animals and of particularly vulnerable individuals, including juveniles, elderly canids and specimens with previous injuries. Many of these animals display pathological alterations and poorly healed fractures that reflect both a lack of care during life. The presence of several individuals in anatomical connection, together with their placement within clean and undisturbed layers, points to intentional and carefully planned deposition. Taphonomic evidence confirms that these animals were killed as part of the ritual. Cutmarks recorded at the base of the skull and around the foramen magnum in some individuals indicate specific slaughtering practices associated with chthonic ceremonies. Overall, the results contribute to a deeper understanding of the symbolic role of canids within Punic ritual behaviour and the shaping of sacred spaces in ancient Gadir.

1294. Animal and Plant Resources in Early Iron Age: Bioarchaeological Evidence from Babadag Settlement (Tulcea County, Romania)

Authors: Eliza Cretu – Mihaela Danu (“Alexandru Ioan Cuza” University of Iași, Faculty of Biology) – Sorin Ailincăi (“Gavrilă Simion” Eco-Museum Research Institute | University of Bucharest, Faculty of History) – Margareta Stanc (“Alexandru Ioan Cuza” University of Iași, Faculty of Biology) – Luminita Bejenaru (“Alexandru Ioan Cuza” University of Iași, Faculty of Biology | ”Olga Necrasov” Center for Anthropological and Biomedical Research)
Format: Poster

The Babadag culture represents a prominent Early Iron Age civilization in the Lower Danube region. This paper presents preliminary bioarchaeological results from the eponymous settlement of Babadag (Tulcea County, Romania), based on combined study of faunal remains and phytoliths in order to reconstruct subsistence practices and land use. The settlement is located on an elevated promontory overlooking Lake Babadag and was inhabited between the Late 11th and the beginning of the 8th centuries BCE. During the same period, on a surface of approximately 200 km2 were identified no less than nine settlements characterised by Babadag type pottery indicating a possible early system of land exploitation. The archaeozoological analysis involved anatomical

and taxonomic identification, taphonomic evaluation, quantifications, age-at-death and sex estimations, while phytolith analysis mainly consisted in sediment sampling, laboratory processing, and microscopic examination. The faunal assemblage is dominated by domestic mammals; the most important species are cattle, sheep/goat, and pig, indicating that animal husbandry formed the basis of subsistence. Wild mammals are represented predominantly by red deer and roe deer. Fish remains, quantified separately by mammals, indicate that fishing, together with hunting, played a supplementary role in the local economy. Phytolith evidence documents a wide range of plant resources associated with an economy combining crop-related activities and animal husbandry. Cereal-derived phytoliths, including Elongate dendritic forms, indicate frequent handling and processing of cereal plants, which were likely used both for human consumption and as animal fodder. Grass phytoliths typical of open environments point to the exploitation of pasture areas, while the presence of wild grasses and woody dicotyledonous forms suggests the use of natural vegetation for supplementary fodder, bedding, and fuel. Together, the archaeozoological and phytolith results indicate a mixed subsistence system well adapted to local environmental conditions in the Lower Danube region during Early Iron Age.

165 PREVENTIVE ARCHAEOLOGY IN EUROPE IN THE WAKE OF THE MALTA CONVENTION: FINDING NEW COMMON PRINCIPLES

Theme: 2. Crossing the divide. Archaeology and the open world
Organisers: Amala Marx – Kai Salas Rossenbach (Inrap) – Håkon Glørstad (University of Oslo)
Keywords: Preventive archaeology, Developement-led archaeology, Malta convention, working condition, research
Format: Regular session
Affiliation: Community on Archaeological Legislation and Organisation - ALO

SESSION ABSTRACT

More than 30 years after the adoption of the Malta Convention and the development of the concept of preventive archaeology, most of the knowledge produced by archaeology in Europe comes from archaeological excavations carried out in advance of development work. The main principles promoted by the convention are the involvement of archaeology in development plans, funding through budgets for development projects and the dissemination of the results to as wide an audience as possible. The convention, which was ratified by some countries a long time ago and by others only recently, has been applied in very different ways in European countries, and often only partially in accordance with its principles. The application of the Malta Convention signalise a state's commitment to protect the archaeological heritage. The national implementation, however, is strongly defined by the countries' legislation, institutional and bureaucratic history as well as economic traditions. Political will, often driven by public demands and political strives, is nevertheless the main lever for the application of the convention. Such initiatives are also versatile and may cause abrupt or significant changes in course and practice. Finding a perfect system that protects archaeological remains and allows for good acquisition and exchange of scientific knowledge is probably impossible, but we believe it is important to compare and discuss the various existing systems and try to define new common principles for preventive archaeology. This session will therefore feature presentations on the various systems of preventive archaeology in Europe and beyond, highlighting their positive and negative aspects as well as expectations for the future. These presentations may address the working conditions of archaeologists, collaboration and connections to university research, or the vulnerability of organisations in the face of governmental changes.

CONTRIBUTION ABSTRACTS

45. A patchwork of opportunities and risks – Germany's federal structure and the implementation of the convention

Authors: Jana Fries (Niedersächsisches Landesamt für Denkmalpflege)
Format: Oral

The legal situation regarding cultural heritage management in Germany as well as its structures are unusual in European comparison due to the country's strongly federal organisation. There are no laws or institutions at the national level in the field of heritage management. Responsibility for the material evidence of the past lies solely with the federal states. This has a significant impact on the implementation of the Malta Convention and the daily work in archaeological heritage management. The respective laws and structures are inconsistent, which presents both opportunities and risks. In my paper, I will explain how the Convention has been understood and implemented in Germany since the 1990s. I will highlight the connections between heritage management and recent German history. Surprisingly, German reunification offered great opportunities for the (partial) implementation of the convention and triggered the gradual adaptation of the federal states' heritagelaws in this direction. I will also discuss the influence of some overarching political and economic changes on heritage management in Germany in recent decades. Finally, I will point out current trends towards change. With reference to tasks currently considered very important, such as the energy transition, defence, housing construction and infrastructure renovation, heritage concerns are likely to be restricted in various federal states and there are fears of setbacks in the implementation of the convention.

119. Preventive Archaeology in Luxembourg

Authors: Mei Duong (Institut national de recherches archéologiques, Luxembourg)
Format: Oral

Luxembourg was one of the last European countries to ratify the Valletta Convention (in 2016). However, as soon as the Convention was ratified, the government immediately began working on its implementation into national law, creating the Law of 25 February 2022 on Cultural Heritage. The 2022 law mandates that all construction projects in designated archaeological observation zones undergo archaeological impact assessments before permits are granted. Applications for assessments must be submitted by the developers, and the Ministry of Culture can prescribe necessary measures, such as surveys or excavations. These operations are conducted by archaeologists from private accredited firms, based on scientific specifications prepared by the National Institute of Archaeological Research (INRA). The costs of surveys are paid my developers, whereas the state fully covers the costs of preventive excavations. While the 2022 law certainly marks a significant step forward in the protection and management of the Luxembourg's archaeological resources, particularly through the introduction of preventive archaeology, there are many challenges to address. These challenges range from the types of assessment exemptions, to procedures to apply in case of legal violations, as well as public benefits. One of the biggest challenges is the time limits stipulated by the 2022 law: all operations must be completed within six months. While this is doable for surveys, it is complicated to carry out a preventive excavation within six months, and this issue usually leads to a lack of quality in archaeological excavations, and to complicated working conditions for both state and private archaeologists in Luxembourg. Both the benefits and the negative aspects of the Luxembourgish system of preventive archaeology will be highlighted in my presentation, which hopefully through discussions and comparisons with archaeologists and heritage managers from other European countries, can help to define new common principles for preventive archaeology.

2621. Preventive archaeology in the Czech Republic in times of stasis and times of change

Authors: Milan Kucharik (Labrys o.p.s.) – Jaroslav Peška (Archeologické centrum Olomouc p.o.)
Format: Oral

Last year, we celebrated 25 years since the adoption of the Malta Convention in the Czech Republic. Archaeological legislation in the Czech Republic has undergone rather minor cosmetic changes over the past 10 years. Disputes resolved by general or administrative courts, which clarify its interpretation, have a greater influence on shaping the interpretation of the Monuments Act, the basis of which dates back to 1986. Last year, the amendment to the Act clarified the obligations and relationships between certain types of archaeological organizations and owners of movable finds. However, it can be said that only some. Unfortunately, we still suffer from a number of unresolved fundamental problems. The first is the secondary nature of the monument protection of archaeological sites, where the protection of archaeological sites, if they do not contain wall structures, is difficult to enforce. The second is the absence of standards of archaeological excavations and the unification of documentation and the handling of finds. The third is the fragmented ownership of archaeological finds, where the owner of the finds can be the state, the region or the municipality, but it depends on who is conducting the excavation. Basically, every museum that is the administrator of the finds has its own system of evidence and documenting the finds, which makes the whole process even more unclear. Fourth, preventive archaeology in particular would benefit from professionalization, which is currently relatively low. Fifth, we can perceive the involvement of the public in the research process and popularization efforts as a positive trend. Sixth, a significant negative phenomenon is detectoring, which is an effort to catch them in the form of collaborators, but the looting of archaeological sites is at an unprecedented level. Seventh, a positive phenomenon is the improvement of the sector's information infrastructure.

711. Law in practice. Performance of the archaeological heritage protection system in Poland in the light of statistical data

Authors: Jakub Artemiuk (University of Warsaw, Faculty of Archaeology)
Format: Oral

Poland ratified the Malta Convention in 1995 during a period of profound and rapid political, economic, and legal change following the collapse of communism. At that time, large development investments, private archaeological companies and an amateur metal-detecting movement emerged in Poland, changing the face of Polish archaeology. A new heritage protection law was passed in 2003. This was intended to align the legal framework with the new reality. The first part of this paper will provide an overview of selected aspects of the current Polish archaeological heritage protection system. The focus will be on entities authorised to conduct preventive archaeological excavations, ownership and storage of archaeological finds, and authorisation of the use of metal-detecting devices by amateurs. The second part will present the results of research carried out on the effectiveness of archaeological conservation services in Poland. Their performance was evaluated mostly on the basis of the national record of archaeological sites, statistical data gathered on the number of various decisions relating to archaeology issued by regional conservation offices and answers to enquiries sent to them. The following aspects were taken into consideration: the number and distribution of known archaeological sites; permits given for archaeological field research; the transfer and storage of archaeological finds from excavations; and permits given for amateur metal detecting. I will attempt to identify regional differences and highlight the pros and cons of the current Polish system.

1471. Beyond the 'Polluter Pays' Principle: Lessons from Salona for the Future of European Preventive Archaeology

Authors: Ivica Pleština (Ministry of Culture and Media of the Republic of Croatia)
Format: Oral

Thirty years after the Valletta Convention, the "developer-funded" model has become the backbone of European archaeology. However, in complex, multi-layered urban environments, the practical application of these principles reveals a growing gap between legal theory and sustainable heritage management. Salona serves as a microcosm of Mediterranean urbanism, where European regulatory frameworks collide with intensive local development. Salona, the capital of the Roman province of Dalmatia, is currently facing unprecedented development pressure. This paper analyzes recent preventive excavations to test the efficiency of the current "Malta model." While the principle of "preservation by record" has exponentially increased our topographical data, it has also led to the fragmentation of archaeological landscapes and a "site-by-site" approach that often misses the broader urban context. By examining the challenges of Salona—ranging from the legal struggles of enforcing in situ preservation in private construction to the difficulties of synthesizing vast amounts of rescue data—this presentation proposes new common principles for the wake of the Convention: 1.From Rescue to Research: Moving beyond mere documentation toward mandatory synthesis and integration of rescue data into regional research frameworks. 2.Standardization of Quality: Establishing common European criteria for "scientific minimums" in developer-funded contexts to prevent the commercialization of archaeology from eroding academic standards. 3. Public Value as a Metric: Shifting the focus from administrative compliance to the social "return on investment," ensuring that preventive archaeology serves the local community, not just the planning process. Through the experience of Salona, this contribution seeks to join the debate on a "New Malta," advocating for a more holistic, quality-driven, and socially engaged preventive archaeology in Europe.

2354. Management of Transforming Coastal Stone Age Landscapes in Southeastern Norway

Authors: Amanda Sky (Museum of Cultural History, University of Oslo)
Format: Oral

This talk presents comparative observations on the management of coastal Stone Age development-led archaeological sites within select European countries. This talk further presents the interplay of archaeological heritage management, governmental policy, and municipal planning. Working on the comparison of the management of different coastal areas across Europe, Ås Municipality, Norway, which now lies in the hinterlands far from the contemporary coastline, is chosen for this presentation as a foundational case study for comparison. Due to dramatic isostatic land uplift and changes in sea levels, this region has endured significant landscape transformations over millennia. Contemporarily, landscape transformations continue, manifesting as infrastructure and housing projects permeating the region. Two coastal Stone Age sites in Ås Municipality, Nøstvet and Vinterbro, have mixed levels of protection and permitted development, exemplifying how the landscape has co-constructed regional identity, settlement, and use patterns with its inhabitants. This talk further shares the both physically and digitally embodied processes experienced by archaeologists carrying out the management of development-led archaeology. This talk will explore varying procedures, policies, and stakeholders involved in municipal development and subsequent archaeological knowledge production, preservation, and dissemination. Heritage protections created in the late 19th century in Norway continue to shape the lived environment, representing the agency of the past and the landscapes that hold it. Norwegian heritage management policy, in turn, shapes the way residents live and build around the past and projections of the future. This work is part of my PhD project within the HORIZON Europe MSCA Doctoral Network Archaeological Coastal Heritage: Past, present and future of a hidden prehistoric legacy (ArCHe). This project will compare archaeological heritage management practices in France, Latvia, Norway and Spain.

401. Societas Archaeologica Upsaliensis - a business created to try to bridge the gap between contract archaeology and research

Authors: Lars Sundström (Societas Archaeologica Upsaliensis)
Format: Oral

Societas Archaeologica Upsaliensis (SAU) was created by researchers from the Department of Archaeology, Uppsala University with the ambition to do rescue archaeology with a research agenda. This was made possible when the Swedish rescue archaeological system changed from a state monopoly to a competitive market driven system in the end of the 1990ies. They chose that SAU should be a profit driven foundation. When and if SAU made profit it would go to investments, an archaeological price and a scholarship fund. SAU has a board consisting of researchers mainly from Uppsala University. The Swedish system involves many different participants with different perspectives and ambitions. Due to lacking regulating standards, the competing companies have a rather big freedom to form not only their excavations (including methodology) but also the reporting. The talk will touch upon our experience of working with this ambition in a competitive system including tender with examples of how a scientific approach collides with the antiquarian perspective.

769. Towards a new culture heritage act in Norway. Possible implications for future culture heritage and management of archaeological material

Authors: Nils Anfinset (University Museum, University of Bergen)
Format: Oral

In the spring of 2025, a White Paper was submitted to the Norwegian Ministry of Climate and Environment, suggesting a totally new and comprehensive culture heritage act. The proposed Cultural Environment act takes into consideration a much wider concept of culture heritage, both in terms of landscape and regulations, and suggest protecting culture heritage from more recent historical periods as well. This includes moving the limit for monuments and sites automatically protected from AD 1537 to AD1650 or AD1850. Currently the new proposed law still awaits proposition from the Ministry to the Norwegian Parliament in order to be effective. In this paper the consequences of these proposed new regulations will be discussed with specific focus on the excavation and management of archaeological material with the Malta Convention as a backdrop. The paper will especially focus on the Norwegian organizational aspects from documentation and excavation to research and collaboration between universities and other governmental bodies, as well as national minorities and planners. The question is to what degree will this proposed new Culture Environment act will protect culture heritage at a time when cultural and natural heritage at large is under pressure.

2547. From the Reactive to the Proactive: improving knowledge infrastructure and commercial risk assessment through wide scale survey archaeology

Authors: Dain Swenson (Independent researcher)
Format: Oral

As a signatory to the Valletta Treaty, the Federal States of Germany have taken a localized approach to their implementation, adapting to differing regional requirements. Bavaria and Baden-Württemberg have developed a robust commercial archaeology industry to respond to local requirements, with state preservation offices (Landesamt für Denkmalpflege) managing permits, archiving, and coordinating with commercial firms on development-led excavations. Bavaria has mature digital infrastructure and information system guidelines (FIS), guiding the execution of field projects. However, fieldwork is largely reactionary to development projects. While not a signatory of the Valletta Treaty, The United States through a similar federal system and national scale commercial archaeology industry has achieved many of the same goals set out in the Malta Accords, though through different legal frameworks and methodologies. In contrast to an exclusively preventative and developer-led model, states such as Minnesota, Arizona, and Pennsylvania place emphasis on proactive, regular, large scale archaeological survey required by a legal and regulatory framework. Acting as the primary client, state agencies contract commercial firms for large scale projects on a regular schedule. This allows for statewide landscape level coverage of archaeological activity accomplished through a combination of developer led and state commissioned projects. Through this hybrid model of responsibility, projects are largely carried out by commercial companies, creating a permanent demand for archaeologists despite economic downturns which affect private developments. This paper seeks to highlight successes in the Bavarian model, while reviewing the merits of a proactive, hybrid, shared-responsibility approach utilized by states such as Arizona, Minnesota, and Utah. Through a comparison of regulatory and legal frameworks and the execution on both sides of the Atlantic, potential mechanisms for improved implementation of the Valetta Treaty in Germany will be proposed.

260. From Valletta to Local Practice: The Multi-Scalar Dynamics of Archaeological Heritage Protection in Europe

Authors: Carl L. Thunberg (Västernorrlands museum)
Format: Oral

This study examines the multi-scalar dynamics of archaeological heritage protection in Europe, focusing on how supranational norms are translated into national legislation and local practice. Drawing upon theoretical frameworks of policy translation and governance across scales, it analyses the interaction between the Malta (Valletta) Convention, the Faro Convention, and relevant European Union policies with ten selected national case studies: Sweden, the United Kingdom, Norway, Denmark, France, Germany, Italy, Austria, Poland, and Greece. These countries illustrate varying approaches to heritage governance, ranging from highly centralised systems, where state authorities exercise significant control over the protection and management of archaeological sites, to decentralised models that delegate substantial responsibility to regional or local bodies. The study addresses three interrelated research questions. First, it examines how centralisation and decentralisation influence the effectiveness of heritage protection, particularly in integrating archaeological knowledge into decision-making processes. Second, it explores the extent to which systematic archaeological research, including preventive excavations and inventories, is incorporated into protective measures, highlighting differences in institutional structures and procedural mechanisms across national contexts. Third, it investigates the impact of supranational norms on national policies and local practices, identifying instances of "policy translation gaps" where international standards are only partially implemented or adapted. By adopting a comparative and theoretically grounded approach, this study reveals patterns and divergences in the governance of archaeological heritage across Europe. The findings emphasise the significance of multi-scalar coordination for effective protection, the value of integrating scientific research into policy-making, and the challenges of ensuring that supranational frameworks produce tangible outcomes on the ground. Ultimately, the study contributes to ongoing debates within archaeology and heritage studies regarding the interplay between international conventions, national legislation, and local practice, offering insights for scholars, policymakers, and heritage managers seeking to enhance the protection of archaeological

remains in a complex, multi-level regulatory environment.

167 COMMUNICATION AND SELF-REPRESENTATION IN THE PUBLIC/PRIVATE SPHERES IN ANTIQUITY: THE ARCHAEOLOGICAL AND EPIGRAPHIC PERSPECTIVES

Theme: 1. Widening perspectives in material culture studies
Organisers: Clara Ramos-Taboada (Foundation for Research and Technology Hellas) – Anna Miączewska (Maria Curie-Skłodowska University) – Rachael Lane (University of Sydney)
Keywords: Antiquity, Epigraphy, Material Culture, Communication, Sef-representation, Identity
Format: Regular session

SESSION ABSTRACT

In the study of epigraphy, with a particular concentration on Ancient Greece and Rome, public communication (honorific, votive and funerary) has been the primary focus of academic research. The study of private epigraphy has recently been explored in greater depth (Benefiel and Keegan, 2016), but remains in the background. Rather than focusing solely on stone-curved texts, this panel will explore the landscape of communication and self-representation of individuals in the public and private spheres. The aim is to promote comparative historic and archaeological studies in these two areas. Are the same population sectors depicted in private selfportrayal as in public self-representation? Were the privileged classes interested in such communication in the private sphere? What is the level of access that members of the lower classes have to "second-class" forms of communication? We can propose a range of suitable approaches: a) Individuals' access to public/private communication b) Interaction and synergies between both types of communication c) Study of the population groups that access the different types of communication d) What is emphasised in private archaeological scenarios… identity, shared identities, status, property? e) Who was the audience for this communication? f) The study of the different archaeological materials themselves as communication tools (instrumenta, graffiti, votive offerings, mosaics and frescoes, etc.) g) Further study of forms of private self-representation among lower classes and marginalised groups as a possible form of agency. We will prioritise comparative analysis between both spheres and between societies of Antiquity, providing a broad chronological framework from the emergence of societies in Western Eurasia to Late Antiquity. To this end, we will implement an interdisciplinary approach based on archaeology, epigraphy, history, and art.

CONTRIBUTION ABSTRACTS

1013. Reading the Slave for Sale: Communication, Labels, and Legal Meaning in Roman Markets

Authors: Anna Tarwacka (Cardinal Stefan Wyszynski University in Warsaw)
Format: Oral

This paper explores slave sales in Roman marketplaces as a structured form of communication between seller and buyer, in which legal information was conveyed not only verbally or contractually, but also through material and visual means. Focusing on the pilleus, the corona, and the titulus servorum, the paper analyses these objects as communicative instruments (instrumenta) operating at the intersection of law, market practice, and public self-representation. Drawing on literary sources, juristic texts, and documentary evidence, the study argues that these markers constituted a semi-formal language of the slave market. The pilleus indicated the absence of a seller's warranty, transferring risk to the buyer; the corona, associated with prisoners of war sold sub corona, signalled both the origin of the slave and the exclusion of the seller's liability; the titulus servorum, displayed on tablets hung from the slave's neck, provided standardized information on origin, health, behavioural defects, and noxal liability, in accordance with the curule aediles' edict de mancipiis emundis vendundis. These visual and epigraphic forms of communication functioned in the public sphere of the marketplace, addressing an anonymous and heterogeneous audience, while simultaneously shaping the private legal relationship between the contracting parties. The paper further examines how such material disclosures interacted with written warranties recorded on wax tablets, revealing a multilayered system in which symbols, inscriptions, and contractual stipulations jointly constructed trust, allocated responsibility, and limited dispute.

1690. Epigraphic self-representation of the seviri Augustales in Nemausus

Authors: Alberto Barron Ruiz De La Cuesta (Universidad Nacional de Educación a Distancia)
Format: Oral

The seviratus Augustalis is usually related to the social promotion of freedmen. This urban institution of semi-official nature appeared at the end of the 1st century BC in several towns from Italy. It spread through the Latin-speaking area of the Roman Empire and lasted till the 3rd century AD. Its specific functions are not stated in the preserved testimonies but the seviri Augustales were frequently involved in acts of civic munificence. They were overwhelmingly freedmen despite the presence of some ingenui among them. Therefore, the seviratus Augustalis channelled the aspirations of social promotion and recognition that many prosperous freedmen could not get due to their status libertinus, which excluded them from the local magistracies and priesthoods. The aim of the present study is to analyse the ways of epigraphic representation of the seviri Augustales in the Narbonese town of Nemausus. Considering the large number of inscriptions that this location has preserved about the seviratus Augustalis (around 80), this epigraphic evidence may contain illustrative information for the understanding of the self-representation strategies adopted by wealthy freedmen. Nemausus had a dynamic community of liberti dedicated to trade and craft activities. It may explain the importance of the local seviri Augustales, which developed some internal ranks and tried to assimilate their group to the ordo decurionum as a second local elite. The occasional mention of their profession may assert freedmen's pride among the seviri Augustales in Nemausus, as does their frequent habit of recording their position preceding their name in inscriptions (a practice quite uncommon in comparison with that of seviri Augustales in other towns).

1320. Speaking without the Forum: Hermae and domestic epigraphy as social communication in Roman Baetica

Authors: Clara Ramos-Taboada (Institute for Mediterranean Studies IMS – FORTH)
Format: Oral

Hermae were among the most common sculptural supports employed in the decoration of Roman domestic space in the western provinces. In Baetica, recent studies have highlighted their frequent appearance in private contexts and their role within the material culture of elite households (Rodríguez Oliva 1996; Loza Azuaga 2016). A limited but significant number of these hermae bear inscriptions, offering valuable evidence for the study of domestic epigraphy beyond monumental and civic contexts. This paper places the epigraphic content of Baetican hermae at the centre of analysis, approaching these texts as deliberate practices of self-representation articulated within spaces of restricted access. It argues that domestic inscriptions on hermae were not neutral labels nor marginal expressions of literacy, but meaningful interventions in the negotiation of social identity, group belonging, and legal status within the household and its extended social environment. Focusing on names, formulae, and modes of textual presentation, the paper explores how these inscriptions reflect distinctions between social classes and juridical groups, including freeborn individuals, freedpersons, and members of local elites. Rather than promoting individualized commemoration, epigraphic hermae articulated relational and collective identities, embedding claims of Romanitas, cultural capital, and legal legitimacy within the everyday experience of the domestic sphere. Particular attention is devoted to questions of access and audience: who was able to read and interpret these inscriptions, how epigraphic knowledge circulated within the household, and how meaning was produced through interaction among family members, dependants, clients, and visitors. In this sense, domestic epigraphy on hermae functioned as a medium of social communication that reinforced hierarchies, group cohesion, and shared values. By foregrounding the intersections of epigraphy, legal status, and social groups, this paper contributes to current debates on identity and communication in the Roman world and challenges rigid distinctions between public and private epigraphic practices in the western provinces.

1894. Writing at Work, Writing at Leisure? Graffiti on the Peristyle Columns in the Pompeian Houses

Authors: Anna Miaczewska (Maria Curie-Skłodowska University)
Format: Oral

This paper examines the practice of writing on peristyle columns in Pompeian houses, focusing on a series of case studies that illustrate how the small surfaces of indoor columns in local houses functioned as loci of one of the everyday communication methods. While graffiti in domestic contexts have been widely acknowledged as a key source for reconstructing social interaction and literacy in Roman urban life, the specific choice of columns as writing supports has received far less systematic attention. By analysing the spatial distribution, content, and material characteristics of graffiti preserved on peristyle colonnades, this study explores whether distinct patterns of use can be identified and whether these surfaces encouraged particular modes of writing. The paper investigates the extent to which column graffiti can be associated with moments of work, leisure, or transitional movement within the household, and considers how the "physicality" of the column - its height, curvature, visibility, and accessibility - shaped in some way the act of inscribing specific content. Special attention is given to the question of authorship: can we meaningfully distinguish between writings produced by household members, visitors, dependents, or workers operating within the domestic sphere? By integrating epigraphic analysis with architectural context, the paper argues that peristyle columns constituted dynamic communicative spaces, revealing nuanced practices of informal writing embedded in the rhythms of Pompeian domestic life.

770. Peristyles and Beyond: Agency, Social Binaries, and the Language of Greek and Roman Gardens

Authors: Rachael Lane (The university of Sydney)
Format: Oral

This paper investigates the multifaceted forms of communication embedded within Greek and Roman gardens, questioning the perceived rigidity of binary oppositions such as public versus private and elite versus non-elite. By examining how these boundaries were either reinforced or unraveled within the garden space, this study identifies the specific features, layouts, and aesthetics that tended to facilitate both overt and tacit modes of interaction, behaviour and communication. Through an analysis of material choices—identifying which elements were embraced or discarded by the inhabitants of the Greek and Roman worlds—the discussion explores the motivations behind these shifts and their role in redefining cultural communication. Ultimately, this paper addresses how garden environments served as arenas for agency, reflecting broader societal standards regarding acceptable and unacceptable

behaviour in the negotiation of public and private display. Integrating current evidence, this study will employ a comparative analysis of archaeological data, ancient literary sources, and iconographic representations.

719. Off with the King's Head: A Unique Bust of the Nabataean King Obodas on Delos

Authors: Anna Accettola (Hamilton College)
Format: Oral

Were we to believe Greco-Roman sources, the Nabataean Kingdom would scarcely exist before the mid-first century BCE. Apart from occasional skirmishes with the surrounding empires, the kingdom made little impact on the authors of preserved texts. However, archaeological and inscriptional evidence shows that people from Nabataea moved around the Mediterranean and made an impact where they landed as early as the late third century BCE. In this talk, I present a reexamination of a marble bust and a first century BCE bilingual Greek-Nabataean Aramaic inscription found on Delos. I argue that Nabataean interactions in the Mediterranean have often been overlooked, by ancient and modern scholars, due to the Nabataean ability to subsume their expressions of identity into broader Greco-Roman standards. The bust is a curious piece of history, as its curly locks and youthful features, once misidentified as a Greek youth, depict a male figure almost identical in style to the Nabataeans kings in their numismatic portraiture. However, the marble medium could not have been locally sourced in Arabia and the block was too small to finish the details on the back of the head, indicating a mismatch between resource availability and artistic execution. As such, we must reanalyze the place of this bust within the socio-religious and political contexts of Delian dedicatory offerings. The accompanying Aramaic-Greek inscription affirms the Nabataean practice of honoring the king during trips abroad, but in an aniconic society, why was a portrait bust be created? This "immigrant object," dedicated by a Nabataean politician to a deity of Nabataean-Greek amalgamation, in the foreigner's sector of Mount Kynthos, highlights the complex interplay of foreign identity and local expectations in the predominant multi-cultural nexus of the Hellenistic Mediterranean.

2150. Luxury and Political Communication between Private and Public Spheres: Portraits of Mithridates VI in Glyptic Art and Precious Metals

Authors: Fermín Castillo Arcas (University of Zaragoza)
Format: Oral

The self-representation of Mithridates VI Eupator has been studied primarily through numismatic evidence and the limited corpus of surviving marble statuary (Højte 2009). Nevertheless, the image of the king was also articulated— and with considerable effectiveness—through luxury objects that circulated between the private and the public spheres. Ancient testimony concerning his dactyliotheca (Plin. HN 37.11), together with the well-known episode of an Athenian ally who wore a gold ring bearing the king's effigy (Ath. 5.212d), underscores the importance of glyptic art as a vehicle for political propaganda. Building on these indications, this paper examines engraved gems and cameos attributable to Mithridates VI (the so-called "Mithridatic type"), objects that are frequently miscatalogued in museum collections as Alexander the Great, Dionysos, or simply as a generic "Hellenistic ruler". Formal comparison with numismatic portraits, combined with dialogue with the historiography on Hellenistic glyptic art (Richter 1968; Plantzos 1999), allows for the proposal of criteria to identify the seriality of the king's portrait in glyptic media and to interpret its function as a form of close-range propaganda. Seal rings, gift objects, and markers of political allegiance—now preserved in various museum collections—demonstrate the role of these portable images as instruments of intimate political communication, addressed to restricted yet socially significant audiences. The study is completed by two extreme and overtly public manifestations of the same material language: the colossal gold statue of Mithridates displayed in Lucullus' triumph (Plut. Luc. 37.4–6) and the life-size silver statue exhibited in Pompey's triumph (Plin. HN 33.154). Considered together, this evidence reveals how luxury articulated authority, belonging, and political communication across different scales and contexts, positioned between the intimacy of the portable object and the public display of power (Lapatin 2015).

168 BURIAL CULTURE AND PRACTICE (16TH-19TH CENTURIES): INNOVATION AND EVOCATIONS OF THE PAST

Theme: 1. Widening perspectives in material culture studies
Organisers: Harold Mytum (University of Liverpool) – Sanna Lipkin (University of Oulu) – Richard Veit (Monmouth University)
Keywords: mortuary behaviour, burial, memorials, tradition, innovation
Format: Regular session
Affiliation: Medieval Europe Research Community - MERC

SESSION ABSTRACT

In the post-medieval period changes in religion, increased industrial production, and the development of specialist trades such as undertakers and memorial carvers, altered burial practice. Other forces also affected attitudes and behaviour: changing opinions on status, increased population led to many more deaths per year, and higher levels of disposable income and literacy affected opinions on increased consumption. In this period of rapid change, some aspects of tradition were valued and retained, families and individuals attempted to differentiate themselves within mass production, and styles and themes from the past were used in new and innovative ways, such as through neo-Classical and Gothic revival styles. This session, sponsored by the Society for Post-Medieval Archaeology, explores how the past was used within a trend for innovative change within burial practice. This may be from the level of an individual wearing burial clothes that reinforced their own biography and identity through the choice of a memorial with echoes of antiquity to larger trends in coffin and memorial production that tapped into wider cultural changes in taste.

CONTRIBUTION ABSTRACTS

1146. Grave without a name, name without a grave. Social burials in the 19th and 20th centuries

Authors: Martin Cechura (Museum of Prague)
Format: Oral

Part of the rapid transformation of cultural traditions and social ties during the 19th and 20th centuries was a fundamental transformation of the funeral rite and the methods of handling the dead body. A specific phenomenon, which has its roots in the Middle Ages, is burial in common graves. Leaving aside war graves and victims of epidemics, the most common type of common graves were the burials of people without relatives or people from lower levels of society, whose burial was provided by the public administration or the city. In connection with the search and exhumation of the remains of victims of political trials from 1948 to 1968, several common so-called social graves were investigated. In addition to the remains of political prisoners, which represent a very specific topic, these included the burials of adults and children without relatives who could arrange a funeral, people whose remains were used for teaching at medical schools, or victims of crimes. The combination of careful archaeological research and extensive research of written sources, which made it possible to link written records with specific remains uncovered by archaeological research, provides a unique insight into the process of social burial at the turn of the modern era and the present.

520. Animitas as religious and historical testimonies of popular piety: Death and memory in Concepción Cemetery, Chile (19th–21st centuries)

Authors: María Benavente – Catalina Pinilla M. – Rodrigo Bruna (Núcleo Interdisciplinario Ars Moriendi | Universidad de Chile)
Format: Oral

Animitas are mortuary works dedicated to the deceased, whose function relates to memory and the symbolic permanence of lives interrupted tragically. Their construction marks a beginning —the moment of the event— but they lack a precise historical end, as they remain in place, transforming recurrently into sites of memory. From this perspective, animitas operate as religious and historical testimonies of popular piety, in which objects, images, and devotional gestures are organised around the figure of the dead and the narratives that sustain them. This paper focuses on a group of animitas located within Concepción Cemetery, Chile, mostly associated with young women and girls who died under violent or unexpected circumstances. Unlike roadside animitas, these constructions are situated within an institutional funerary space, configuring a particular field in which forms of popular commemoration engage in dialogue with formal practices of death. The study spans the nineteenth to the twenty-first century, a period marked by the consolidation of new forms of death's individualisation and the material production of memory. Within this framework, animitas are approached as living works whose persistence, modification, and maintenance enable the examination of continuities and changes in urban mortuary practices. This paper thus proposes an archaeological reading of cemetery animitas as material indicators of historical transformations in the commemoration of death in urban contexts.

16. The Material Culture of Commemoration in Colonial Philadelphia: Local Perspectives and the Global Marketplace

Authors: Richard Veit (Monmouth University) – George Leader (The College of New Jersey)
Format: Oral

Archaeological salvage excavations at the burial ground of the First Baptist Church in Philadelphia, Pennsylvania (1722-1859), resulted in the recovery of an extraordinary collection of well-preserved humans remains as well as associated coffins and coffin furniture. What made these discoveries even more surprising is that the burial ground had officially been relocated after it closed in the mid-19th century. This relocation, however imperfect, resulted in the removal of a small number of gravemarkers to Mount Moriah Cemetery in West Philadelphia. Although disassociated from the remains in the cemetery, the markers, generally undecorated marble headstones, provide a stark contrast with the richly ornamented coffin furniture recovered from the archaeological excavations. The headstones and the coffin furniture provide material evidence for how colonial Philadelphia, an important provincial city in the Delaware Valley, developed its own aesthetic style which contrasted with new aesthetic movements, most notably the rococo, that were developing in English metropolitan centers such as London. Taken together they reveal how 18th-century Philadelphians participated in international trends while retaining a distinctive local identity, thereby engaging in a form of material code switching.

1426. Echoes of Antiquity: The transience of life in the 19th-century memorials at Ståhleborg Cemetery,

Oulu

Authors: Sanna Lipkin (University of Oulu)
Format: Oral

Ståhleborg, a cemetery in Oulu, was established in 1781 just outside the town walls. At the time, burials under the church floor and in the old churchyard ceased. Today, the oldest preserved grave marker dates to 1804. This simple gravestone, erected for Circuit Judge Johan Polviander and his wife Ebba Charlotta Fougt, was made from imported sandstone and represents the neo-Classical style that, along with the Gothic style, was prevalent in the cemetery of this northern Finnish town. This paper reviews the 19th-century memorials influenced by international ideals and symbolism, yet produced locally from local materials such as granite. In these predominantly modest memorials, local ideas about social status, the transience of life, and the inevitability of death become evident through symbolism drawn from antiquity. Examples include obelisks, broken pillars, and volute-krater urns atop monuments, as well as symbols such as the butterfly (psyché), torches, and depictions of Greek deities – Nyx, Hypnos, and Thanatos.

1522. Roman and all'antica style rings in burials of late medieval and early modern Transylvania

Authors: Peter Levente Szocs (County Museum Satu Mare)
Format: Oral

A considerable number of roman rings or other jewels were discovered in late medieval and early modern funeral context across the province. They were reused as cloth accessories in rather high status burials. Along the reused roman items, an even larger number of objects were found in burials, which were made in all'antica style in the spirit of the cult of Antiquity of the Renaissance. The use of such objects can be detected starting with the end of the fifteenth century and continued until modern times, though the height of their popularity was during the early modern period. Due to its Roman past, Transylvania was rich in Roman artifacts, due to its historical heritage, and some elements of it – stone carvings, simple marble slabs or bricks – were widely reused as spolia during the Middle Ages; smaller artifacts, however, became popular with the Renaissance only, in accordance with its concepts of Antique revival. The paper will discuss several cases where roman or all'antica style rings were discovered in late medieval and early modern burials of Transylvania. Furthermore, the context of the discoveries will be analyzed in comparison of the burial practices of the region in the period, which might permit to formulate several conclusions on the significance of this fashion.

2049. The Coffin as a Hybrid Cultural Artifact

Authors: Magdalena Majorek-Lipowicz (University of Lodz; Institute of Archaeology)
Format: Oral

Post-medieval and modern Polish coffins (16th–19th century) function as a distinctive cultural artistic medium, where the need for individualization intersects with broader traditions. Studying these objects engages art history, the archaeology of death, and the anthropology of funerary practices. Over the centuries, coffins in Poland evolved from simple wooden boxes into highly personalized works of art, often drawing on Greco-Roman and Egyptian models. This speech presents results of analyses conducted across several interconnected dimensions. First, it examines instances in which broadly conceived classical dignity merges with post-medieval and moder demands for personalization in burial practices. Second, it considers coffin shape and form, highlighting archaeological examples in which rectangular or tapered coffins and lids echo ancient sarcophagi, integrating symbolic meaning with spatial design. Third, it addresses the use of unusual or luxurious materials, evoking the splendor of the ancient world, alongside craft and decorative techniques—such as metalwork, woodcarving, and textile coverings—in which classical motifs are identifiable. Finally, the paper explores processes of personalization, including the uniquely Polish phenomenon of coffin portraits that visually memorialize the deceased. The integrated analysis demonstrates that part of Polish coffins constitute a hybrid cultural artifact, in which classical models, local practices, and symbolic imagination coexist. These objects offer significant insight into the reception of antiquity in material culture and into performative memory strategies — practices that not only recall the deceased but actively construct their image in the eyes of mourners through ritual and material forms of commemoration.

1528. How to recognize a priest: Analysis of the burials in the Roman Catholic Church of St Martin at Prozorje (Croatia)

Authors: Juraj Belaj – Sebastijan Stingl (Institute of Archaeology, Zagreb)
Format: Oral

In 1614, at the peak of the Counter-Reformation, Pope Paul V published the Roman Ritual. According to the Ritual, special attention was to be paid to the orientation of the deceased buried in the interior of sacral buildings. Until then, a more or less traditional orientation with the head laid in the west and the feet in the east was now replaced with the orientation towards the altar. A layman was to be buried with their feet towards the altar, while priests were buried the opposite way, so they could, according to the belief, lead the prayer on the Judgement Day facing the faithful. In the vicinity of Zagreb, at the site called Prozorje, there are ruinous remains of the Roman Catholic Church of St Martin. Out of 280 graves that were explored at the site so far, predominantly in the interior and in the narrow strip outside the church walls, 56 graves are dated to the 17th and 18th centuries. Two deceased males were buried with their heads towards the altar, one at the most prominent position in the church, on the main axis in the sanctuary in front of the altar, and the other in the nave. This paper deals with those two burials, questioning whether they can really be attributed to priests, based on all available archaeological and bioarchaeological data.

2176. "Until the end of time" – results from a 19th century churchyard in northwestern Denmark

Authors: Gitte Lambertsen Hjortlund – Mette Arenfeldt Christensen (Museum Thy)
Format: Oral

In 2024 and 2025 Museum Thy excavated parts of the original churchyard in Thisted. This has resulted in the uncovering of more than 700 graves from the 12th to the 19th century. A notable population increase led to the rapid expansion of the churchyard in the early 19th century followed by its abandonment in 1893, providing an almost unique burial record of well-preserved inhumation graves from the Early Modern Era. The large number of graves give a rare insight into changes of burial practices in a peripheral provincial town and how these practises reflect broader societal transformations, religious beliefs and folklore. This paper will focus on this expansion and how the graves vary from the original part of the churchyard as shown by the demography of the population and the organisation of the graves. How the inhabitants of Thisted materialised memory through grave markers and grave goods and how their burial practises align with normative Christian burial traditions of 16th – 19th century Denmark.

1889. Stele-type grave markers in Rural Areas of the Polish–Lithuanian Commonwealth (16th–18th Centuries)

Authors: Hubert Lepionka (Faculty of Archaeology Adam Mickiewicz University in Poznań | Podlaskie Museum in Bialystok)
Format: Poster

This paper analyses stele-type grave markers from rural areas of the Polish–Lithuanian Commonwealth, dated from the beginning of the 16th to the end of the 18th centuries, drawing on archaeological and historical evidence from present-day Poland and Belarus. The term "stele-type grave markers" is used to describe vertically set stone stelae functioning as grave markers; in later periods, some of these monuments may also be interpreted as "stele gravestones" due to their increasing formal and functional standardisation. The study focuses on the chronological and typological development of these markers, examining changes in form, dimensions, material selection, surface treatment, and spatial arrangement within rural cemeteries. Particular attention is paid to long-term continuities in local burial traditions alongside gradual transformations influenced by funerary practices and broader cultural processes operating within the Polish–Lithuanian Commonwealth. The results indicate that stele-type grave markers constituted a durable and regionally distinctive element of the rural funerary landscape. Their evolution reflects both the persistence of local commemorative practices and the gradual adoption of more standardised forms of grave marking. The paper also addresses methodological challenges related to dating, especially in contexts where chronology has relied primarily on historical records and numismatic evidence.

169 THE SACRED AND MARINE INVERTEBRATES FROM EAST TO WEST: CULTIC AND FUNERARY PRACTICES (7TH CENTURY BCE TO 7TH CENTURY CE)

Theme: 1. Widening perspectives in material culture studies
Organisers: Tatiana Theodoropoulou (CNRS) – Caroline Mougne (MNHN) – Nicolas Morand (Éveha International) – Vicky Vlachou (Aristotle University of Thessaloniki) – Jutta Stroszeck (DAI Athen)
Keywords: marine invertebrates (molluscs, crustaceans, echinoderms, coral), funerary and ritual practices, circulation of marine raw materials, symbolisms, East-West
Format: Regular session

SESSION ABSTRACT

Marine invertebrates (shells, crabs, sea urchins, corals) often held a highly symbolic place in religious and funerary practices of the ancient world. Their presence as votive offerings, grave deposits, protective amulets, ritual ornaments, decorative elements, or banquet remains, prompts a re-evaluation of the boundaries between nature, economy, and the sacred. From the Near East to North Africa, from Asia to Europe, these items are often attested in cultic and funerary contexts from the 7th century BCE to the 7th century CE. This is notably the period when the first Greek sanctuaries were established, commercial roads and cultural exchanges intensified between regions of the ancient world. However, uses of marine invertebrates vary across cultures. This encourages a deeper examination of the continuities between cults dedicated to the living and offerings to the dead and the gods within a large geographical frame. This session will examine the plurality of these practices and offer a comprehensive overview of the uses, circulation, and symbolism of marine invertebrates through diverse approaches, such as archaeozoology, archaeology, iconography, and textual sources. It will explore their function in cultic and funerary rituals by examining their typology, associations, and role within collective and individual gestures. The session will also focus on trade networks of these items connecting oceans and continents, questioning their symbolic value, exotic dimension, and transfers between cultures. Ultimately it will illuminate the marine world

in the imaginaries and representations of the sacred and the afterlife, and connections between nature, societies and the intangible. Finally, the session may consider the transformations observed at the beginning of the Middle Ages, particularly with the rise of Christian and Islamic cults. The goal is to understand how the uses and meanings attributed to marine invertebrates, inherited from ancient traditions, were integrated, reinvested, or transformed within new religious and cultural frameworks.

CONTRIBUTION ABSTRACTS

2231. Breaking the shell: Marine invertebrates in cultic and funeral contexts of the Late Bronze Age Eastern Mediterranean

Authors: Janine Fries-Knoblach (Ludwig-Maximilians-Universität München)
Format: Oral

While invertebrates have long been acknowledged as an important resource in Stone Age research, researchers of the Metal Ages tend to overlook these inconspicuous creatures amongst their rich textual and archaeological evidence. If they are considered, the focus is usually laid on practical uses and consumption habits. In the context of Philipp W. Stockhammer's ERC Starting Grant "FoodTransforms", I had the chance to systematically collect archaeological evidence for any use of aquatic resources in the Late Bronze Age Eastern Mediterranean, including invertebrates. Based on this data set, I will give an overview of cultic and funeral contexts with invertebrates prior to the defined period of this session, which will provide useful background information for the appreciation of later practices. In Egypt, the Temple of Hatshepsut features pictures of squid and lobster, while snails and bivalves, representations thereof or artefacts made from them were deposited in graves. In Mesopotamia, bivalves are also occasionally found in graves. For the Aegean, the role of argonauts in ritual, cult and funeral is as significant as the use of bivalves as offerings and requisites in shrines, for which both originals and representations in painting, stone, pottery etc. were employed.

2645. Shells for the deceased: shell remains from burial contexts in the Early Iron age and Archaic Aegean

Authors: Tatiana Theodoropoulou (CNRS - Université Côte d'Azur) – Vicky Vlachou (Aristotle University of Thessaloniki)
Format: Oral

Shell remains from burial contexts have long been treated as marginal or purely ornamental finds. Although discrete, their presence in funerary assemblages of the Early Iron Age and Archaic periods from mainland Greece and the Aegean islands suggests a more complex social and symbolic role. This paper will offer a short overview of shell funerary assemblages that might highlight inter-regional patterns and local divergences within the same period. Environmental availability is also considered, addressing how access to marine resource shaped choices in funerary deposits. A focus on a selection of well-studied case studies aims at providing an insight into funerary practices related to the use of marine invertebrates, and at exploring how these materials participated in commemorative acts for the deceased. The analysis focuses on specific criteria directly or indirectly evidenced in the archaeological record, such as age, gender, or markers of social identity, assessing whether shell deposits correlate with particular categories of the deceased or stages in the life cycle. Through this contextual approach, shells are studied as meaningful elements embedded in social practices, reflecting both shared cultural frameworks and regionally specific expressions of status and community affiliation during the Early Iron and Archaic periods.

1796. Small humble offerings or much more: Exploring the significance of Molluscan remains from protohistoric burial context in the Indian subcontinent

Authors: Arati Deshpande-Mukherjee (Deccan College PGRI, Pune)
Format: Oral

In the Indian subcontinent both molluscan shells and shell objects made from them are frequently found at many sites belonging to the protohistoric and historical cultural period. While the earliest ones have been recorded in the seventh millennium BC. neolithic site of Mehrgarh their particular presence at some of the burial sites dating to the Mesolithic, Harappan, Neolithic/ Chalcolithic and Iron age periods makes them significant. These range from humble, small, unworked shells to larger, intricate, handcrafted ornaments, like beads, bangles, etc. As they are mostly found to be associated with adult burials their occurrence with those of children in certain chalcolithic burials further enhances their role as burial offerings. The taxonomic Identification of the shell finds indicates the use of molluscan resources of both marine and freshwater origins during the protohistoric times. Most intriguing is the use of specific marine shells at settlements located far inland which reflects the long-distance interactions with the coast. This paper therefore attempts to determine the source, shell preferences, role, manufacturing techniques and socioreligious significance of shell finds from protohistoric burial context.

289. Marine invertebrates in funerary contexts: food, ritual and symbolic practices in the Three Gauls

Authors: Caroline Mougne (UMR 7209 BioArch MNHN Paris)
Format: Oral

Marine invertebrates are most often studied as food resources, ecological indicators or economic commodities. This paper explores another dimension of human–marine invertebrate relationships by focusing on their symbolic, ritual and alimentary roles in funerary practices during the Roman period in the Three Gauls (Gallia Aquitania, Gallia Lugdunensis and Gallia Belgica). Based on archaeological data ranging from the Late Iron Age to the Early Middle Ages (2nd century BC – 7th century AD), this study examines the presence of marine invertebrates, mainly molluscs and echinoderms, in funerary contexts. Some species, such as buccins, are deposited intact in inhumations, while others, such as sea urchins, are occasionally placed on cremation pyres and intentionally burned. Other assemblages correspond to consumption remains, interpreted as evidence of funerary meals or practices of ritual commensality associated with burial ceremonies. This paper combines fieldwork data, bibliographic research, zooarchaeological identification, taphonomic analyses, and contextual comparisons with Mediterranean funerary assemblages, particularly from southern Gaul and Italy. The results highlight both the persistence of local traditions inherited from Gaulish societies and the incorporation of Mediterranean ritual practices during the Roman period, followed by their gradual disappearance with the transformation of funerary norms in the Early Middle Ages, within a context of Christianization.

1776. Shells in a domestic context: material evidence from a house in Akragas dating back to the classical age

Authors: Maria Parello (Parco archeologico me paesaggistico della Valle dei Templi di Agrigento)
Format: Oral

The contribution presents the study of malacological remains recovered from House VII B, located in the residential area north of the Via Sacra at Akragas, investigated since 2019. The excavation of Insula VII has significantly improved our understanding of the urban development of this sector of the Greek city, from its foundation in the mid-sixth century BC to its abandonment following the destruction of Akragas at the end of the fifth century BC. House VII B, partially excavated to date, is organized around an L-shaped courtyard and preserves clear evidence of a sudden destruction caused by fire, which resulted in the exceptional preservation of primary deposits. The malacological assemblage derives from rooms A, B, C, and Z, from the courtyard, and from a votive deposit associated with the ritual closure of the house. A sample of approximately 490 shell remains was analyzed, allowing for a contextual and functional interpretation. The assemblage is dominated by Glycymeris, followed by Donax trunculus, with smaller quantities of Patella and other species. Spatial distribution shows a marked concentration of shells in rooms A and B and in the courtyard. These spaces are interpreted as a multifunctional room and a small kitchen area, suggesting that the majority of the shells represent food waste. Evidence also points to non-alimentary uses of shells. Approximately 10% of the assemblage displays marine erosion, indicating collection for purposes other than consumption. Glycymeris valves used as pigment containers, exotic shells such as Monetaria annulus and Luria lurida with symbolic and apotropaic meanings, and perforated shells from the votive deposit highlight the ritual, symbolic, and ornamental roles of malacofauna within the domestic sphere. Overall, the evidence underscores the multifunctional significance of shells in the daily life and ritual practices of late Classical Akragas.

721. Marine Invertebrates in Pompeii: From Daily Life to Ritual Acts

Authors: Rivière Julie (BioArch UMR 7209 MNHN-Paris | Direction de l'Archéologie de Chartres métropole) – Franck Decanter (INRAP | AOROC UMR 8546 CNRS ENS-Paris)
Format: Oral

This presentation aims to examine the role of marine invertebrates in ritual and funerary practices in Pompeii through a bioarchaeological study of peri-urban dumps, funerary enclosures and ritual hearths at Porta Stabiae and Porta Nocera. Moving beyond a strict opposition between everyday refuse and symbolic spaces, the research considers both contexts as interconnected arenas of consumption, social practice and material gesture. Urban dumps produce highly heterogeneous assemblages in which food remains merge with domestic and craft waste, obscuring individual acts of consumption. In contrast, funerary and ritual contexts display a highly selective faunal spectrum dominated by pigs and caprines, alongside rare but recurrent marine invertebrates, particularly sea urchins and Spondylus shells, frequently affected by burning. Their regular presence indicates intentional and standardised preparation, ritualised deposition, and possibly secondary functional uses. These contrasting treatments reflect distinct regimes of archaeological visibility: urban accumulation dissolves social practices, whereas ritual selection and transformation actively shape intentional gestures embedded within local traditions. Marine invertebrates thus emerge as symbolically charged materials within commemorative performances, highlighting how consumption mediates relationships between the living, the dead and the divine.

442. Oysters, Environment, and Lived Religion in Roman Britain

Authors: Avner Goldstein (Boston College)
Format: Oral

This paper follows previous theoretical contributions that have emphasised the potential of oysters as mediators between religion and the marine environment, and more generally between ritual and ecology, and illustrates the agency of the non-human in archaeologies of empire and its cultural milieu. Oysters, notably absent from Iron Age sites while overwhelmingly represented in many assemblages from Roman Britain, played a key role in the creation of provincial religion in the province, a phenomenon unparalleled in Mediterranean regions of the empire. In addition to being discovered in contexts associated with everyday economic and social life, oysters are frequently recovered from sites and features that are associated with ritual activity, including temples, shrines, wells, ritual shafts, pits, and cellars. They are especially common in subterranean features at non-urban sites and sacred precincts, as well

as in rural structured deposits in backyard pits and shafts, a practice of deposition that intensified throughout the Roman period. This paper therefore introduces some of the data from these various sites across Britain in order to make sense of how oysters helped create society and culture and shed light on human-environment relationships in a Roman province. Differences between inland and coastal, urban and rural, military and civilian, and high-status and low-status contexts are especially noted.

170 AT THE CROSSROADS OF EPOCHS: THE NEOLITHIC OF CENTRAL ASIA IN THE LIGHT OF NEW RESEARCH

Theme: 7. Interaction, connectivity and mobility
Organisers: Saule Rakhimzhanova (Margulan Institute of Archaeology) – Svetlana Shnaider (APSACA Laboratory, National Center of Archaeology | IRL ZooStan - CNRS – Al-Farabi Kazakh National University)
Keywords: Central Asia, Neolithic, Neolithisation, Environmental adaptation, Animal domestication, Cultural interaction
Format: Discussion session

SESSION ABSTRACT

Central Asia remains one of the least explored regions in the context of the Neolithic period, despite its key position between the ancient civilizations of the East and West. In recent years, the region has seen a growing number of archaeological projects, the application of advanced scientific methods (archaeobotany, bioarchaeology, radiocarbon dating, isotopic analysis, genetic study etc.), and the development of interdisciplinary approaches. These advances offer new insights into the processes of neolithization, the transition to sedentary life, animal domestication, and the development of agriculture. This session aims to bring together researchers working across various parts of Central Asia (Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan, Tajikistan, north-western China, southern Siberia, and beyond) to discuss new discoveries, interpretations, and theoretical frameworks. Particular attention will be given to issues of mobility, adaptation to diverse natural landscapes, cultural interactions, and transformations in socio-economic structures. We invite papers presenting fieldwork results as well as interdisciplinary projects that contribute to rethinking the Neolithic in Central Asia and its place in global narratives of ancient history.

CONTRIBUTION ABSTRACTS

2192. Processes of Cultural Formation in Northeastern Kazakhstan during the Final Mesolithic

Authors: Victor Merts (Toraygyrov University)
Format: Oral

The Mesolithic era is one of the least-studied periods of the Stone Age in Kazakhstan. The origin of Mesolithic complexes remains problematic, among which the Shiderty culture stands out for preserving traits indicative of influence from the southeastern Caspian region and the Near East. This influence is evident in the lithic technology and in examples of prehistoric art, represented by pebble and flint sculptures discovered at the multilayer site of Shiderty 3 (Layer 4) and at the Kostomar settlement. These are anthropomorphic and zoomorphic specimens characteristic of Near Eastern cultural traditions. Their origin may be associated with the process of Neolithization that began in the southern regions of Eurasia at the Pleistocene–Holocene boundary, followed by the colonization of peripheral areas by populations from the Near East. On the eastern flank, these processes resulted in the migration of pastoral groups into the steppe zone, gradually reaching the territories of Northeastern Kazakhstan and the South of Western Siberia by the turn of the 8th–7th millennia BC. Here, under the influence of environmental conditions and the challenges of adaptation, they reverted to foraging subsistence strategies, while retaining their lithic technological practices - without parallels in other assemblages of the region, as well as their ideological concepts.

2271. Vavilino 1: An Early Neolithic Site in Western Kazakhstan

Authors: Talgat Mamirov (Margulan Institute of Archaeology)
Format: Oral

Stratified Neolithic sites are extremely rare in Kazakhstan. One of the few known examples in Western Kazakhstan is Vavilino 1. The site was discovered by N.M. Malov in 1988 and subsequently briefly studied by N.L. Morgunova in 1991. Rescue archaeological investigations were carried out at the site by the Margulan Institute of Archaeology in 2018–2020. The investigations demonstrated that the site dates to the Early Neolithic (second half of the 7th millennium BC), with a minor admixture of later material. The soil profile of the excavation, the homogeneous assemblage of stone artefacts, and archaeozoological data (after P.A. Kosintsev) indicate the synchronicity of the complex. Typologically, the assemblage is characterized by end-scrapers made on blades and blade-like flakes, blade fragments with retouch, and few fragments of burins, borers, and other tool types. These artefacts show close similarities to Neolithic sites of the Steppe Volga region, such as Algay and Oroschaemoe 1. The obtained radiocarbon date (cal 6355–6335 BC) places Vavilino 1 within the circle of Early Neolithic sites of the Volga–Ural interfluve. The site opens new perspectives for further research on Neolithic sites in the steppe zone of Western Kazakhstan and contributes to addressing questions concerning the origin and cultural characteristics of the Early Neolithic in the region.

2345. Neolithisation in the Mountains: New Evidence for Early Pastoralism in Central Asia

Authors: Svetlana Shnaider (IRL ZooStan – CNRS – Al-Farabi KazNU) – Percy Hei Chun Ho (Harvard University) – Alexey Kasparov (Independent Researcher) – Saltanat Alisher Kyzy (Osh State University) – Choongwon Jeong (Seoul National University) – Christina Warinner (Harvard University | Department of Archaeogenetics, MPI-EVA) – William Rendu (IRL ZooStan – CNRS – Al-Farabi KazNU)
Format: Oral

The emergence of food-producing economies based on agriculture and pastoralism became one of the key processes transforming social structures, subsistence strategies, and landscape use during the Early Holocene. Despite the extensive research on Neolithisation in the Fertile Crescent and East Asia, the earliest stages of the development of food production in Central Asia remain insufficiently studied. At present, two early centres are identified in the region — the Kopet Dag foothills (Jeytun culture) and southern Fergana (Obishir-5, Surungur); however, their interconnections and their role in the spread of food-producing economies require further investigation. In recent years, our research team has conducted integrated bioarchaeological studies of Early Holocene sites in Central Asia, primarily Obishir-5 and Surungur. The application of ZooMS, cementum analysis, radiocarbon dating, and ancient DNA analysis revealed the predominance of sheep and goat remains, some of which belong to domestic forms, and provided evidence for seasonal patterns of their exploitation and specific subsistence practices. These results indicate the spread of pastoralism in the Fergana Valley during the Middle Holocene, significantly earlier than previously assumed. A comparative analysis of materials from Jeytun, Obishir-5, and Surungur has allowed us to propose a model for the formation of the Neolithic in the mountainous regions of Central Asia. These data refine our understanding of the pathways of the spread of food production and demonstrate the active role of mountain regions in the transformation of subsistence systems during the Early Holocene. The work founded by RSF #24-78-10127 and ANR PaleoCALM (ANR-23-CE27-0019).

2365. Neolithic ceramics of the North-Eastern Aral Sea region

Authors: Saule Rakhimzhanova (Margulan Institute of Archaeology)
Format: Oral

Ceramics are one of the most important sources for studying the ethnocultural development of ancient populations. Studying ceramics within a historical-cultural approach provides an opportunity to draw new data for research into the history of the region's population. The ceramic collections under study were obtained through exploration in 2021-2022 and 2024-2025. Ceramics from the sites of Saksaulskaya I, Kosaman, Akespe, Shili 7, Sholkum 6, 17, and 18, Tapa and Sazdy 2, and Kulandy, located in the Aral and Kazaly districts of the Kyzylorda region of the Republic of Kazakhstan, were analyzed. The studied materials predominantly contain pottery-shaped vessels, rarely jar-shaped ones. Round-bottomed and flat-bottomed vessels are also present. Comb and pricked ornamentation were most frequently used to decorate vessels, while pitted patterns were less common. Patterns such as stepping, stepping and rolling, zigzag, and wave have been recorded. In the Aral region, pottery was made of clay, with sand and wool being the most common additives. In the Aral Karakum Desert of the Kazalinsky region, this recipe accounts for a significantly smaller proportion, but the use of both silt and clay is observed. Admixtures include sand, chamotte, and shell, combined with organic solution (separately in different vessels). In terms of the features of form, ornamentation, and composition of the molding masses, Neolithic ceramics find analogies with the Makhandzhar and Atbasar cultures of Northern Kazakhstan (Shevnina 2014, Zaibert 2012), with the Oyuklin culture on the Mangyshlak Peninsula (Astafyev 2014) and in the Balkhan region (Markov 1962), the Caspian culture in the Northern Caspian region and Western Kazakhstan (Vybornov et al. 2021, Rakhimzhanova et al. 2023), and with the Kelteminar culture in Uzbekistan and Karakalpakstan (Vinogradov 1981). Analysis of data on ceramic production traditions reveals a multi-component composition of the population, but some features also indicate contact between them.

2374. High-Altitude Archaeobotany in Pamirs: Phytolith and Charcoal Evidence from Late Pleistocene-Holocene levels from Istykskaya cave (Murgob district, Tadjikistan)

Authors: Svetlana Shnaider (IRL ZooStan – CNRS – Al-Farabi KazNU) – Mihaela Danu (Alexandru Ioan Cuza University of Iași, Faculty of Biology, Iași) – Marie-Amandine Chautard – Auréade Henry – Julian Gentile – Barbara Mas (CEPAM UMR 7264 CNRS, Université Côte d'Azur)
Format: Poster

Central Asia remains a key yet understudied region in discussions of Neolithic transformations, particularly regarding plant-related practices in environmentally constrained settings. This contribution presents results from a combined phytolith and charcoal study carried out at the multi-stratified site of Istiskaya, located on the Pamir Plateau at over 4000 m asl, and addresses human–plant interactions from the Late Epipaleolithic to the Middle Holocene. The research is conducted within the framework of the project "Archaeology and Paleoecology of high-altitude ecosystems in Central Asia's Landlocked Mountains from the Late Glacial to the Middle Holocene" (PaleoCALM). Phytolith samples from archaeological sediments were collected from exposed stratigraphic profiles of Istiskaya Cave (near Chesh Tebe) across multiple occupation layers. In parallel, phytolith samples were obtained from modern soils, as well as dried feces of yak and sheep, collected from the ground, animal enclosures, and dried dung cakes traditionally used as fuel. These modern samples form part of a developing reference collection designed to improve the interpretation of archaeological microbotanical assemblages in high-altitude Pamir contexts. Within the archaeological framework of repeated site

occupations, phytolith assemblages are used to reconstruct local grassland composition, assess variations in herbaceous plant inputs, and evaluate patterns of site use, while charcoal remains provide complementary evidence for woody vegetation availability and fuel practices. Variations observed between stratigraphic units indicate changes in occupation intensity and flexible land-use strategies consistent with mobile lifeways. By integrating archaeological context with micro- and macro-botanical proxies and modern reference material, this study feeds into ongoing discussions on mobility, adaptation, and Neolithic trajectories in Central Asia.

171 VITICULTURE AND WINE IN THE ROMAN WORLD

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Theoni Baniou (Landscape Archaeology Research Group, Catalan Institute of Classical Archaeology) – Patricia Vandorpe (IPAS, Universität Basel) – Laurent Bouby (Institute of Evolutionary Science of Montpellier, University of Montpellier) – Remi Noraz (Centre for Anthropobiology and Genomics of Toulouse, University of Toulouse)
Keywords: Grape, Viticulture, Agrobiodiversity, Wine consumption, Trade, Roman period
Format: Regular session

SESSION ABSTRACT

Viticulture and wine consumption were fundamental to the agricultural economy and social life of the Roman period. Although the grapevine can adapt to various environmental conditions, producing high-quality commercial wine requires favourable environmental and cultivation parameters-a fact well known in Roman period. Wine's significant role in Roman society explains why the grapevine was among the most common cultivated species and popular commercial products. Thanks to locally produced, in some areas of the Empire, and imported wines of varying quality, wine consumption was widespread across all social groups. The quantity and quality of wine available to a person was closely tied to social and economic status. Recent morphometric and paleogenomic research illuminates the history, diversity, and spread of European viticulture, connecting ancient cultivation methods to the genetics of modern grape varieties and revealing new insights into the biological and cultural legacy of Roman winemaking. This session focuses new research directions enabled by advanced analytical techniques, emphasizing the identification of cultivated grape varieties and characterization of wine properties. It also explores how these methods reveal less intensive or alternative forms of viticulture-practices often invisible in traditional approaches. We invite contributions that explore the diverse dimensions of viticulture and wine exchange in the Roman world, drawing on different scientific perspectives and methodologies. Submissions combining typological and analytical approaches or examining the social, economic, and environmental contexts of Roman wine production and consumption are especially welcome. Topics include: •Viticulture and wine production centres during the Roman period, examined through archaeobotanical and archaeological evidence, including case studies on local cultivation, production, and trade. •Morphological and ancient DNA analyses on grape remains. •Organic residue analyses confirming the presence of wine. •Networks involved in wine transport. •Vessel types associated with the storage, transport, and consumption of wine. •Textual, epigraphic, and iconographic sources on wine production and consumption.

CONTRIBUTION ABSTRACTS

248. Developments in chemical analysis methods for identifying grapes and wine in archaeological objects. An overview of the current situation

Authors: Nicolas Garnier (Laboratoire N. Garnier)
Format: Oral

Since the excavation of shipwrecks in the 1970s, various indicators have been proposed for identifying archaeological wine (Condamin and Formenti, 1978). Developments in biomolecular archaeology, particularly the use of mass spectrometry since the 1990s, have enabled accurate molecular identification. However, the reliability of the results depends on many factors: sampling, methods of organic matter extraction, mass spectrometry analysis, and the identification and interpretation of molecular markers. Recently, using new, particularly sensitive methods, we have detected traces of grapes/wine in numerous containers (ceramics, basin coatings, metal, stone or glass vases, wooden barrels) and in many contexts (Pecci et al., 2013; Garnier and Valamoti, 2016). This frequency of identification has led to doubts about the methods used (Drieu et al., 2020). A return to the basics of chemistry was necessary, thus countering the unfounded and chemically incorrect criticisms of British laboratories (Whelton et al., 2021). Based on the chemical interactions between grape molecules and alcoholic fermentation with clay, we will justify the choice of samples, the effective preservation of markers over time regardless of the burial environment, and the choice of extraction methods (Garnier, 2022). Ethnoarchaeology, experimental archaeology, the integration of data with botany, and the study of other fruits have also enabled us to refine the criteria for identifying grapes and their derivatives, as well as other fruits. The analysis of duplicate sample series, using different methods and laboratories, has once again justified the results, if justification were still needed (Pecci et al., 2020a and 2020b; Bernal-Casasola et al., 2024). Today, metabolomic analysis is a reliable and particularly sensitive approach to addressing the issue of grapes and wines.

54. A new class of biomarkers for the characterization of ancient wine residues in archaeological pottery

Authors: Gazmend Elezi (University of California) – Kym Faull (University of Southern California) – Jacques Connan (Universite de Strasbourg) – Hans Barnard – Julian Whitelegge (University of California)
Format: Oral

Organic mass spectrometric applications constitute a fundamental set of tools for detecting wine residues in archaeological materials and addressing anthropological questions related to ancient trade, interregional interaction, and economy. Despite the development of high-throughput techniques and advanced instrumentation, the results of chemical analyses of ancient wine residues are often ambiguous and context-dependent. This study introduces a novel LC–MS/MS methodological framework optimized for the detection of pyranoanthocyanins, namely Vitisin A and Vitisin B, as specific biomarkers of grape wine fermentation. Authentic Vitisins standards were synthesized from malvidin-3-O-glucoside and yeast-derived metabolites, purified by preparative high-pressure liquid chromatography (HPLC), and characterized through tandem mass spectrometry. Validation with modern red and white wines confirmed their exclusive presence in fermented red wines and high recovery from ceramic matrices. Analysis of archaeological ceramic samples revealed molecular traces of pyranoanthocyanins across different regions and time periods. These findings provide the first identification of fermentation-specific pigments in archaeological materials, offering an analytical tool to distinguish between red and white wine and to confirm fermentation processes.

392. Diachronic View on Maritime Foodways and Agriculture: Carpological and Morphometric Analyses from the Roman Forum of Butrint

Authors: Riccardo Tomasini – Claudia Moricca (Sapienza University of Rome) – David Hernandez (University of Notre Dame) – Nevilla Molla (Albanian Institute of Archaeology) – Richard Hodges (University of East Anglia) – Laurent Bouby – Sarah Ivorra (ISEM, University of Montpellier, CNRS, IRD, EPHE) – Laura Sadori (Sapienza University of Rome)
Format: Oral

Butrint (Albania), a UNESCO World Heritage site, served as a strategic maritime node connecting the Adriatic and Ionian seas throughout antiquity. This study presents the analysis of waterlogged plant macro-remains and wood charcoals recovered from the Roman Forum, specifically from a well fill and foundation fills dating from the Hellenistic to the Late Antique period (4th c. BC – 6th c. AD). The excellent preservation conditions revealed a rich assemblage dominated by edible fruit and nut taxa, including Ficus carica (fig), Sambucus nigra (elderberry), and Rubus ulmifolius (blackberry). A relevant discovery is the first example of Prunus persica (peach) at Butrint, and in Albania in general. The data derived from this assemblage are helpful to deepen the knowledge of the dietary habits of a dynamic port community. An important component of this research involves geometric morphometric analyses performed on numerous Vitis vinifera (grape) pips recovered in the aforementioned contexts. By examining morphological differences among grape seeds, this study aims to distinguish between wild (Vitis vinifera subsp. sylvestris) and domesticated morphotypes. This diachronic approach provides insights into the typology of grapes consumed and the commercial exchanges that characterized the site over time. The integration of traditional carpological analyses with morphometric data make it possible to better frame the role of Butrint role in the Hellenistic and Roman economic systems, showcasing a landscape where local resource exploitation coexisted with complex agricultural management and long-distance trade networks

619. Paleogenomic perspectives on grapevine diversity and population structure during the Roman period

Authors: Remi Noraz (ISEM)
Format: Oral

The Roman period represents a key phase in the expansion and intensification of viticulture across Western Europe and the Mediterranean. While archaeological evidence documents the widespread cultivation of grapevine and the circulation of wine, the genetic structure and diversity of grapevines cultivated during this period remain poorly understood. This presentation introduces a paleogenomic investigation of Roman-period grapevine remains from Western Europe. Using genome-wide ancient DNA data and population genetic approaches, we explore patterns of genetic diversity, population structure, and biological relatedness among ancient grapevine samples. The presentation will focus on three main aspects: (i) the extent of genetic diversity observed among Roman-period grapevines, (ii) their population affinities with modern cultivated and wild grapevine groups across the Mediterranean, and (iii) patterns of genetic relatedness that provide insights into propagation practices and the circulation of plant material. These results highlight the heterogeneous genetic composition of grapevines during the Roman period and point to the coexistence of multiple genetic lineages, shaped by regional Mediterranean affinities and local management practices. By emphasizing population genetic and genetic relatedness evidence, this contribution demonstrates how paleogenomics can directly inform discussions on grapevine diffusion, agrobiodiversity, and cultivation practices in the Roman world, complementing archaeological and bioarcheobotanical approaches.

1009. Modelling the landscape of Roman viticulture in continental Italy: an integrated approach

Authors: Roberto Ragno (University of Cambridge) – Maria Castiello (University of Lausanne)
Format: Oral

The production and commercialisation of wine held an important place in the Roman agricultural economy. However, research in this area has been relatively limited and has focused mainly on micro-regional approaches and data (e.g. amphorae) that are closely associated with distribution and consumption rather than production. This research project utilises machine learning techniques to examine potential wine production regions in continental Italy from the late Republican period through the Late Imperial period (1st century BCE-5th century CE). The research examines the various environmental and infrastructural conditions that affected Roman viticulture. The research combines archaeological data from over 125 sites that include winemaking infrastructure such as wine presses, wine vats, treading floors, and wine cellars alongside stratigraphically dated occurrences of the domesticated grape-vine (Vitis vinifera) in the archaeobotanical record. By focusing exclusively on production-related proxies, we attempt to isolate the relationship between viticulture and its environmental and topographical contexts. The research utilises Maximum Entropy and Random Forest algorithms to evaluate the effect of climatic, topographical, and infrastructural variables (temperature, precipitation, altitude, proximity to water courses, roads, and urban centres) on the geographic distribution of Roman viticulture. The resulting predictive models identify regions of high and low suitability for grape cultivation, highlighting intensive viticulture productive regions near Roman villas (which have been the primary foci of archaeological research to date) and other less visible forms of viticulture. This integrative research project attempts to develop a scalable model for winemaking production and systematically quantifies the role played by various factors in past agricultural decision-making.

1789. Revealing Roman Arboriculture: investigating vine-, olive- and fruit tree-growing in southern Adriatic Italy through Google Earth Pro satellite images

Authors: Dimitri Van Limbergen (LEIZA - Leibniz-Zentrum für Archäologie)
Format: Oral

This paper offers a discussion of the numerous, buried traces of ancient vineyards, olive groves and orchards in the Tavoliere delle Puglie in southern Adriatic Italy. This area offers unique circumstances for the non-invasive investigation of Roman arboriculture traces, as it contains many, unusually preserved traces of ancient tree fields that allow to detect, study, visualize and reconstruct past arboriculture with remarkable detail and confidence. In my talk, I will focus on the use of satellite data from Google Earth Pro, and their potential to investigate how Roman arboriculture fields were set, designed and structured, and how their cultivation fitted within wider rural landscapes. To this end, I will concentrate on the territory around Roman Luceria (Lucera), where soil conditions ensure optimal visibility and past research had identified many traces of ancient land division (Roman centuriation) and rural habitation. I will also discuss how to move forward by integrating other kinds of non-invasive approaches, including geophysics and manual coring.

83. Not so new after all: orange wines in the Roman World

Authors: Paulina Komar (University of Warsaw) – Dimitri Van Limbergen (Leiza)
Format: Oral

Orange wines—white wines produced through prolonged skin-contact fermentation—have gained increasing popularity in recent decades, being often associated with natural and traditional winemaking practices. They are commonly perceived as a recent innovation confined to specific regions such as northeastern Italy and Slovenia, and most often discussed without any reference to ancient agricultural knowledge or Roman viticultural practice.This presentation shows that the technique has much deeper roots reaching back to the Mediterranean during antiquity. Drawing on textual, archaeological, anthropological, and oenological evidence, we demonstrate that skin-contact vinification was widespread in the Roman world and likely predates it, with origins potentially traceable to Neolithic cultures of the Caucasus. By situating this practice within the broader framework of Roman viticulture and wine consumption, the study highlights the long-term continuity of macerated white wine production across millennia, repositioning orange wine not as a modern novelty but as the revival of one of the oldest vinification traditions in human history.

199. Women and Roman wine-making: An interdisciplinary view

Authors: Tamara Lewit (University of Melbourne)
Format: Oral

Perhaps our most detailed textual source for Roman wine-making practices is the description contained in Book 12 of Columella's first-century CE De Re Rustica. While scholars frequently refer to this text, what has gone unnoticed is that Columella designates these activities as the responsibility of the female farm manager, the vilica. According to this agronomist's account, she was responsible for the entire process of wine-making from preparation of the vessels to fermentation of the must, including supervision of the workers and rituals for its success. An interdisciplinary examination of this in the light of both iconographic sources and archaeological investigations into the organization of spaces, work, and ritual activities at Roman villas challenges the accepted scholarly

assumption that wine-making was a male activity. The previously unrecognized part that the female farm manager played is of significance to our understanding of women's economic and religious roles in relation to Roman wine.

195. Partners in Wine: The Vintners, Merchants, and Drinkers Who Made Cretan Wine Desirable in the Roman Imperial Period

Authors: Erica Venturo (University of Michigan)
Format: Oral

For a century prior to Vesuvius' eruption in 79 CE, Cretan wine was the most prolific extra-regional wine variety distributed to and consumed in Campania. Combining archaeological, literary, and epigraphic evidence from Pompeii, I will demonstrate why and how Cretan wine, specifically passum, became so favourable for Campanian wine drinkers. This interdisciplinary evidence will also highlight how Cretan wine amphoras became a valuable part of the local Pompeiian wine industry for their sweet wine, Surrentinum. When discussing the 'value' of Cretan and Campanian wine, I analyse this through both an economic and social lens. Amphoras—especially those associated with the production and distribution of wine—have been fundamental to debates on the nature of the Roman economy. Unlike those earlier discussions, I aim to shift the conversation away from defining the nature of the Roman economy on a global scale, and instead, pursue a multiscalar analysis to reveal the irrational and personal factors that influenced the actions of those who shaped the trajectory of Central Cretan amphoras within the Roman economy—aka the producers, distributors, consumers. As such, the value of Central Cretan wine amphoras goes beyond their role as a proxy for network ties between Crete and Campania, and sheds light on the people behind the amphoras, and the decisions they made daily surrounding the Cretan and Pompeiian wine industries.

2566. Uncovering Ancient Viticulture in the Sinti Valley: a Preliminary Report from the Excavations of a Roman-Era Vineyard in Southwestern Bulgaria

Authors: Mariya Avramova (Antiquity of Southeastern Europe Research Centre, University of Warsaw) – Zdravko Dimitrov (National Archaeological Institute and Museum)
Format: Oral

Site 12, located in proximity to the village of Valkovo in Southwestern Bulgaria, underwent excavation during the spring and summer of 2025. This site is situated approximately 7 kilometers from the town of Sandanski, on the western banks of the Struma River, at the initial slopes of the Malashevska Mountain. In relation to the ancient topography of the region, it is positioned 15 kilometers from the significant urban center of Heraclea Sintica. The rescue excavations conducted at this site unveiled an intriguing complex. The site comprises two primary sectors: the southern sector features a structure dating from the Roman period (2nd-4th century), while the northern sector contains 104 rock-cut rectangular niches, systematically arranged in rows alongside an ancient stream. These rock-cut niches, located on a gentle slope with a northeast orientation, represent a notable discovery and are the first of their kind in the area. Subsequent analyses revealed that these niches were integral to local viticultural practices associated with vine cultivation on the slopes of the Struma Valley. The distinctive characteristics of the niches, including toolmarks and their stratigraphic context, suggest a Roman-period date rather than a modern origin. This paper aims to elucidate the prominent features of Site 12, alongside relevant analogies that support its interpretation as a small vineyard. This will enhance understanding of the lesser-known aspects of small-scale wine production catering to local, and potentially private, needs.

2020. Wine Residues in M·PORC-Stamped Pascual 1 Amphorae from Roman Baetulo

Authors: Francisco Javier Marín Marín – Simona Mileto – Verónica Martínez Ferreras (ERAAUB, IAUB, Departament d'Història i Arqueologia, Universitat de Barcelona) – Clara Forn Perramon – Esther Gurri Costa (Museu de Badalona) – Paul Reynolds (ERAAUB, IAUB, Departament d'Història i Arqueologia, Universitat de Barcelona | ICREA) – Alessandra Pecci (ERAAUB, IAUB, Departament d'Història i Arqueologia, Universitat de Barcelona | INSAUB)
Format: Poster

Between the mid-1st century BC and the 1st century AD, Pascual 1 amphorae were widely produced in the north-eastern Iberian Peninsula and are traditionally associated with the maritime export of regional wine. Despite this, direct evidence for their contents remains limited. Previous interdisciplinary research has highlighted the key role of the Layetanian region in wine production and trade, particularly with Gallia Narbonensis. Archaeometric studies of ceramic pastes have identified Baetulo (modern Badalona) as a major production centre for Pascual 1 amphorae. Combined archaeometric and epigraphic evidence indicates that amphorae bearing the widespread stamp M·PORC were produced in Baetulo and are well documented across the western Roman world. Eleven M·PORC-stamped Pascual 1 amphorae recovered from archaeological contexts in Baetulo were selected for organic residue analysis (ORA). All samples were attributed to the local figlinae based on chemical (WD-XRF), mineralogical (XRD), and petrographic (TS-OM) analyses of the ceramic fabrics. The primary aim of the study was to determine whether these amphorae contained wine, while a secondary objective was to identify the waterproofing materials used on their inner surfaces. Organic residues were extracted using total lipid extraction and targeted methods for wine markers, followed by derivatisation and GC-MS analysis. The results reveal the presence of compounds consistent with grape derivatives, confirming the use of M·PORC-stamped Pascual 1 amphorae for wine transport. In addition, the analyses identified Pinaceae pitch as the material used for the internal coating.

172 WOMEN AND MATERIAL CULTURE IN THE ROMAN REPUBLIC AND EMPIRE

Theme: 1. Widening perspectives in material culture studies
Organisers: Tais Pagoto Bélo (University of São Paulo) – Brian Gordon Lutalo Kibuuka (University of Coimbra) – Sarah Lino De Azevedo – Marina Regis Cavicchioli (Federal University of Bahia)
Discussant: Fábio Vergara Cerqueira (Federal University of Pelotas)
Keywords: Roman women, women agencies, Gender Archaeology, intersectionality, Feminist Theory, Power and gender relations
Format: Regular session
Affiliation: Archaeology and Gender in Europe - AGE

SESSION ABSTRACT

This session invites papers on women in the material culture of Rome, with particular emphasis on the Republican and Imperial periods, taking archaeological evidence as analytically central rather than merely illustrative. We are interested in the plurality of women's agencies and experiences as they are materially inscribed in domestic and urban spaces, rural villas and military zones, sanctuaries and imperial cult complexes, as well as in funerary and provincial contexts, where gender, status, legal condition (free, freed, enslaved), ethnicity and age are negotiated and contested. Over the past decade, work on women in Roman studies has increasingly drawn on intersectionality, feminist and queer theory, studies of embodiment and lived religion, and decolonial critiques of empire. Hence, new archaeological methods and theory have reopened key questions about labour, mobility, care work, motherhood, sexuality, religious authority, and economic participation. We welcome contributions that re-read women from the perspective of their presence, absence, and symbolic construction; that analyse artefacts related to adornment, domestic management, medicine, or cult as indices of women's agency; that explore funerary assemblages as arenas for materializing ideals of femininity, family memory, and civic identity; that interrogate the interplay of iconography and epigraphy in representing female bodies, virtues, and roles; and that critically reflect on the methodological and epistemological limits of identifying gender in the archaeological record. Considering the fundamental material traces of women to understand their place in the past, it is interesting to contemplate some questions: How has Gender Archaeology helped to rewrite the history of women of the Roman Republic and Empire? How could female agency demonstrate power through materiality? How can Archaeology demonstrate the transformations that women underwent between the Republic and the Empire? How can the material culture of this period reveal women in their plurality?

CONTRIBUTION ABSTRACTS

1438. The Public Projection of Roman Women in the transition from the Republic to the Empire

Authors: Sarah Azevedo (Federal University of Bahia) – Tais Pagoto Bélo (University of São Paulo)
Format: Oral

This presentation aims to analyze the materiality of the public projections of women of the Roman aristocracy during the period of the end of the Republic and the beginning of the Empire. We will examine coins, statues, and reliefs that demonstrate representations of women associated with Roman politics. These documents have been studied by historiography and archaeology in recent decades, always being revisited mainly to point out the participation of women in politics and in war affairs. More recently, feminist studies and gender studies have contributed to deeper analyses, creating their own epistemology to account for the complexity of the theme of women's participation in politics. Expressions like "Livian Revolution" have recently emerged in historiography and archaeology to analyze Livia's leading role, contrasting with the notion of "Augustan Revolution." Through the concept of "Livian Revolution," one studies, for example, the architectural reforms undertaken by Livia in the city of Rome, and how these represented a spatialization of female power in the city. Studies on the activity of female patronage have also grown, demonstrating the role of women in the economy, leading to them having more public visibility through benefits such as plaques or statues honoring them for the donations made. The contribution of an imperial woman in donations to the city ended up promoting the imperial family, which led to such women also being minted on coins. It will be demonstrated the epistemological changes in the analyses of material culture concerning the public projection of women, exploring themes such as female patronage, the role of women in politics and in war affairs, pointing to the protagonism and agency of women in that period.

1343. The female agency in Roman cities

Authors: Marina Cavicchioli (Ufba)
Format: Oral

Women played a significant role in the dynamics of Roman cities. However, economic "entrepreneurship," certain professions, political influence, and euergetism have traditionally been interpreted by historiography as almost exclusively male activities. Traditional historiography, in general, has privileged normative discourses that relegated women to the private sphere. In this sense, archaeological sources have played a fundamental role in changing perspectives on the role of women in Roman public life. It is worth noting that the archaeological discoveries in Pompeii were very important in highlighting the presence of women in the city's public spaces and their active participation in daily life in Pompeii; however, this fact has not received due attention in studies of the Roman world. Gender studies in recent decades have been necessary to deconstruct stereotypes related to the roles of men and women in societies and to offer a new perspective on the sources, highlighting female agency. Thus, we seek to demonstrate, through material culture, this female protagonism in the Roman world.

2739. Beyond labor matronalis: Women and amphorae in Greece and Rome

Authors: Manel García Sánchez (University of Barcelona)
Format: Oral

The presence of women in amphoric epigraphy cannot, admittedly, be generalised across all regions and periods of the ancient world. It is also true that Rhodes accounts for the vast majority of such evidence in the Greek world, while Dressel 20 amphorae from Baetica dominate the Roman record. Nevertheless, the corpus is sufficiently substantial to warrant serious consideration. It is therefore essential to subject the literary sources of antiquity to critical scrutiny and to avoid the mistake of neglecting archaeological and epigraphic evidence, which significantly nuances the androcentric and misogynistic discourse that permeates most literary genres in ancient Greece and Rome. The involvement of numerous Greek and Roman women in the manufacture of amphorae and other categories of opus doliare is well attested. This participation, which took a variety of forms, also facilitated connections with other key economic sectors, such as the production of wine and oil and the exploitation of natural resources. The documentation generated by these productive processes—primarily epigraphic in nature—is of fundamental importance. On the one hand, it challenges the notion that women in ancient Greece and Rome were confined to the ἔργα γυναικῶν or excluded from the virilia officia; on the other, it calls into question the taboos found in literary sources that restrict women's relationship with wine, commerce, or economic activities conducted outside the oîkos or the domus. The combined contribution of epigraphy and archaeology thus makes it possible to render women visible as economic agents, identifying their specific roles within activities that are crucial for understanding the dynamics of interaction and interdependence that developed on a Mediterranean scale between the third century BC and the third century AD.

559. Reflections of expected womanhood: relief mirrors from Viminacium

Authors: Ilija Dankovic (Institute of Archaeology, Belgrade)
Format: Oral

In the Roman world, women's identities were shaped through a complex interplay of social norms, domestic roles, and material practices. While literary and epigraphic sources emphasize ideals of female virtue centred on marriage, household management, and moral conduct, material culture offers an important perspective on how such expectations were materialized and communicated in everyday life. This paper focuses on a group of Roman relief mirrors from ancient Viminacium, luxury items probably acquired as part of a dowry and used in marriage ceremonies. The mythological scenes represented on their backs have traditionally led to interpretations of these objects as carriers of religious, ideological, or moral messages. Previous studies have considered their iconography as expressions of imperial propaganda, religious concepts, or as moral exempla addressed to brides. Reassessing and further developing these interpretations, this contribution approaches relief mirrors as material agents involved in the construction and reinforcement of female identity. By situating the mirrors within their social and gendered contexts, the paper explores how these objects participated in shaping expectations of womanhood, particularly in relation to marriage, household roles, and feminine virtue. Rather than viewing their iconography solely as decoration or religious symbolism, the analysis considers relief mirrors as active components within moralising discourses surrounding young women and newly married wives. Drawing on specimens from Viminacium, the paper argues that relief mirrors functioned as a material connection between ideology and everyday practice, reflecting not only who women were expected to be, but also how such expectations were materially manifested.

927. The Portrait Statue Epidauros Museum inv. no. 1: A Reappraisal

Authors: Panagiotis Konstantinidis (Institute of Historical Research - National Hellenic Research Foundation)
Format: Oral

The paper reexamines a nineteenth-century find from the sanctuary of Apollo Maleatas and Asklepios at Epidauros: the first-century CE female portrait statue Epidauros Museum inv. no. 1. On the basis of the statue's rare iconography—used almost exclusively for representations of empresses and female members of the imperial family—it is argued that a comparable identification should be proposed for the figure. Building on this suggestion, the paper explores a more specific identification by considering the history, topography, and broader cultural landscape of the sanctuary in the first century CE. Particular emphasis is placed on archaeological, literary, and epigraphic evidence for honors bestowed on women—both members of the imperial family and private individuals—within the sanctuary and the city of Epidauros during this period. Of particular importance are the members of the eminent Epidaurian family of the Statilii, particularly honoured in the Asklepieion, and related to the prominent Memmii and Voluseni families of Sparta.

1031. Deliberate Choice or Dernier Cri: Moving Beyond Fashion in Evaluating the Design of Roman Female Hairstyles

Authors: Elizabeth Wolfram Thill (Indiana University - Indianapolis)
Format: Oral

The elaborate hairstyles depicted in portraits of imperial women are some of the most famous aspects of Roman art. Yet traditional scholarship has focused on a limited range of questions for these artifacts: the who, and therefore when, the portraits represent. Investigations of why the portraits were created typically focus broadly on their role as images of females / femininity within the (assumed) male-dominated sphere of regime presentation. An excellent case study can be found in Julia Domna, wife of the emperor Septimius Severus (reign 193 - 211 CE). Her distinctive style of wig, set above curled locks of her own hair, is represented in hundreds of extant portraits: across sculpture, coins, and even painting, as well as in portraits of her relatives and unidentified women outside of the imperial family. Nevertheless, the question of why she, and so many other women, chose that particular coiffure remains underexplored. Vague academic gestures towards Julia Domna's familial connections to the Eastern cult of Elagabalus are unsupported and reduce other women's adoption of the coiffure to bland fashion adherence. In this paper I propose that the style derives from Julia Domna's consistent public presentation as actively involved in travel across the empire. A wig—particularly one compact and flat along the back, to facilitate packing or riding in a litter—would be a practical choice for a woman constantly on the road. More importantly, it would be a more believable choice than earlier elaborate imperial styles (regardless of what Julia Domna actually wore day-to-day). Given contemporary emphasis on long-distance travel and cross-empire connections for elite families, other cosmopolitan women may have had similar needs or public personas. Julia Domna's wig thus serves as a case study for exploring more complex factors than pure fashion behind the design of hairstyles for Roman women.

571. Presence, Absence, and Symbolic Construction: Women, Funerary Assemblages, and Material Agency in Imperial Rome

Authors: Clara Durand (Scuola Normale Superiore Pisa)
Format: Oral

Recent approaches in Gender Archaeology have emphasized the need to reassess women's roles in Roman society through material evidence, foregrounding questions of presence, absence, and symbolic construction. This paper adopts a funerary perspective to explore how female identities were materially articulated through monuments, portraits, and inscriptions, treating archaeological assemblages not as illustrative complements but as primary sources for women's agency. Focusing on elite and non-elite funerary contexts in Rome and its suburban landscape, the study examines how ideals of femininity, family memory, and civic belonging were negotiated through commemorative practices. Particular attention is given to the interplay between architecture, iconography and epigraphy, and to the ways in which female bodies, virtues, and social roles were constructed across different media. One of the case studies is the Licinian tomb on the Via Salaria, where the dense concentration of female names on altars and the selective deployment of portraiture reveal women as structurally central to genealogical memory and dynastic representation. Rather than passive figures within a male-centered lineage, these women emerge as active agents in the materialization of family identity. This aristocratic context is set alongside evidence from non-elite funerary commemoration, notably the tomb of Claudia Semne, where epigraphic self-representation offers insight into alternative strategies of visibility and social positioning. These case studies (Caecilia Metella, Priscilla, the Servilii Tomb, the Ottavii Hypogeum, etc.) enable both the reinterpretation of certain well-known monuments and a comparative approach across funerary contexts, highlighting women's agency in Imperial Rome and the cross-social scope of an ongoing research project. By reading funerary assemblages as arenas in which gender, memory, and identity were materially negotiated, this paper argued for a contextual, object-centered approach to female agency. It ultimately proposes funerary material culture as a key lens through which to reassess the plurality of women's experiences in Imperial Rome.

676. Elite Women in Death: High-status female burials in Roman Salona (Dalmatia)

Authors: Ivana Banovac (Archaeological museum in Split) – Ivana Jadrić-Kučan (University of Zadar)
Format: Oral

Salona, once the capital of the Roman province of Dalmatia, represents an exceptional archaeological and historical context for the study of ancient Roman society. Systematic archaeological excavations began in the early nineteenth century, focusing largely on the city's necropolises, which have since remained the subject of continuous excavations and scholarly analyses. More than two centuries of research have yielded a substantial and diverse corpus of archaeological material, including funerary monuments, inscriptions, sculpture, and associated grave goods. The specific aim of this research is to identify female burials in Salona based on preserved grave goods and associated grave architecture and sculpture, which constitute key indicators of high-status internments from the 1st until the 4th century. Particular attention is dedicated to burials containing luxurious every day and symbolical objects, such as jewellery, finely crafted personal items, and imported goods, as well as monumental or architecturally elaborate tomb structures. These elements are examined not only as markers of wealth, but also as expressions of social identity, familial representation, and gendered status within the funerary sphere. By situating the evidence from Salona within the broader framework of Roman funerary practices, this study seeks to illuminate the ways in which elite and affluent women articulated their social standing and cultural roles in death, thereby contributing to a more comprehensive understanding of female visibility and agency in the Roman world.

1110. Adornment, Identity, and Status: Female jewellery from the Smiljanovac necropolis in Roman Salona

Authors: Ana Marinović – Ivana Banovac (Archaeological museum in Split)
Format: Oral

Salona was the capital of the Roman province of Dalmatia and one of the most significant urban centers on the eastern Adriatic coast. At its peak, the city accommodated tens of thousands of inhabitants, underscoring its importance as a major administrative, economic, and cultural hub within the Roman world. Its extensive necropolises constitute a crucial source for the study of Roman population, offering insight into everyday life, social organization, and cultural practices, as reflected in burial customs and associated grave goods. The southeastern necropolis of Smiljanovac is situated on the eastern side of the Adriatic Highway, south of the river Jadro, in present-day Solin. Preventive archaeological excavations were conducted at the site in 2010 and 2011, encompassing an area of 10,132 m^2. A total of 974 graves dated from the 1st to the 6th century AD were documented. The artefacts recovered from the necropolis reflect material culture typical of Roman funerary contexts, including ceramic vessels and lamps, glassware, tools, weapons, sepulchral monuments, jewellery, and coinage. This research focuses on the analysis of grave goods, with particular attention to gender-related materials used to identify female burials. Items of female personal adornment, including jewellery as well as hair and costume elements, are considered key indicators for the interpretation of women's graves. By examining material and architectural markers of gender, social status, and differentiation, this research aims to contextualize the roles of women as active and integral members of the community of Salona and, more broadly, of Roman provincial society. Through an interdisciplinary approach integrating archaeological evidence, comparative analogies, and historical analysis, the study contributes to a more nuanced understanding of gender, identity, and social structure within an urban context of the Roman Empire.

982. Remembering and Being Remembered: Wives and Funerary Commemoration of Upper Moesia

Authors: Milica Marjanovic (Institute of Archaeology, Belgrade)
Format: Oral

Funerary commemoration played a crucial role in the construction and public display of identity in the Roman world. The widespread practice of remembering the dead through inscribed and often decorated tombstones, attested across the provinces, offers a glance into the lives of individuals from different strata of Roman society. Such monuments constitute particularly valuable archaeological evidence in provinces where literary sources provide only limited information about local populations. This paper focuses on a relatively small fraction of the provincial population of Upper Moesia: married women, including women in marriage-like unions. It examines tombstones of wives, both as the deceased being commemorated and as active commemorators of others. Although analyzed monuments largely conform to the broader visual language of Roman funerary art and to widespread epigraphic conventions, they also display distinct regional characteristics. The analysis includes inscriptions, as well as iconography, with particular attention paid to elements such as clothing, jewelry, attributes held by the deceased, and specific bodily gestures. The paper explores how socially expected roles were emphasized through these iconographic and epigraphic choices, and how the identity of a wife was constructed and materialized within this provincial population. Obtained data suggest that female identity as a wife was a particularly significant and socially meaningful category in Upper Moesia.

1161. Enkratic Memory Underground: Saint Thecla's Catacomb on the Via Ostiense and the Materialization of Female Asceticism in Late Antique Rome

Authors: Brian Kibuuka (University of Coimbra)
Format: Oral

This paper examines the Catacomb of Saint Thecla along the Via Ostiense, near the Basilica of Saint Paul Outside the Walls, as a compact case study to explore how female enkrateia (ascetic self-control, particularly sexual renunciation and the refusal of marriage) was materialized in late antique Rome. Reused from a pre-existing necropolis and monumentalized in the fourth century in connection with a now-lost surface basilica, the complex's hypogea, its shrine with a sarcophagus, and its restrained decorative program of frescoes and mosaics collectively construct a carefully choreographed environment of female sanctity. Notably, fourth-century portraits of apostles frame the burial of an elegant Roman matron and a young girl, placing them in direct proximity to apostolic authority. By placing archaeological data in dialogue with the Acts of Paul and Thecla and late antique receptions of Thecla as an enkratic heroine, this study asks how narratives of broken engagement, repudiated marriage, and itinerant virginity were translated into commemorative practice. Rather than treating "encratites" as a purely textual or heresiological construct, this paper argues that the spatial and iconographic choices within the Catacomb of Saint Thecla register a specifically Roman reception of enkratic ideals. Ultimately, the site functions as a subterranean memoryscape in which women of different ranks could inscribe themselves and their kin into a Christian tradition of radical female asceticism.

624. "One untimely born" (1 Cor 15:8): Reproductive Loss, Ritual Responses, and Women's Space in the Corinthian Ekklēsia

Authors: Eunyung Lim (Middlebury College)
Format: Oral

This paper reexamines Paul's self-depreciation in 1 Corinthians 15:8 as ektrōma (ἔκτρωμα; "one untimely born") by situating the term within ancient women's reproductive experiences and related rituals. Since this rare biblical term (ektrōma) literally means "miscarriage," "abortion," or "stillbirth," scholars have long explored its literary and theological meanings, often reading it as Paul's rhetorical defense of apostolic authority. However, little attention has been paid to the implications of this expression for Corinthian women—especially those who had endured ektrōma—within the community of Christ (ekklēsia). Bringing biblical interpretation

into conversation with Mediterranean archaeology, this paper foregrounds the gendered ritual dimensions of ektrōma, illuminating Corinthian women as authentic bearers of child loss and as religious actors in the making of sacred space across domestic and communal settings. Challenging interpretive tendencies that neglect women's embodied agency and overgeneralize elite male intellectuals' devaluation of infants, the study explores rituals and religious beliefs surrounding pregnancy and premature death. It draws on evidence from Greco-Roman uterine amulets, archaeological data on miscarriages, and perinatal infant burials in Hellenistic Athens and Roman Corinth. In addition, it highlights first-century CE Corinth as a colonized and rapidly urbanizing landscape marked by migration, where the majority of women were formerly enslaved Greeks and lived amid high rates of infant mortality. In turn, the paper suggests that pregnancy and reproductive loss in Roman Corinth generated recognizable ritual and religious responses—protective amulets, mortuary ritual, and devotional practice—that shaped how Corinthian women could mobilize bodies, objects, and affective memory in their new life in Christ. It argues that their lived experiences were critical to characterizing the Corinthian ekklēsia, a sacred space they helped create through eschatological hope, ecstatic speech, and baptism on behalf of the dead (1 Cor 14–15).

305. Pregnant stones and birthing women. A cultural history of the aetites in the Greek and Roman world

Authors: Mario Lentano (University of Siena) – Anna Maria Urso (University of Messina)
Format: Oral

From the Hellenistic age up to late antiquity, several ancient sources, both Greek and Roman, provide information on aetites or eagle stone, so called because it was believed to be present in the nests of these birds and indispensable for the hatching of their eggs. This kind of stone has a cavity inside containing another small stone or grains of dust and when shaken it produces a sound similar to that of a rattle; because of this characteristic, the aetites was likened to the maternal womb and used in Greek and Roman world of the Hellenistic and imperial age in a series of folk medicine practices related to pregnancy and childbirth. In particular, it was widely believed that applying it to the body of a pregnant woman, tied with a string or wrapped in animal skin, made labour easier and quicker, provided that the stone was promptly removed just before delivery. This contribution aims to examine in detail the sources of this belief and to explore the cultural logic behind its development, from both an anthropological and a medical history perspective.

173 "ACROSS THE BORDER": INTERACTION AND MOBILITY IN THE MEDIEVAL WESTERN MEDITERRANEAN

Theme: 7. Interaction, connectivity and mobility
Organisers: Ramón Gijón (Universidade de Évora) – Bilal Sarr-Marroco (Universidad de Granada) – María Gracia Roca (Universidad de Deusto) – Ana Luisa Santos (Universidade de Coimbra) – Sylvia Jiménez-Brobeil (Universidad de Granada)
Keywords: Landscapes transformation, Social and economic networks, Cultural interactions, Population dynamics
Format: Regular session

SESSION ABSTRACT

Throughout the Middle Ages, the history of the Western Mediterranean was shaped by the arrival of the Arabs and the spread of Islam, as well as by military campaigns in which Christian polities advanced southwards. Across these territories, shifting frontiers fluctuated in size and location, gradually moving through the landscape and creating extensive transitional zones. While traditional studies have focused on military and repopulation strategies, archaeology has increasingly filled important gaps left by documentary sources. These frontier regions have a complex history of conflict, as evidenced by the construction of fortifications and the remains of military encounters. However, during periods of relative stability, these regions also became spaces of intense interaction, acculturation and assimilation, fostering the development of dynamic, multifaceted societies. Thus, these territories were characterised by substantial social mobility, including migration, colonisation processes, commercial exchange, the circulation of technical and scientific knowledge, and the transformation of agricultural landscapes. This session welcomes archaeological research on defensive structures, battles and settlements, as well as bioarchaeological studies addressing paleodemography, genetics, health and diet across these interconnected southern European frontiers. Likewise welcomed are any types of studies related to materiality that allow for the documentation of cross-border movements of people, objects or species.

CONTRIBUTION ABSTRACTS

156. Variations in the prevalence of intestinal parasites among medieval Islamic populations in the Iberian Peninsula and North Africa

Authors: Ramón Gijón (Universidad de Santiago de Compostela) – Bilal Sarr-Marroco – Sylvia Jiménez-Brobeil (Universidad de Granada) – José Pérez Rivera (Independent researcher)
Format: Oral

The discovery of parasites from archaeological contexts allows us to learn about the socio-economic conditions and dietary habits of past populations. In addition, palaeoparasitological study of sediment associated with individuals allows us to individualise the parasitosis. This advantage makes it possible to carry out multiple studies, such as the prevalence of parasitosis in a population group. Al-Andalus and the Maghreb are two territories in constant contact throughout history; the medieval period is perhaps one of those in which the greatest number of exchanges of all kinds took place. Spaces such as Ceuta, Tangier, and Melilla became integrated into the political formations of the Iberian Peninsula, accelerating the transfer of people. This paper presents the paleoparasitogical results obtained from the analysis of sediment samples taken in situ following paleoparasitological protocols from two islamic medieval necropolises found in the south of the Iberian Peninsula (Ronda and Baza), as well as one found in Northern Africa (Madînat Sabta, Ceuta), with a sample consisting of more than eighty individuals, including all age groups and both sexes. The evidence found through optical microscopy allows for a comparison between parasites in the Iberian Peninsula and North Africa, taking into account existing mobility and its possible variations.

630. Trepanation, a bioarchaeological marker of cultural interaction and mobility in the medieval Mediterranean

Authors: Maria Roca (Universidad de Deusto) – Rosa Maroto Benavides (Universidad de Granada) – Ramon López-Gijón (Universidad de Santiago de Compostela) – Olga Lopez Guarnido – Sylvia Jimenez-Brobeil (Universidad de Granada)
Format: Oral

Cranial trepanation is one of the oldest surgical interventions and, during the Middle Ages, was primarily associated with the treatment of traumatic injuries, in many cases resulting from armed conflicts. This study examines archaeological and textual evidence of trepanation in the medieval western Mediterranean, exploring how warfare and cultural mobility facilitated the transmission of medical knowledge. The study is based on a comparative review of published cases of cranial trepanation from medieval sites in the Iberian Peninsula, southern France, and Italy, such as Gormaz (Soria), San Baudelio de Berlanga (Soria), Poggibonsi (Toscana), Prieuré Saint-Cosme or Leopoli-Cencelle (Lazio). Osteological descriptions available in the specialized literature were analyzed along with translations of medieval medical treatises as the ones by Abu al-Qasim al-Zahrawi, Guy de Chauliac or Roger de Parma. Documented cases show both the presence and absence of postoperative survival, as well as a variety of techniques, indicating the existence of specialized practitioners and systematized surgical practices. Comparison with medical texts from the Greco-Roman and Arabic traditions reveals cross-border circulation of knowledge. It is concluded that trepanation functioned not only as a therapeutic response to traumatic injuries, but also as a bioarchaeological marker of cultural interaction and mobility in the medieval Mediterranean.Taken together, these patterns reflect interconnected medical landscapes shaped by movement, contact, and shared practices across diverse communities of the medieval western Mediterranean.

636. Presence of lead in populations of al-Andalus linked to the use of glazed ceramics

Authors: Sylvia A. Jiménez-Brobeil – Rosa M. Maroto Benavides (University of Granada) – María Gracia Roca Rodríguez (University of Deusto) – Olga López Guarnido (University of Granada) – Ramón López-Gijón (Universidad de Santiago de Compostela)
Format: Oral

Although the technique of glazing ceramics is very ancient, its use became widespread in the Iberian Peninsula with the arrival of the Arabs, who used lead glazing on pieces for cooking or storing food. Lead glazing was also used as an interior coating for drinking water distribution pipes. The main objective of this study is to verify whether this use of lead in ceramics left traces in bones and whether there are differences between inhabitants of urban areas, where in addition to glazed tableware, pipes were used to carry water to cisterns or private homes, and rural areas, where in principle there was no running water, but the same type of ceramics was used for food purposes. Compact bone samples were taken from 43 individuals from a rural farmstead (La Torrecilla, Arenas del Rey, Granada) and 49 from skeletons found in archaeological excavations of urban cemeteries in Baza and Granada, along with 10 control samples from Bronze Age sites Castellón Alto (Galera, Granada) and Motilla del Azuer (Daimiel, Ciudad Real). All samples coming from adults, and the type of soil has been taken into account. The ratio of lead to calcium in ppm was analyzed using atomic absorption spectroscopy. The results confirm the initial hypothesis in that statistically significant differences were found between the control sample and the medieval sample (0.001 ppm vs 0.27 ppm), and between urban and rural inhabitants (0.42 ppm vs 0.10 ppm). There are not differences between sexes.

884. The Lower Southern Mondego territory: studying medieval populations through two funerary spaces – (11th-16th centuries AD)

Authors: Flávio Simões (CIAS | Museum of the Roman Villae of Rabaçal)
Format: Oral

Following the establishment of Coimbra as the realm's first capital, Afonso Henriques fortified the southern border through a defence' strategy by repopulation. These Christian settlements were anchored by defensive structures that provide shelter during Islamic incursions. However, as the military frontier shifted south of Tagus' River, Mondego defensive line lost strategic primacy, and its castles transitioned largely into symbolic roles. Despite their gradual physical decline, the presence of citadel churches and

their corresponding cemeteries ensured these sites retained a persistent sacred function. Archaeological interventions such as at the Castle of Miranda-do-Corvo reveal this historical continuity, highlighting a transition from a military stronghold to an exclusively religious and funerary space, with burials spanning from the 12th century to the present, with seventy five burials – six masonry-built graves (11th-12th centuries); 24 rock-cut graves (12th-14th centuries), and eight rock-cut graves (15th-16th centuries); nine pit graves (15th-16th centuries). Concomitant with the political-military struggle, a concurrent religious drive developed towards south, seeking the evangelization of Islamized populations. At São Simão (Penela) – a site originally occupied by a Roman villa, later reused by Suevo-Visigoths – documentary and material evidence point to the evolution of a hermitage likely established during this movement. This site evolved throughout the medieval period, culminating in a late medieval parish necropolis, that counts with one hundred and fifty-three burials (15th-16th century). Collectively, these sites illustrate the process of "place sacralization" and offer distinct clues regarding the cultural shift in burial rituals and cultural drift, marking the transition from an era of Islamic influence to the reassertion of Christian funerary traditions. Furthermore, these two sites provide a unique opportunity to study biocultural evolution from a paleoanthropological perspective, here firstly first focusing on physiological stress markers, across these distinct historical eras.

889. The Archaeology of Spolia in the Medieval Western Mediterranean (10th–12th Centuries): Reuse, Mobility, and Transculturality

Authors: Jorge Elices Ocón (Spanish National Research Council, Institute of History)
Format: Oral

Scholarship on spolia has traditionally privileged static and ideological interpretations of reuse. Far less attention has been paid to the dynamic social, economic, and cultural processes that underpinned reuse. This paper proposes an alternative perspective, shifting the focus from what spolia meant to how they functioned. Spolia circulated between cities and regions alongside people, skills, and practices, as prestigious commodities that functioned in/between political, cultural, and religious boundaries. This paper argues that between the tenth and twelfth centuries there was a significant turning point in the Western Mediterranean marked by a systematic reuse of both local ancient vestiges and historical artefacts originating in other cultural realms. Transcultural reuse preceded and goes beyond the idea of triumph and booty and it is embedded in practices of appropriation and display of material culture prompted by the Umayyad and Fatimid caliphates and by the rediscovery of the ancient ruins of Rome and Carthage. The study employs spolia as both a key indicator and an analytical tool for tracing mobility, interaction, and material entanglement, focusing on cases study where both ancient/Islamic material were reused in a Christian context: the cathedral of Tarragona (Roman sarcophagi and a small marble arch from Madinat al-Zahra); Montpellier and Nimes (Arabic inscriptions reused in churches); Genoa (ancient roman architectural pieces were reused together with Arabic inscriptions and bacini from al-Andalus and Ifriqiya, as in Santa Maria in Castello) and Pisa (an Umayyad capital and a Griffin metal sculpture with an Arabic inscription were reused in the Duomo; bacini and an Andalusi epitaph were reused in the church of San Sisto together with Roman capitals and columns). Through this lens, medieval western societies emerge in the tenth-twelfth centuries as dynamic and multicultural realities.

2198. Living on the Edge: Vera and the Eastern Frontier of the Nasrid Kingdom of Granada

Authors: Rocío Núñez Alarcón (Universitá degli Studi di Ferrara)
Format: Oral

The eastern frontier of the Nasrid Kingdom of Granada, particularly the area of Vera, constitutes a key enclave for analysing frontier dynamics between the Nasrid state and the Crown of Castile. This study examines the Nasrid frontier in the Vera region from a historiographical and territorial perspective, reassessing the evolution of the concept of frontier and moving beyond traditional views of it as a rigid military boundary towards interpretations that emphasise its dynamic character as a space of interaction, conflict, and negotiation. The historiographical review reveals a gradual shift from interpretations focused on the frontier as a linear defensive boundary to more nuanced models that emphasise its role as a socially, politically and economically active space. Within this framework, Vera emerges as a key frontier stronghold, strategically integrated into the eastern defensive system of the Nasrid Kingdom through a network of fortifications, rural settlements and communication routes. The analysis of available archaeological evidence suggests a sustained occupation of the territory and a significant transformation of the landscape in response to defensive, administrative, and productive needs typical of frontier zones. Moreover, material and spatial indicators point to processes of cross-frontier interaction, including conflict, territorial control, and potential mechanisms of exchange, reinforcing the interpretation of the frontier as a permeable and evolving space rather than a fixed line. Consequently, future research would benefit from interdisciplinary approaches combining historical analysis, archaeology, and landscape studies, which are essential for addressing existing historiographical gaps of the Eastern frontier of the Nasrid Kingdom.

611. Across the Nasrid Frontier: Urban–Rural Contrasts in Upper Limb Cross-Sectional Geometry (13th–15th c.)

Authors: Giulia Uccheddu (Instituto de Productos Naturales y Agrobiología IPNA-CSIC | Universidad de Granada) – Drosia Charisi – Sylvia Brobeil (Universidad de Granada)
Format: Poster

Borderlands in the medieval Western Mediterranean were shaped by shifting frontiers, trade connectivity, and intermittent warfare. Within the Nasrid Kingdom of Granada (13th–15th centuries CE), the frontier city of Baza and the rural community of La Torrecilla provide a valuable context for exploring how socio-economic settings relate to habitual upper limb loading. The sample comprises right and left humeri and ulnae from 126 adults: 55 from Baza (24 females, 31 males) and 71 from La Torrecilla (33 females, 38 males). Bones were digitized using a structured light scanner, and cross-sectional geometric properties based on external diaphyseal contour were calculated from the 3D models with the open-source Long-bone-diaphyseal-CSG-Toolkit software (GNU Octave). Because the toolkit requires complete bones, damaged epiphyses were virtually reconstructed in MeshLab when the preservation of the shaft allowed for their inclusion. Recorded variables include total area (TA), maximum and minimum second moments of area (Imax, Imin), the polar second moment of area (J), and the Imax/Imin ratio, taken at 35% and 50% of maximum length from the distal end and appropriately standardized. TA was standardized by body mass, J by body mass × bone length^2, and Imax/Imin is dimensionless. Baza males showed significantly higher left humeral TA and J than La Torrecilla males, as well as higher right and left ulnar TA and J. Among females, inter-population differences were limited, with a significant contrast only in left ulnar J. Sexual dimorphism was more pronounced in Baza, whereas humeral bilateral asymmetry tended to be greater in La Torrecilla. These patterns indicate greater upper limb robusticity in urban Baza and comparatively more asymmetric loading in La Torrecilla, suggesting different habitual activity patterns rather than a simple difference in overall workload intensity.

175 LEAVING IMPRESSIONS: A DIACHRONIC AND SUPRA-REGIONAL VIEW ON A SPECIFIC POTTERY DECORATION

Theme: 1. Widening perspectives in material culture studies
Organisers: Lily Bonga (Institute for Aegean Prehistory Study Center for East Crete) – Lea Hüntemann (Freie Universität Berlin) – Goce Naumov (Center for Prehistoric Research, Skopje) – Agathe Reingruber (Freie Universität Berlin)
Keywords: impresso pottery, radiocarbon dating, Neolithic, ceramic styles, chronology
Format: Session with keynote presentation
Affiliation: Early Career Archaeologists Community - ECA

SESSION ABSTRACT

Since pottery was first used, its initial decoration was negative: there is evidence of pottery decorated with impressions in the Far East around 20,000 years ago. This type of decoration, executed with fingernails or implements, was also applied early on in the northern Pontus, the Balkans and the Aegean region – often in combination with other decorative styles. For the Impresso and Impressa ceramic styles of the Central and Western Mediterranean world, the edges of shells were often utilized. It was assumed that such ceramics with Cardium decoration also occurred in the Eastern Mediterranean. In Greece, for example, the expectation was that their appearance could be dated precisely to a specific period: the latter part of the Early Neolithic (just around 6000 calBC). The aim of our session is to question these assumptions and discuss the occurrence of impressed pottery in a diachronic overview focusing on South-Eastern Europe, Western Anatolia and the Northern Pontic region, although contributions from neighboring areas are also welcome. We would particularly encourage studies presenting impressed pottery from well-dated contexts, using radiocarbon dating where possible.

CONTRIBUTION ABSTRACTS

1536. Keynote: Interactions between Northern Greece and the Southern Balkans during the 6th millennium BCE: The Case of Impresso Pottery

Authors: Anastasia Dimoula (Aristotle University of Thessaloniki)
Format: Oral

The Neolithic of the Aegean and the Balkans was a period of communication and interactions as demonstrated by material evidence, and particularly ceramics. Pottery wares appear to have been distributed over large areas, while scientific analyses have verified the circulation of vessels and/or the transmission of techniques and styles. Among these wares, one of the most emblematic is the so called impresso pottery, characterized by the creation of negative motifs on the vessel surface by pressing fingers or tools while the clay is still wet, prior to firing. Its significance lies both in its early chronological appearance, during the Early Neolithic, and its broad geographical distribution across Mediterranean archaeological contexts, including the Aegean and the Balkans. For these reasons, impresso pottery has frequently been used to develop models on the diffusion of the Neolithic way of life or the interactions among early farming communities. In the scope of exploring this complex web of Neolithic ceramic connections across space and time, the methodology of this study combines the investigation of the distributional, stylistic and technological, patterns of impresso pottery across broad areas. Extensive bibliographical research enabled the comparison and synthesis of the published data from over 80 sites dated to the 6th millennium BCE in areas of northern Greece, Albania and North Macedonia. The results of this research confirm the existence of extended ceramic networks among these areas, whose scale and form varied across the Neolithic phases, and suggest different communication routes through diverse landscapes established by Neolithic people.

1750. Early Neolithic Impressed, Incised, and Finger-pinched Pottery from Pontokomi-Vrysi and

Mavorpigi-Filotsairi, Western Macedonia, Greece

Authors: Lily Bonga (Instap SCEC)
Format: Oral

This presentation discusses the impressed, incised, and finger-pinched pottery from two Early Neolithic sites around the Kitrini Limni basin in Western Macedonia, Greece. The primary focus is on Pontokomi-Vrysi. For a fuller contextual understanding, other sites are touched upon, namely the nearby reference site of Mavropigi-Filotsairi, just a few kilometers to the north. Some of the finger-pinches, tool and nail impressions from these two sites are similar to one another, yet other aspects of their decoration, such as the manner of execution, the organization of the impressions, along with other details of vessel morphology and fabric appear closer to early Middle Neolithic types from both Macedonia and Thessaly. An absolute date from the Early Neolithic levels of Pontokomi-Vrysi falls at 6,200 to 6,030 cal BC, precisely spanning the transitional period of the Early to Middle Neolithic and confirming the difficulty in defining this transition in Northern Greece as based on cultural material as there are both seemingly earlier and later impressed pieces. Due to the lack of a robust radiocarbon sequence from the Pontokomi-Vrysi or elsewhere in the region for the Early-Middle Neolithic transition at a single site, the entire assemblage is also considered as other types of diagnostic pottery help to define (or refine) the impressed category. It is suggested that decoration in the negative should be considered along with painted types, and some suggestions are made on how to categorize, date, and discuss the Early and Middle Neolithic impressed pottery types found in Northern Greece.

2290. The importance of impressed pottery from newly discovered Neolithic flat sites in north-eastern Thessaly

Authors: Agathe Reingruber (Freie Universität Berlin)
Format: Oral

During systematic and intensive survey investigations in NE-Thessaly we discovered several flat sites that were inhabited for only a short period of time. They contribute significantly to our understanding of settlement dynamics in the Neolithic period. Previously, it was assumed that multi-layered settlements (tells or magoules) had formed in this region in Neolithic times. Such artificial mounds with layers of the Early and Middle Neolithic were excavated 70 years ago (the magoules Argissa, Otzaki, Nessonis or Gediki) – mostly in very small trenches or by simply extending and cleaning an existing profile. Ceramic styles were therefore classified based on limited information derived from a small number of sherds. It was presumed that impressed pottery represented a separate phase, the early Neolithic III, and this assumption has not been contested since. The materials from our investigations reflect short-lived activities lasting from a few decades to a maximum of two centuries, as shown by radiocarbon dating. Therefore, we can cross-check the earliest occurrence and latest use of impressed decorations using information from various flat sites from different phases of the Neolithic period. However, it is not only the individual basic style that is of chronological significance: at certain times, impressions were combined with painted, plastic or incised ornaments, either on the same sherd or on different sherds from the same archaeological context. By adding new information to already established research we aim to develop a more refined relative chronology scheme for this region.

2344. Beyond the Early Neolithic: Impressed Pottery from Agia Sophia Magoula in Thessaly, Greece

Authors: Lea Hüntemann (Freie Universität Berlin)
Format: Oral

There is no doubt that impressed pottery is a common feature in material assemblages all over the Aegean and the Balkans, and therefore also at many sites in Neolithic Thessaly. In this region, the style is generally expected to be found in Late Early and Middle Neolithic contexts, usually differentiated by various application methods and styles that have been researched since the beginning of the 20th century. However, the analyses of pottery from younger sites and younger stratigraphical layers reveals that the practice of decorating a vessel with impressions was not only restricted to the older phases of the Neolithic. A detailed analysis of pottery from the 1966 excavation of Agia Sophia magoula uncovered a substantial amount of impressed pottery. There was one excavation campaign, as well as a publication of a preliminary excavation report by Vladimir Milojčić detailing some of the findings regarding the uncovered material and stratigraphy; however, renewed engagement with the material as part of a PhD project revealed that a lot of information is yet to be gained from it. This paper aims to present the different styles of impressed pottery found in the Late Neolithic and Early Chalcolithic layers of this site. There are several distinct styles found within the assemblages, both coarse and fine ware, which can be categorised both according to their general aesthetic appearance and form as well as their technical aspects. The presentation will focus on the careful analysis of the stratigraphic position of these impressed decorations within the layers to allow for a nuanced differentiation between the various styles and to suggest their position within the relative chronology of the Late Neolithic and Early Chalcolithic of Thessaly.

1076. Keynote: Between the Adriatic and the Balkans: Impressed Neolithic Pottery in Albania

Authors: Edlira Andoni (Institute of Archaeology, Albania)
Format: Oral

Impressed decoration represents one of the most distinctive pottery traditions of the Early Neolithic in Albania and plays a key role in discussions of cultural interaction, identity, chronology, and the spread of Neolithic lifeways. This paper offers a comprehensive overview of Neolithic impressed pottery in Albania, focusing on its technological and decorative characteristics, chronological framework, and regional connections. The study draws on material from several Neolithic sites - Early and Middle Neolithic sites - across present-day Albania where impressed decoration is attested, examining vessel forms, manufacturing techniques, and the range of impressed motifs employed. Particular attention will be paid to the earliest sites yielding impressed pottery, with an emphasis on radiocarbon-dated contexts that allow for a more precise chronological placement of this ceramic tradition within the Early Neolithic sequence. The emergence and development of impressed pottery in Albania are discussed in relation to broader Neolithic processes in the Balkans. The Albanian evidence is further compared with contemporaneous assemblages from sites in Macedonia and North Macedonia, highlighting both shared features and regional variations in decorative practices and ceramic traditions. These comparisons contribute to a better understanding of cultural contacts, the transmission of ideas, and possible interaction networks during the Early Neolithic. By bringing together previously published data and new observations, this study seeks to clarify the role of Albania within the wider framework of Neolithic impressed pottery traditions in the Balkans.

1345. A critical approach to field data for the study of impressed ceramics between the Aegean and Adriatic seas

Authors: Dimitra-Anta Tsami (University of Toulouse - UT2J | TRACES laboratory)
Format: Oral

From the 7th millennium BCE, impressed-decorated pottery appeared in specific regions of north-western Greece and along the eastern Adriatic coast. Although initially marginal in these areas, this ceramic tradition rapidly gained prominence as it spread westward, becoming a major cultural marker of the Neolithisation of the western Mediterranean (Guilaine et al., 2019). However, the precise mechanisms and origins of this large-scale Neolithic phenomenon remain poorly understood. Recent research (Binder et al., 2022) suggests that the roots of impressed decorative traditions may lie in regions bordering the Aegean and Adriatic seas. This hypothesis calls for a renewed and critical re-examination of the archaeological record, not only to better understand the emergence and diffusion of impressed pottery, but also to refine our understanding of Mediterranean Neolithisation and east-west interaction. How, then, can we investigate this complex phenomenon when confronted with a documentation that is heterogeneous not only from one site to another, but often within a single site itself? This presentation addresses this question by introducing the methodological framework developed during my first year of Master's research, structured as a multi-criteria evaluation system. Inspired by the works of T. Perrin and C. Manen (2021), and D. Binder (2022), it argues that adopting a holistic perspective is essential. Therefore, in order to meaningfully study the origin and the diffusion of impressed pottery technology, it is first necessary to critically evaluate the capacity of any given site to contribute reliably to the "bigger picture."

2770. Human Population Genomics and the Cardial-Impresso phenomenon

Authors: Robert George (University of Notre Dame, Sydney)
Format: Oral

The expansion of a productive economy across the north Mediterranean is associated with the Impresso-Cardial Complex (ICC) and its regional variants. Until recently, the population dynamics of this phenomenon remained hypothetical and contentious. Recent ancient DNA or paleogenomic (PG) research has since demonstrated an intricate interplay of 'Pioneer Farmers' and local hunter-gatherers. The 'received wisdom' envisages Pioneer Farmers from the eastern Mediterranean as the primary vector of expansion, whilst hunter-gatherers of the Mediterranean and Atlantic regions were relegated to a passive role, at best surviving and to a modest degree being incorporated into a Neolithic 'wave of advance'. Moreover, available genomic data derives from various publications employing somewhat diverse methodologies. To develop a more nuanced 'macro-scale' understanding of the ICP, this contribution will collate published data, analyse via standardised methodological pipeline, and integrate it with emerging archaeological perspectives. We will then discuss the implications via a 'Thematic framework', beginning with an exploration of the social networks which facilitated the diffusion of the Impressa style between Mesopotamia and the Adriatic ~ 6000 BCE. The second section will analyse early Neolithic groups from Italy and southern France. We will then analyse the Cardial and post-Cardial groups in western Europe. Overall, we find that although sharing genetic ancestry, the earlier Impressa groups from Italy and the Adriatic are distinctive to the Cardial groups of Western Europe.

1753. Keynote: Impressed pottery as expression of pottery traditions in pre- and protohistoric Greece and Eastern Balkans

Authors: Zoi Tsirtsoni (CNRS - UMR 7041-Archéologies et Sciences de l'Antiquité)
Format: Oral

Based on evidence from Greece and Bulgaria, and to a lesser degree from Western Turkey, my talk should focus on the following two points: 1° The extremely long history of impressed potteries in those areas, not only during the Neolithic and Chalcolithic periods (late 7th-5th millennium BC), but also later, during the FCh/Transitional period (end of 5th-4th mill.) and the various phases of the Bronze Age (end of 4th-2nd mill. BC). These later productions are usually very simple in their execution (rows of finger, nail

or pointed tool impressions, combined or not with elements in relief) and could easily be confused with the simpler Neolithic and Chalcolithic ones, especially on coarse fragments. But similarities exist also between some more sophisticated combinations on finer potteries from different periods. 2° The great variety and "flexibility" of the attested impressed decorations, which can stand alone or combine with various decorative techniques (incision, grooving, painting), in dense, more-or-less organized arrangements. At the same time, one could note a sort of conservatism, since the employed "tools" are almost always single-end and used also in single or discontinuous gestures (i.e. one finger/tool printing each time, even when the result is a row). With the exception of some pseudo-"cardium" decorations found in Early/Middle Neolithic Thessaly and West Northern Greece, we have no evidence of the use of combs, stamps or roulettes (all widely known in other parts of the word) – at least not until the first pseudo-"corded" (or "caterpillar") decorations of the early 4th millennium, considered by some as sign of a new, foreign pottery tradition (Cernavoda I). By such examples, I wish to draw attention to the possible existence of more-or-less long-living pottery traditions in the area, which could be detected by means of a thorough technological study of the different productions.

1158. Two Traditions of Impressed Pottery at Palazu Mare (Western Pontic Coast): Prehamangia and Early Hamangia in a Supra-Regional Perspective

Authors: Vasile Opris (University of Bucharest, Research Institute, ArchaeoSciences Platform | Bucharest Municipality Museum) – Valentina Voinea (National Museum of History and Archaeology Constanța) – Adrian Irimia (Doctoral School of Economics and Humanities, "Valahia" University | National Museum of History and Archaeology Constanța) – Marta Petruneac (Horia Hulubei National Institute for Physics and Nuclear Engineering) – Dragos Mirea (Horia Hulubei National Institute for Physics and Nuclear Engineering | Bucharest Municipality Museum)
Format: Oral

The site of Palazu Mare – `Malul Alb` (Dobrogea, Romania) offers a rare sequence documenting the use of impressed pottery across two distinct Neolithic traditions, associated with the Prehamangia and early Hamangia phases. The presence of impressed decoration on ceramic from both periods provides a valuable case study for assessing the diachronic variability and supra-regional significance of this ceramic practice along the Western Pontic Coast. In Prehamangia contexts (Middle Neolithic), impressed decoration occurs in association with burnished and barbotined surfaces (often in combination) and is executed as continuous horizontal bands formed by impressions of various shapes and dimensions. Other impressed motifs were identified only on a small number of sherds. The overall technological and stylistic profile suggests affiliations with broader Mediterranean ceramic traditions rather than with contemporaneous continental Balkan groups. By contrast, impressed pottery from early Hamangia contexts at Palazu Mare displays markedly different decorative practices, including finer, more controlled impressions, more complex patterns, and occasional combinations with white inlays, embedded within a technological tradition characterised by grog tempering, distinct clay sources, and different firing regimes. Although impressed decoration remains quantitatively limited, its formal execution and technological embedding indicate a separate ceramic logic, reflecting broader transformations in cultural orientation during the Late Neolithic. The coexistence, at a single site, of two technologically and stylistically distinct impressed pottery traditions underscores the ambiguous nature of impressed decoration, which cannot be reduced to a single cultural or chronological marker. Instead, the Palazu Mare evidence suggests that impressed pottery functioned as a flexible decorative strategy, selectively adopted within different ceramic traditions that participated, at different moments and in different ways, in wider networks linking the Pontic Basin to the Eastern Mediterranean world. This work was supported by a grant of the Romanian Ministry of Education and Research, CNCS – UEFISCDI, project number PN-IV-P1-PCE-2023-1547 (ExLiDo).

512. Bug-Dniester and Criş-Starčevo-Körös culture resemblance

Authors: Manko Valery (Institute of Archaeology of the NAS of Ukraine) – Husak Martin (Taras Shevchenko National University of Kyiv, Department of Archaeology)
Format: Oral

The appearance of ceramics with impression decoration in Europe was undoubtedly linked to their primary center of origin in northern Syria at the turn of the 8th–7th millennium BC. As it can be traced in the rapid spread of such ceramics throughout Asia Minor, Southeastern Europe, and the steppe zone of Eastern Europe. The oldest archaeological culture to feature such decoration was the Bug-Dniester culture (third quarter of the 7th - third quarter of the 6th millennium BC). Bug-Dniester pottery is decorated with impressions from fingernails, combs, and other tools, as well as scratched winding lines that form vertical and horizontal compositions. Fingernails seem to have been the earliest form of ornamentation. Similarities between pottery with such decorations and pottery from the Criş, Starčevo, and Körös cultures led to the idea that the Bug-Dniester culture originated in Southeastern Europe. However, the emergence of new complexes and new radiocarbon dates has significantly altered our understanding of the emergence of both the Bug-Dniester culture and impression decoration. It has since appeared that the the oldest complexes date back to the third quarter of the 7th millennium BC, indicating that the spread of impression decoration occurred simultaneously in Asia Minor, the Balkan Peninsula, and South of Eastern Europe. However, the connection between the steppe zone between the Dniester and the Southern Bug rivers, and the Balkan Peninsula during the Neolithic period remains unclear. We assume that the spread of similar ornamentation motifs emerged independently of each other and was caused by a common basis associated with the Neolithic sites of Asia Minor.

652. Impression decorated pottery from the Luka-Mohylky Neolithic site in Central Ukraine

Authors: Martin Husak – Pavlo Shydlovskyi (Taras Shevchenko National University of Kyiv) – Valery Manko (Institute of Archaeology of the NAS of Ukraine)
Format: Oral

Impression-decorated pottery is well known among the different archaeological cultures of the Neolithic period and is often used as an indicator of cultural attribution or connection. The recently discovered Luka-Mohylky site on the River Ros in the Cherkasy region of Central Ukraine features a series of fragments with impression decorations as part of a complex belonging to the Kyiv-Cherkasy culture of the Dnipro-Donets cultural and historical community. One of the prominent ornamentation motifs in this case is the so-called "comb" stamps with two, three, or four tines on the fragments, with a high content of plant inclusions in the clay. However, some ceramic fragments exhibit an ornamentation style attributed to the Bug-Dniester culture, including impressions, dotted stamps, fingernail impressions, and incised decorations. The Ros River likely served as a corridor for the movement of people in two directions from the Middle Dnieper and Southern Bug basins. This resulted in the fusion or co-existence of ceramic ornamentation traditions and the emergence of a new cultural phenomenon. Further study of the Luka-Mohylky site may reveal how the Kyiv-Cherkasy group and Bug-Dniester culture, both associated with impression decoration, interacted. Based on the presence of these types of ceramic ornamentation, the site may be preliminarily dated to the 6th millennium BCE, a chronology that will be further tested by radiocarbon dating. Within the investigated area of the preserved anthropogenic deposits of the site, in addition to ceramic and lithic assemblages, faunal remains and concentrations of freshwater mollusc shells were recorded, enabling the application of a comprehensive suite of laboratory analyses and advanced interpretative approaches.

563. The first comb ornamentation on pottery in the North Pontic region

Authors: Nadezhda Kotova (Institute of Arcaheology Ukrainian Academy of Sciences)
Format: Oral

Comb decoration of ceramics was most popular in the area North of the Black Sea from the middle Neolithic to the late Bronze Age. The radiocarbon dates obtained in various laboratories allow for the reconstruction of the emergence and spread of the earliest comb ornamentation in present-day Ukraine and neighbouring territories. The first comb impressions were recorded in the Sea of Azov area and the steppe Dnieper valley. Their presence has been documented in sites belonging to the Rakushechny Yar (layers 22-17 of Rakushechny Yar) and the Surska (Semenivka 1) cultures. Ceramics with strokes and linear decoration dominated at these settlements. Comb impressions were combined with the referred decorative elements and rarely served as the primary motif. Short comb imprints (2-4 teeth) made with bone stamps were typical of these localities. Smooth "walking" impressions of stamps, made from shell or bone, are also known. Above-mentioned sites are dated to the first half of the 6th millennium calBC. Later comb ornamentation was the main decorative element in the pottery of the cultures of the Mariupol cultural-historical community (the Lower Don and early Azov-Dnieper cultures, as well as the Kalmius variant), the majority of whose sites are dated to the second half of the 6th millennium BCE. However, the beginning of their existence in the steppe region presumably can be dated to the second quarter of the 6th millennium calBC. At that time, impressions from long comb stamps became popular. Comb ornamentation also spread widely in the Neolithic settlements of the Southern Bug basin. Cardium shell imprints have been identified in the southernmost of these sites.

758. The Neolithization of Balkans and the Introduction of Pottery Identities in Pelagonia

Authors: Goce Naumov (Center for Prehistoric Research)
Format: Poster

Pelagonia is an elongated valley in the Balkans surrounded by mountains which creates an enclosed perspective of the environment. Due to that a so-called Neolithic cultural group of Velušina-Porodin was defined by the scholars which considered the natural boundaries and implied them to the first agricultural communities inhabiting this region. As a result of such archaeological perception these farmers were regarded as an isolated society framed by the surrounding landscape which constructed its remarkable identity. This was supported by the unique impressive artistry manifested onto pottery decoration, house models and figural representations. But the question remains whether such economic, social and symbolic outreach was indeed a result of isolation or rather based on an intensive interregional interaction? The chronological sequences provided for several Neolithic sites in Pelagonia, as well as the revision of their material culture, indicates a dynamic communication with the surrounding regions at least. In these terms the painted and impresso pottery could be emphasized as one of the most distinct visual transmitters that bears patterns common for even more distant areas. One remarkable example is the Early Neolithic site of Vlaho that was settled between 6400 and 6000 CalBC and which predates the tell sites of Veluška Tumba and Vrbjanska Čuka established around 6000 CalBC in the wetlands of Pelagonia. The painted and impresso pottery produced in these site has remarkable similarities with the sites Kozani region and Thessaly. As these sites were not observed together in detail, this paper will accentuate their likeness in terms of natural setting, architecture and material culture. The emphasis will be on the painted and impresso pottery and particularly in a relationship with the ones common for the neighboring regions of Lake Ohrid and Korça valley.

176 CELTS, GREEKS AND BALKAN POPULATIONS IN SOUTH-EASTERN EUROPE (4TH–1ST CENTURIES BC): ARCHAEOLOGICAL APPROACHES TO MULTICULTURAL CONTEXTS

Theme: 7. Interaction, connectivity and mobility
Organisers: Kevin Parachaud (UMR TRACES - Toulouse) – Aurel Rustoiu (Romanian Academy, Cluj-Napoca Branch Institut of Archaeology and Arts History)
Keywords: Iron Age, Celtic Migrations, Multiethnicity, Cultural interactions, Interdisciplinary approach, Methodology
Format: Regular session

SESSION ABSTRACT

During the European Iron Age, South-Eastern Europe, defined here as the area extending from modern Slovenia and Romania down to Greece, was divided between two main cultural spheres. In the south lay the Greek world, including the cities of mainland Greece, Macedonia, and the Greek settlements along the coast of the Propontis. In the north were the protohistoric peoples of the Balkans, whose names are known to us through ancient authors, such as the Dacians, Thracians, and Illyrians. From the 4th century BC onwards, this region also experienced an intensification of Celtic migrations, with new groups settling among the local Balkan populations. A century later, some of these Celts invaded Greece before partially integrating into the Hellenistic world. This framework provides an effective basis for examining the archaeological issues related to interactions and contacts within multicultural and multiethnic contexts. To explore this theme, this session proposes to question how multiculturalism can be approached through archaeological data, in particular by considering whether the close analysis of specific archaeological contexts, the traces and uses of artefacts, or the combination of different types of evidence can help us identify distinctive cultures or identities. We also aim to discuss whether it is possible to identify, within these contexts, new practices or productions that resulted from the interactions between different cultural groups. Through relevant case studies, we especially welcome papers that highlight a methodological process, an interdisciplinary approach, or a conceptual tool enabling us to address archaeological remains within multicultural contexts.

CONTRIBUTION ABSTRACTS

918. Celts, Dacians and Greeks: The role of human mobility in shaping multicultural interactions in Transylvania in the 4th-1st centuries BC

Authors: Aurel Rustoiu (Romanian Academy, Cluj-Napoca branch. Institute of Archeology and Arts History)
Format: Oral

The Late Iron Age in Transylvania was defined by two cultural and chronological horizons: the "Celtic horizon" (between ca. 350 and 190/175 BC) and the "Dacian horizon" (between ca. 190/175 BC and AD 106). The first chronological interval was characterized by the arrival of some Celtic groups from Central-Western Europe. These groups cohabited with the indigenous populations and their interactions contributed to the hybridization of material culture and practices, so typical Central European La Tène elements were often combined with the indigenous ones, contributing to the emergence of new communities. The social organization of this rural society was largely heterarchic. The second chronological interval was characterized by the appearance of Dacian communities in this region and the subsequent emergence of the Dacian Kingdom. The corresponding material culture and practices were different from those of the previous period, being primarily oriented towards the Lower Danube region. The emergence of hilltop fortresses surrounded by a dependent rural hinterland suggests that the social organization was also different, being largely hierarchic. Based on these social and cultural particularities, the paper examines the role played by human (individual or collective) mobility in shaping the multicultural interactions between the "Celts", the indigenous populations from the northern Balkans and Transylvania, and the Greeks from the eastern Mediterranean and the Black Sea coast. The analysis is taking into consideration a range of mobility-related practices and actors (migrations, raiding groups, mercenaries, craftspeople, exogamy etc), and their impact on the societies belonging to the two mentioned chronological and cultural horizons. This work is supported by a grant of the Ministry of Education and Research, CCCDI - UEFISCDI, project number PN-IV-P6-6.1-CoEx-2024-0206, within PNCDI IV.

928. Celtic attacks in Greece (280-279 a.C.), rupture or continuity in the relations between Celts and Greeks in South-Eastern Europe?

Authors: Kevin Parachaud (UMR TRACES - Toulouse)
Format: Oral

In 280 BC, three Celtic armies attacked Thrace, the Macedonian kingdom, and northern Greece; the Macedonian king himself was killed in battle. The climax of these events occurred the following year, with the incursion of the Celtic army led by Brennos, which overcame the Greek troops assembled at Thermopylae before attempting to plunder the Panhellenic sanctuary of Delphi. The death of an heir of Alexander, together with the threat posed to the sacred site of Delphi, rendered these attacks traumatic for the Greeks. Moreover, the Aetolian League, which sought to establish itself as a hegemonic regional power, emphasised the importance of these events in order to magnify its own role in the final victory, through artistic and political propaganda. For all these reasons late antique literature, and through it a large part of modern historiography, has viewed the Celtic expeditions of 280-279 BC as a moment of

rupture in the relations between the Greek and the Celtic worlds. However, a multidisciplinary approach combining epigraphic, archaeological, and iconographic data reveals a long-term pattern of interactions between Celts and Greeks in south-eastern Europe. Furthermore, these relations do not appear to have been systematically interpreted through the classical topos of violent confrontation between civilisation and barbarism, as evidence of peaceful exchange and intercultural influence can also be suggested. From this perspective, this paper aims to reintegrate the events of 280-279 BC into a long-term framework in which no clear "moment of rupture" emerges, and in which the famous episode of Brennos' attack appears as a local epiphenomenon, whose later overemphasis has obscured the depth and diversity of Greek-Celtic relations.

1595. Life on the Edge – "Celtic" Communities in the SE Pannonia Between Global and Local Pressures in 2nd-1st Centuries BC

Authors: Marko Dizdar (Institute of Archaeology, Zagreb)
Format: Oral

The communities that were inhabited the south-eastern part of the Pannonian Plain in the Late Iron Age shared an affiliation to the material legacy of the Central European La Tène culture, along with some local recognizable characteristics. On the one side, European researchers were observed these communities during the 2nd-1st centuries BC (Late La Tène) outside of the oppidum phenomenon spreading, while local researchers often highlighted certain peculiarities in their material legacy and settlement organization. More recent research, in addition to previously known data, shows that the settlement network and material legacy of these communities was indeed very complex and points to their specific identity. In addition to numerous objects that confirm the affiliation to the Central European La Tène culture and their involvement in networks of contacts, some objects, especially costumes and jewellery, can be seen as influences of local communities, both those that developed there in the Late Hallstatt phase, and neighbouring communities that were never more intensively touched by the legacy of the La Tène culture. This life on the edge of various cultural phenomena of the Late Iron Age depicts the south-eastern Pannonia as a multicultural melting pot, from which a unique and hybrid material legacy was developed, as most clearly recognized so far by the analysis of the archaeological data.

1491. The changing sacred landscape of Late Iron Age Transylvania

Authors: Mariana Egri (Institute of Archaeology and Art History, Romanian Academy Cluj-Napoca)
Format: Oral

In Transylvania, the so-called "Dacian-horizon" of the Late Iron Age witnessed the gradual disappearance of properly set up burials, starting with those of the commoners and ending with those of the elites. By the late 1st century BC, the corpses of most members of the local communities were disposed of in ways that left very few archaeological traces, aside from some disarticulated body parts occasionally found in various non-funerary contexts inside and outside settlements. During the same period, some members of the elites, mostly male, were still cremated and buried in flat or tumulus graves, located close to their hilltop fortresses, together with weaponry and other distinct markers of status. In the case of some high-ranking masters of the sacred, all female, only their specific silver-made costume assemblages were buried in isolated places outside but not far from the hilltop fortresses, together with libations vessels and other markers of status, while their bodies were disposed of in ways that left no archaeological traces. This gradual disappearance of burials from the local sacred landscape coincided with the monumentalization of power and authority, particularly in south-western Transylvania. The latter process, which started around the middle of the 1st century BC, was defined by major changes in both the profane and the sacred architecture, including the emergence of large stone-built sanctuaries which borrowed many architectural elements and masonry techniques of Mediterranean origin. Moreover, the presence of construction specialists that came from the Greek-speaking world has been attested archaeologically. Based on these observations, the paper is going to identify and discuss the factors which contributed to these changes in the local sacred landscape, and the role of long-distance connections in the local dynamics of power and their and evolution over time.

1371. Bayesian Modelling and Radiocarbon Dating of Cremated Remains: Toward an Absolute Chronology of Late pre-Roman Iron Age Interactions

Authors: Piotr Łuczkiewicz (Maria Curie-Sklodowska University of Lublin) – Sven Brummack (Freie Universität Berlin) – Aneta Kuzioła (Adam Mickiewicz University of Poznan)
Format: Oral

A common problem in research on issues related to interactions and contacts within multicultural and multiethnic contexts is determining the actual duration of these interactions. Whether it concerns intercultural contacts and migrations in South-Eastern Europe or the influence of this region on the populations and archaeological cultures of Central Europe, the problem remains largely the same. Although archaeology in the so-called 'Celtic', 'Balkan' and 'Germanic' zones uses the same terms (naming phases of relative chronology) to name phases of relative chronology, it speaks different languages about their respective temporalities while referring to the same or very similar types of artefacts. Are objects such as the Nauheim- or later Jezerine- brooches, used in different regions really simultaneous in different cultural areas because, in theory, they are distinctive for the same phases of relative (iso-phenomenal-) chronology? Or perhaps how long is the difference in the timespan of these artefacts and in the reception of new cultural patterns in the North? Conceptual tools for solving this problem (at least from the perspective of Central Europe) may be provided by the results of the currently being research project "Development dynamics in the 3rd – 1st century BC on the Polish Lowland

and their synchronization with the Celtic world and Mediterranean - the problem of absolute dating". The project aims to provide a large number (in total 280) of new absolute 14C-dates from cremated bones for burial assemblages of the Polish late pre-Roman Iron Age. Bayesian inference derived from correspondence analysis of these assemblages in the workflow will help to crosscheck and to specify the 14C data more precisely. With this framework a reliable absolute chronology for Poland and, among other things, a well-grounded chronology of imports (including those from the south) to Central Europe can be established.

2660. Notes on the Geschweifte Fibulae and the End of the Late Iron Age in the Carpathian-Dnieper Forest-Steppe

Authors: Nicolai Batog – Vasile Iarmulschi (Freie Universität Berlin)
Format: Oral

The so-called Geschweifte fibulae are generally regarded as one of the latest brooch types documented at La Tène sites in the Carpathian-Dnieper forest-steppe. In regional chronological frameworks, they are commonly associated with the LT D2 horizon and the Augustan period (c. 80 BC-AD 20), and are therefore relevant to discussions of the closing stages of Late Iron Age material culture in this area. Although the finds are relatively limited in number, they may contribute to dating questions concerning the late development of the Poienești-Lucașeuca culture and the classical phase of the Zarubintsy culture, particularly when recovered in well-documented contexts and evaluated alongside other chronological indicators. This contribution offers an updated overview of the currently known Geschweifte fibulae from the region, based on a systematic reassessment of published evidence and accessible unpublished documentation. Emphasis is placed on typological variability, the reliability of find circumstances, and the composition of associated assemblages, with the aim of refining chronological and cultural attribution where possible. By standardising descriptive criteria and critically reviewing contextual information, the paper seeks to clarify the evidential value and limitations of these fibulae, and to situate them more cautiously within broader debates on cultural change and chronological transition at the end of the Late Iron Age in the Carpathian-Dnieper forest-steppe.

178 CAVE SEDIMENTS AS ARCHIVES OF HUMAN-ENVIRONMENT DYNAMICS: CROSS-DISCIPLINARY PERSPECTIVES ON GEOARCHAEOLOGY

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Ioannis Oikonomou (The Hebrew University of Jerusalem) – Thomas Beard (University of Vienna) – Diana Marcazzan (University of Tübingen)
Keywords: Geoarchaeology, Cave Sediments, Micro-archaeology, Biomolecules
Format: Session with keynote presentation

SESSION ABSTRACT

Cave settings are focal points for investigating past human and animal interactions, as well as environmental change. Understanding context and site formation processes is a fundamental prerequisite for exploring these important themes. The need to disentangle depositional mechanisms, evaluate contextual integrity, and examine preservation dynamics has prompted the incorporation of geoarchaeology as a core component of broader archaeological research. The application of cross-disciplinary, multi-proxy micro-geoarchaeological approaches to the study of cave sediments has become increasingly essential for answering questions related to these topics. In this session, we explore the integration of diverse analytical techniques within a geoarchaeological framework, while highlighting the rapidly emerging role of micro-archaeological, geochemical, and, in particular, biomolecular analyses. We invite contributions focused on the study of cave deposits – diverse in both geographic and temporal extent – engaging with the following themes: a) reconstruction of cave-site formation processes through geoarchaeological research, b) palaeoenvironmental and palaeoclimatic reconstructions through the analyses of cave sediments, c) decipherment of occupational patterns and human activities, such as the use of fire, through a micro-archaeological analytical framework, and d) methodological advancements in cross-disciplinary micro-contextual and micro-analytical research. We particularly encourage contributions investigating these themes through combined sampling strategies that integrate biomolecular and micro-geoarchaeological research, for example through the study of impregnated block samples used in micromorphological analysis. This meeting offers a window into the future of a highly interdisciplinary and promising field, welcoming participants from diverse academic backgrounds and career stages - especially encouraging early-career researchers. Together, we aim to foster an inclusive and engaging session that promotes the development and application of innovative micro-archaeological tools for the study of cave sediments as proxies for human history and palaeoenvironment.

CONTRIBUTION ABSTRACTS

766. Keynote: Diagenetic Pathways from Eastern Mediterranean Karstic Caves and Their Implications for the Study of the Human Past

Authors: David Friesem (School of Archaeology and Maritime Cultures, University of Haifa | Department of Archaeology, University of Cambridge)
Format: Oral

Karstic caves in the Eastern Mediterranean, particularly across the Southern Levant, preserve some of the richest archives of early human occupation. Yet, these records are not static repositories – they are dynamic interfaces shaped by complex interactions between natural, biological, and anthropogenic processes. This talk explores how advances in micro-geoarchaeological methods provide novel insights into cave site formation processes and, in turn, refine our interpretations of the Palaeolithic archaeological record. Drawing on high-resolution case studies from the Southern Levant, I examine how anthropogenic and biogenic activities (e.g., fire use, carnivore dens, guano deposition), alongside natural processes (e.g., decalcification, cementation, guano decomposition, formation of authigenic mineral), govern the visibility and integrity of archaeological remains. These insights allow us to decode the sedimentary palimpsest of caves and trace behavioural and environmental rhythms at fine scales but with broader archaeological implications. Importantly, the talk highlights how understanding diagenetic pathways and preservation dynamics provides an essential framework for future research, particularly for studies employing micro-contextual, geochemical, and biomolecular approaches. By identifying zones of preservation or degradation, this work lays the groundwork for more targeted and effective applications of advanced analytical techniques, including high-resolution geochemistry and biomolecular analysis. Finally, I consider the post-excavation impact of archaeological practices on cave sites, underscoring the need for integrated, preservation-aware excavation strategies in future interdisciplinary cave research.

2033. New Perspectives on the Chemical and Mechanical Alterations of the Early Middle Paleolithic Layer in Hayonim Cave

Authors: Avia Hamami (Institute of Archaeology, Hebrew University of Jerusalem) – David Friesem (School of Archaeology and Maritime Cultures, Haifa University) – Erella Hovers (Institute of Archaeology, Hebrew University of Jerusalem)
Format: Oral

The Early Middle Paleolithic layer (Layer F) at Hayonim Cave, Israel, is a striking example of the effect chemical and mechanical post-depositional alterations can have on archaeological artifacts and sediments, as already observed in studies conducted following the previous excavation in the 1990's. The aim of this study was to investigate these alterations in parts of Layer F that were only recently excavated, to determine the geochemical conditions associated with them, and evaluate their impact. The results, obtained through the combined use of FTIR spectroscopy and micromorphology, show that this layer was severely altered by chemical diagenesis as it is dominated by phosphatic minerals – carbonated hydroxylapatite, leucophosphite, taranakite and montgomeryite, in addition to altered clay and siliceous aggregates. Bones are rare and calcite is nearly absent, attesting to acidic conditions resulting in dissolution of carbonates. Guano remains (most probably of an animal with a vegetal diet), partly dissolved bones and signs of water action were found in thin sections to be associated with the phosphatization process. Extensive bioturbation has homogenized the sediments, erasing almost any signs of bedding. Several diagenetically altered combustion features were recognized. A detailed understanding of chemical and mechanical diagenesis has made it possible to discern the anthropogenic characteristics of Layer F, despite the extensive post-depositional alterations. The processes responsible for these alterations are inherently common in Paleolithic caves, and the refined understanding of their sources and impact can contribute to a more informed research of archaeological cave sites in general.

2038. Targeted sampling of biomolecules at the Upper Palaeolithic site Satsurblia Cave, Georgia

Authors: Thomas Beard – Larissa Bartsch – Susanna Sawyer – Omaima Zaki (University of Vienna) – Susan Mentzer (University of Tübingen) – Ron Pinhasi – Mareike Stahlschmidt (University of Vienna)
Format: Oral

The extraction of ancient DNA (aDNA) and bone collagen from resin impregnated blocks adds an unprecedented depth of biological information to archaeological investigations. These impregnated blocks provide archaeologists with an alternative resource for biomolecules, furthermore, the off-cuts of these blocks do not have an immediate use and are normally archived. Hence, using these blocks removes the need for acquiring separate dedicated samples and we can microcontextualise the biomolecules with parallel archaeological soil micromorphology thin section analysis. Using a targeted micro-sampling approach on the impregnated blocks we investigated the preservation and integrity of biomolecules at the Upper Palaeolithic karstic cave site of Satsurblia Cave in Georgia. We targeted microcontextualised areas to investigate which processes preserve, translocate and degrade sedimentary ancient DNA (sedaDNA), along with the potential sources of aDNA at the site. We identified these areas through thin section analysis, µXRF mapping and mFTIR to investigate heating of the microscopic bone fragments in the sediments. After drilling we conducted Zooarchaeology by Mass Spectrometry (ZooMS) and sedaDNA analysis on the bone and sediment samples respectively. We identified ancient bovid, canid, and ovis in both ZooMS and sedaDNA samples, and additionally human in only sedaDNA samples, ranging from ~20,000 to ~30,000 years old, which conforms with the macro faunal assemblage. Our results further suggest that micro-bone fragments are the predominant source of aDNA in the sediments and that biomolecules are well preserved at Satsurblia. Our results confirmed that DNA degrades in contexts associated with heat and that the translocation of DNA with clay and soil aggregates is not a factor at the site. Our investigation demonstrates the vast potential of recovering microcontextualised biomolecules from impregnated blocks, which in turn can elucidate upon past human behaviour in cave sites at an outstanding resolution.

1385. Formation processes of the prehistoric human occupation at Coves Llongues rockshelter (Sorita,

Eastern Iberia): a micromorphological, biomolecular and microarchaeological perspective.

Authors: Jacopo Armellini (Departament d'Història, Geografia i Art, Universitat Jaume I | Departament d'Història i Arqueologia, Universitat de Barcelona) – M. Mercè Bergadà (Departament d'Història i Arqueologia, Universitat de Barcelona | Institut d'Arqueologia de la Universitat de Barcelona - IAUB) – Dídac Roman (Departament d'Història, Geografia i Art, Universitat Jaume I) – Helen Mackay (Department of Geography, Durham University) – Rosa M. Albert (Catalan Institution for Research and Advanced Studies - ICREA | Department of Prehistory, Universitat Autonoma de Barcelona) – Inés Domingo (Catalan Institution for Research and Advanced Studies - ICREA | Departament d'Història i Arqueologia, Universitat de Barcelona)
Format: Oral

Cave and rockshelter sedimentary infillings represent a valuable source of information on past human occupation and environmental conditions. In the last few decades, soil micromorphology has become a fundamental tool for reconstructing site formation processes, with important implications for multiple research topics such as ancient pyrotechnology, site use and livestock stabling activities. The combination of soil micromorphology with other techniques significantly expands the range of information that can be extracted from cave sediment, especially regarding paleoenvironmental conditions and site use. This contribution analyses the stratigraphic sequence of the Coves Llongues rockshelter (Mediterranean Iberia), spanning from the Mesolithic to the Final Neolithic, using a multidisciplinary approach. The deposit has been analysed combining soil micromorphology, faecal biomarkers (steroids and bile acids), n-alkane distribution and their δ13C isotopic ratio, and phytolith analysis. The results allowed a) reconstructing the site formation history, b) characterising the Neolithic sequence of the site as a dumping area, connected to the domestic exploitation of the rockshelter, and c) formulating some considerations regarding the Neolithization process of Mediterranean Iberia in caves and rockshelters, from a geoarchaeological perspective. Hence, our contribution highlights the great potential of a multidisciplinary approach to the study of cave and rockshelter sedimentary infillings for reconstructing site formation processes and paleoenvironmental conditions.

1475. Multi-Scalar, Multi-Proxy Geoarchaeological Investigations in Lower Palaeolithic Dalarik-1 Cave, Armenia: Assessing Site Formation Processes

Authors: Ioannis Oikonomou (Human-Environment Dynamics Laboratory, The Hebrew University of Jerusalem | Malcolm H. Wiener Laboratory for Archaeological Science, ASCSA) – Theodoros Karampaglidis (Department of Geological & Mining Engineering, University of Castilla-La Mancha) – Hripsime Gevorgyan (Institut für Geologie, Technische Universität Bergakademie Freiberg) – Ariel Malinsky-Buller (Human-Environment Dynamics Laboratory, The Hebrew University of Jerusalem)
Format: Oral

Disentangling formation processes at Dalarik-1 Cave is crucial for two main reasons. First, the site represents a unique example of stratified archaeological deposits, rarely found in the Lower Palaeolithic record of the Armenian Highlands and the Southern Caucasus. The study of its material culture suggests that Dalarik-1 is temporally exceptional (MIS7-6), as it post-dates regional and supra-regional archives by tens of thousands of years and, therefore, understanding its depositional context and integrity is highly essential. Second, in contrast to typical karstic limestone caves, the depositional mechanisms of the infillings of caves formed in igneous settings remain relatively unexplored. The study of Dalarik-1 provides a rigorous depositional model for volcanic caves, highlighting the importance of multi-proxy, multi-scalar geoarchaeological approaches for such settings. The opening of Dalarik-1 Cave is the result of chemical and mechanical weathering of the volcanic bedrock, during a phase of incision of the Mastaraheghegheghat River. The site is divided into three main areas, the cave exterior and slope areas, the cave entrance, and the cave interior. Seven sedimentological units (SU) have been macroscopically identified for the external and entrance parts, while the interior consists of four SUs. The deposits of the Dalarik-1 sequence are formed through several processes, mainly involving the weathering of the cave ceiling and subsequent incorporation of roofspall through mass movement, and the accumulation of allochthonous sediments through aeolian processes, human and animal activities. The post-depositional regime is primarily associated with the presence of calcium carbonate and calcium sulphate (gypsum) precipitates. Stratigraphic, mineralogical, chemical, and micromorphological analyses indicate a spatially differentiated diagenetic milieu inside and outside of the cave. The decipherment of the nature of human occupations is conditioned by syn- and post-depositional agents; yet, the use of fire might have been part of the repertoire of human activities in the Lower Palaeolithic Dalarik-1 Cave.

540. A Millennium of Coastside Occupation. Micromorphological insights from the indigenous site of Las Estacas Cave, Tenerife

Authors: Pedro García-Villa (AMBILAB research group, University of La Laguna) – Cristo Hernández (PAST research group, University of La Laguna) – Carolina Mallol (AMBILAB research group, University of La Laguna)
Format: Oral

This study presents a geoarchaeological reconstruction of site formation processes and human activities at Las Estacas Cave, an indigenous site located in north-western Tenerife (Canary Islands, Spain) with evidence of human occupation dating back to the 2nd century CE. Soil micromorphology was applied to twelve thin sections from nine stratigraphic units, covering most of the archaeological sequence. The analysis identifies the main depositional and post-depositional processes shaping the cave sediments. The archaeosedimentary sequence is dominated by clay and rounded volcanic gravels derived from upslope inputs, basaltic clasts produced by cave wall disintegration, and abundant quartz grains introduced by recurrent sandstorm events. Coastal proximity and high salinity impart sodic characteristics to the sediments, resulting in a porous, vughy microstructure. Together with the elastic behavior of the clay-rich matrix, these conditions promoted water stagnation and the translocation of clays and micro-remains. Micromorphological evidence indicates phases of increased aridity in Units IV–II, expressed by the absence of stagnant water features, preservation of evaporites, and reduced clay illuviation. A clear contrast is observed between stratigraphic units with limited anthropogenic input and those reflecting more intensive human occupation. Units X, IX, VI, V, and III show predominantly natural sedimentation, with sodic clayey matrices, rounded gravels, and sparse ceramic and malacological remains. In contrast, Units VIII, VII, IV, and II are associated with higher occupation intensity, as indicated by combustion structures in varying states of preservation and sediments affected by trampling. Overall, the study demonstrates the value of high-resolution micromorphological analysis for understanding both environmental dynamics and human activities in coastal indigenous contexts, providing a detailed reconstruction of site formation processes at Las Estacas Cave.

480. Reading cave sediments: geogenic processes and human activities at San Bernardino Cave, a subalpine Pleistocene deposit

Authors: Diana Marcazzan (University of Tübingen) – Marco Peresani (University of Ferrara)
Format: Oral

The Pleistocene deposit of Grotta Maggiore di San Bernardino (northeastern Italy) offers an opportunity to examine cave sedimentation in a subalpine setting under various climate fluctuations and significant human presence. Our study focused on characterizing depositional and post-depositional processes through an integrated geoarchaeological approach combining field stratigraphy, sedimentology, micromorphology, mineralogical analyses, and single-grain optically stimulated luminescence (OSL) dating. The stratigraphic record reflects a dynamic depositional system dominated by slope-derived inputs and cold-climate processes, including frost-related disaggregation, solifluction, and aeolian input. Alongside dominant geogenic processes, the deposits also incorporate anthropogenic evidence of variable intensity. Units VIII, VI, and II display the clearest evidence of human input, whereas the other units are largely shaped by natural sedimentary dynamics. Micromorphological data reveal localized combustion residues, most clearly expressed in Unit VI, where ash-rich deposits, charcoal, and burnt bone fragments indicate in situ fire use. In contrast, units V and IV are characterized by limited anthropogenic remains and abundant coprolites, indicating a predominantly non-anthropogenic accumulation and only sporadic human visits. Environmental information derived from sedimentological proxies, supported by malacological assemblages in Unit VI, suggests shifts between more humid and more arid conditions throughout the sequence. Periods of increased human activity appear to coincide with phases of enhanced moisture availability. New single-grain OSL ages place the formation of Units VII to IV within Marine Isotope Stages 8 to 6, improving previous chronological constraints based on ESR-US and incomplete radiocarbon dating of the upper deposits. The refined chronology provides a framework for linking local cave sedimentation to broader Middle Pleistocene climatic variability and for reassessing patterns of Neanderthal site use in subalpine environments.

179 GLASS CONNECTING PEOPLE: GLASSWORKING AND DISTRIBUTION IN IRON AGE SOCIAL NETWORKS

Theme: 7. Interaction, connectivity and mobility
Organisers: Anzhelika Kolesnychenko (The Cyprus Institute | Institute of Archaeology of the National Academy of Sciences of Ukraine) – Kateryna D'Ayala (Department of Chemistry, University of Turin) – Anastasia Cholakova (National Institute of Archaeology with Museum, Bulgarian Academy of Sciences | Institute of General and Inorganic Chemistry, Bulgarian Academy of Sciences)
Keywords: Glass technology, Social network analysis, Trade routes, Imports, Archaeometry, Typological studies
Format: Session with keynote presentation

SESSION ABSTRACT

The production of glass represents one of the earliest and most striking examples of an international division of labor. For much of the Iron Age, glass was manufactured primarily in a limited area encompassing Egypt and the Syro-Palestinian region, from where it was exported across the Mediterranean world and beyond for further working and refinement. Within this broader picture, however, lie numerous stories of social connectivity that glass both reflected and reinforced. As a raw material, glass was frequently reworked locally, supporting the operation of diverse communities of practice. Bright glass ornaments and precious vessels circulated through social networks, often revealing interactions that are otherwise invisible—or only faintly visible—through less exotic materials. Unlike metal objects, which could be reproduced, or pottery, which was often subject to local fashions, glass in most Iron Age contexts was clearly an imported material. It, thus, serves as a powerful indicator of social interaction across long distances and cultural boundaries. Many case studies align with this overarching pattern: the spread of colourful core-formed glass vessels outside Greek world; the distribution of glass beads in indigeneous contexts of Iron Age, the spread of Celtic bracelets beyond the known Celtic world, the spatial patterns of Roman glass finds across the Roman limes; or the richly furnished burials of Thracian

kings or Steppe nomads containing exclusive and luxurious glass vessels. We invite contributions from researchers interested in the social interpretation of glass production, working, and distribution patterns, as well as the cultural significance of glass imports in various societies.

CONTRIBUTION ABSTRACTS

706. Polychrome Glass Perfume Containers from Spina: Trade Dynamics and Ritual Significance in the Valle Trebba Necropolis

Authors: Laura Sofia Di Giorno (Sapienza University of Rome) – Mckinley Knoop (University of Bologna)
Format: Oral

Spina (Ferrara, Italy), a prominent Etruscan city-port on the Adriatic Sea, has yielded a significant corpus of core-formed polychrome glass perfume containers, recovered from both the settlement and the necropolis. The northern funerary sector of Valle Trebba—under investigation by the University of Bologna—produced approximately one hundred specimens. These finds span the city's occupation (late 6th- late 3rd century BCE) and are distributed across 61 of the 1,215 tombs within the sector, in addition to several specimens lacking a specific funerary context. Most of these perfume containers belong to the so-called Mediterranean Group 1 (MG 1) according to D.B. Harden's typological classification, while a smaller group is attributed to MG 2. MG 3 perfume containers are absent, consistent with the fact that the latest burials date only to the mid-3rd century BCE. For a few MG 1 specimens, archaeometric analyses have confirmed a Greek origin, possibly Rhodes, a primary production centre of the period. Formal and stylistic comparisons suggest a Greek/Eastern Mediterranean provenance for various other specimens within the same group as well, whereas at least some of the MG 2 perfume containers suggest an origin in Italy. The diachronic shift in these potential provenances point to interesting production and distribution patterns in Iron Age social networks, which could be clarified by possible new archaeometric analyses. At Valle Trebba, these vessels were predominantly recovered from female inhumation burials, both adults and sub-adults, with a particular concentration in the 5th century BCE. They were frequently placed in emphatic positions relative to the body—most notably near the hands—and were occasionally found in significant association with aes rude or items belonging to the personal sphere. The study of these artefacts within the context of Spina offers a multifaceted research perspective, integrating technological, commercial, and socio-cultural dimensions alongside funerary practices.

894. Core-formed glass vessels from the "suburbs" of Olbia Pontica: ritual or daily use, Olbian citizen or barbarians?

Authors: Oleksandr Kuzmishchev (Institute of Archeology NAS of Ukraine) – Anzhelika Kolesnychenko (The Cyprus Institute | Institute of Archeology NAS of Ukraine) – Andrew Ivchenko (Institute of Archeology NAS of Ukraine)
Format: Oral

Recent archaeological and geomagnetic studies in ancient Olbia have changed our understanding of the structure of this city. The city have been expanded to include part of the necropolis. The overlap of residential and burial areas makes it difficult to interpret the complexes. But who lived in the "suburbs" of Olbia? Was it suburb or western district of city? Were they full citizens with an Olbian lifestyle, or barbarians following their own traditions? These questions can be considered through the prism of glass artefacts, namely core-formed vessels, in comparison with the inner part of Olbia and other cities. Seventeen fragments of core vessels of various shapes were found in the non-burial complexes of the suburbs. Of these, there are 5 amphorae, 5 alabasters, 1 aryballos, 1 oinochoe, and 5 of unknown shape. The chronology of the vessels and complexes covers the 5th–4th centuries BC. Most of the fragments were found in pits or houses. Two vessels were recorded in sacred areas. The practice of using core-formed vessels is well known in the Black Sea region as well as in the Mediterranean. Thus, the distribution and potential function of the core-formed vessel reflect the spatial distribution of vessels in the central part of the city, supporting recent hypotheses that the city's territory were considerably broader during its early development.

728. Classical and Hellenistic glass vessels from West Pontic coast: a project overview

Authors: Mila Chacheva (National Archaeological Institute, Bulgarian Academy of Sciences)
Format: Oral

Glass vessels, which constitute undisputed luxury items of the Classical and Hellenistic periods, are relatively rare in archaeological contexts and are most frequently associated with the necropoleis of the ancient West Pontic apoikiai. More broadly, studies of ancient glass for this period provide an important foundation for reconstructing trade routes and economic interactions within the Mediterranean and Black Sea regions. In order to integrate the West Pontic coast more accurately into the broader distribution patterns of glass vessels during the Classical and Hellenistic periods, it is essential first to establish a comprehensive understanding of the glass material preserved from this area. Accordingly, the primary aim of the present project is to compile and analyze all glass vessels dating from the 5th to the 1st century BC that have been discovered within the territory of the Greek poleis along the present-day Bulgarian Black Sea coast, including both previously published finds and material that has remained unpublished to date. As a substantial proportion of these vessels derive from necropoleis, they can be examined within a secure archaeological context, allowing for an additional objective of the study: analysis and an attempt at more precise dating based on the associated finds. The initial phase of collecting and processing the available material has now been completed, enabling a preliminary presentation of

the project's results.

1344. Signs of change: glass artefacts in socio-economic upheavals in the Lower Dniester region during the Hellenistic period

Authors: Anzhelika Kolesnychenko (The Cyprus Institute | Institute of Archaeology of the National Academy of Sciences of Ukraine) – Thilo Rehren (The Cyprus Institute)
Format: Oral

The Hellenistic period was marked by profound transformation in the Greek poleis of the Lower Dniester region. Inflation and climatic aridization, and barbarian invasions coincided with reshaping local power relations in a distinctly Hellenistic direction toward more authoritarian forms of rule. Imported glass artefacts were embedded in these processes, and their patterns of distribution reflect ongoing interactions. This study focuses on the interdisciplinary analysis of glass items from the region. The use of various research methods, including the study of the chemical composition of glass by SEM-EDS, makes it possible to consider glass in various, often overlapping fields of research on a broader scale. Core-formed vessels continued to be imported into Niconion until the city's partial abandonment. Subsequently, such vessels reappear on the opposite bank of the Dniester estuary in the city of Tyras, reflecting a regional shift in political and economic power. At the same time, luxury glassware, particularly transparent bowls associated with elite drinking social display, became relatively numerous in the region. These vessels appear both in nomadic contexts and in burials within Greek poleis. Their distribution suggests a mode of political authority concentrated within a ruler's immediate circle, authoritarian in character and socially detached from the broader population. Other glass finds point to episodes of invasion, including Celtic glass bracelets, mask beads, rectangular, and other beads. Compositional analyses of glass artefacts reveal diverse supply routes and production centers, indicating an expansion of trade connections and a restructuring of socio-economic networks following Alexander's conquest of the East. Glass artefacts serve as a powerful proxy for reconstructing the social connections of a small Greek enclave on the northeastern periphery of the Greek world.

1821. Small Objects, Wide Networks: Chevron Glass Beads in the Early Iron Age Eurasian Steppe

Authors: Dmytro Nykonenko (University of Turin, Department of Chemistry | currently at University of Pavia, Department of Musicology and Cultural Heritage) – Monica Gulmini – Oleh Yatsuk (University of Turin, Department of Chemistry)
Format: Oral

Glass beads are among the most informative categories of archaeological glass artefacts, offering valuable insights into technological practices, exchange systems, and cultural interaction. Small and easily transportable items of personal adornment, they readily crossed ethnic and geographic boundaries. Their production required specialised knowledge of raw materials, colourants, and manufacturing techniques, and their distribution often reflects complex patterns of mobility and communication. The author focuses on a distinctive group of cubic glass beads decorated with chevron motifs that became widely distributed across the Eurasian Steppe during the 4th century BCE. Although their period of use was relatively short, these beads spread over an exceptionally large area, from the Danube Basin to the Ural Mountains, covering approximately two million square kilometres. Their occurrence in both funerary and settlement contexts among diverse nomadic and semi-nomadic communities makes them a sensitive indicator of interregional contacts. Based on typological analysis, spatial mapping, and the comparison of archaeological contexts, the study considers a dataset of 114 known beads from 37 archaeological sites and examines their circulation routes within steppe interaction networks as evidence of mobility and exchange. The beads are regarded as material evidence of sustained contacts between distant communities, providing an effective proxy for reconstructing social connectivity and intercultural communication in the Early Iron Age Eurasian world.

1292. Polychrome Glass Beads as Chronological Markers of the Late Scythian Culture

Authors: Olena Dzneladze (Institite of Archaeology of the National Academy of Science of Ukraine)
Format: Oral

Various types of polychrome glass beads were discovered among the grave goods of the Late Scythian burials. Chervonyi Mayak is the largest known Late Scythian necropolis of the Lower Dnieper Region. The Late Scythian Archaeological Expedition of the Institute of Archaeology of the National Academy of Sciences of Ukraine excavated the necropolis Chervonyi Mayak from 2011 to 2021. The research results are well documented: two monographs and numerous articles have been published. The beads from the burials were described and accompanied by color photographs, unlike artifacts found during excavations in previous decades. All these factors facilitate the study of polychrome beads. In total the Late Scythian Archaeological Expedition excavated 69 burial structures (no. 109-177), there are deep crypts, niche graves, pits and cenotaphs. Most types of the beads under study were in use in the 1st — the first half of the 2nd centuries AD and permit to date the graves, where they have been found to this time. In the most of graves under study the beads have been found. Among them the monochrome and polychrome glass beads, the beads made of semiprecious stones, metal, amber, jet and Egyptian faience beads. The correlation of the beads with other elements of clothing, especially fibulae and buckles, demonstrates that the beads of various types should be chronological markers. The date could be specified by the dating of polychrome beads with compound decoration, the faience beads, and items of semiprecious stones and figured pendants. Sometimes the beads are the only objects for the dating of a burial, so it is possible to use them as chronological markers.

1575. Keynote: From Numbers to Knowledge: The Role of Archaeometry in Interpreting Iron Age Glass as a Proxy for Social Interactions

Authors: Monica Gulmini (Chemistry Department - University of Turin)
Format: Oral

It is often noted that, within archaeological studies, glass artefacts have received limited attention, or at least less attention than artefacts made from other materials, such as ceramics and metalwork. In recent years, however, a growing body of archaeometric data on glass has been published and discussed in dedicated events and thematic conference sessions. As a result, even more traditional archaeological approaches are acknowledging the potential of the information conveyed by glass artefacts for the study of archaeological contexts, as well as of connections and interactions between cultures. The archaeological community now benefits from exceptionally advanced tools for chemical analysis and data processing, which promote the development of methods and interpretations through genuinely transdisciplinary approaches. Glass artefacts are currently being "rediscovered" through broader perspectives that integrate materials science and chemical analysis into their archaeological interpretation. Nevertheless, progress also requires awareness. Understanding the limitations of instrumental investigations of glass is essential in order to make full use of their potential. This contribution examines a series of exemplary case studies on Iron Age glass, drawn from research carried out at the Department of Chemistry of the University of Turin, focusing on key aspects that the archaeological community should consider in order to guide the establishment of robust foundations for interpretative frameworks currently being developed to use glass in tracing Iron Age networks and highligh cultural contacts and influences. The topic falls within the framework of the ongoing research project "Compatibility of Measurement Results for New Protocols in Archaeometry (COMAr)", funded by the Italian Ministry of University and Research under the Italian PRIN 2022 programme (Projects of National Relevance).

2329. Echoes of glass change: alkali variation and technology differentiation in post-palatial Mycenaean Greece

Authors: Kalliopi Nikita (Ephorate of Antiquities of East Attica, Hellenic Ministry of Culture)
Format: Oral

Distinctive blue glass jewellery, mass-produced in the Mycenaean palaces, was widely distributed across the Aegean and in Cyprus during Late Helladic IIIA-B (14th-13th centuries BC). The destruction of palaces and the collapse of Linear B administration system lead to the decline of the Mycenaean glass industry. In post-palatial contexts, namely in the LHIIIC period (12th-11th centuries BC) glass beads either rarely occur or they are unevenly distributed whilst the main bulk of glass seems to have been imported from an alien glass-producing centre. The paper focuses on glass beads from burials in the cemetery of Elateia-Alonaki, Phthiotis, dating to the post-palatial Mycenaean period and towards the transition to the Early Iron Age. Electron microprobe analysis in combination with trace element characterisation by Laser Ablation Inductively Plasma Mass Spectrometry has cast light on the raw materials employed in their making, more specifically on the alkali source as well as on the copper and cobalt blue mineral sources used as colourants. Special emphasis is placed on the mixed-alkali glass compositional type. Despite their uneven distribution within Elateia-Alonaki mixed-alkali glass beads are a unique and most significant occurrence in the broader Aegean of the Late Bronze Age and the transition towards the Early Iron Age. Mixed-alkali glasses have been distinctive compositions of Bronze Age Central Europe and Italy whereas their farther eastern occurrences on the basis of solid analytical evidence have been only in mainland Greece so far, in Elateia-Alonaki and on the island of Thasos in the northern Aegean. Similarities with Italian and Central European mixed-alkali glasses in conjunction with archaeological evidence for the mobility of luxury goods raise a hypothesis about their importation to Greece. The paper aims to interpret the echoes of change in the use of the newly-emerged mixed-alkali glass technology within the social context of post-palatial Mycenaean Greece.

1440. From Core to Colour: Archaeometric Insights into Mediterranean Glass Reaching Olbia Pontica (Mykolaiv Oblast, Ukraine)

Authors: Kateryna D'Ayala (University of Turin) – Anzhelika Kolesnychenko (Cyprus Inst. | Inst. of Arch. of the NAS of Ukraine) – Patrizia Davit (University of Turin) – Annarosa Mangone (University of Bari) – Alessandro Re – Alessandro Lo Giudice – Monica Gulmini (University of Turin)
Format: Oral

This study presents the first comprehensive archaeometric analysis of core-formed glass vessels from the ancient Greek colony of Olbia Pontica (northern Black Sea region), dating from the late 6th century BC to the early 1st century AD. The assemblage, predominantly blue and consisting of amphoriskoi, oinochoai, and alabastra – characteristic perfume and unguent containers – is curated in two Ukrainian institutions: the National Historical and Archaeological Reserve "Olbia" (Mykolaiv Oblast) and the Institute of Archaeology in Kyiv. Typologically classified within Mediterranean groups (MG), these artefacts are associated with workshops in the Mediterranean that are unknown in terms of archaeological evidence. A multi-instrumental approach, encompassing Optical Microscopy, SEM-EDS for major and minor element profiling, and FORS for non-destructive chromophore identification, reveals the compositional and technological foundations of their vivid coloration. The glasses are soda-lime produced via natron flux and quartz-rich sands, with intentional additions of colouring agents, predominantly Co^{2+} ions yielding intense blue hues, opacifiers and minor colorants like Cu and Mn. Micromorphological features, such as bubble distribution and inclusions, reveal core-forming techniques, firing temperatures, and raw material processing. These findings fill a critical gap in the chemical dataset for core-formed glasses from Ukrainian Black Sea sites, highlighting the role of chromophores in tracing production technologies, raw material sourcing, and Mediterranean trade networks.

849. The Analysis of Glass from the Roman Villa, Warkton, Kettering

Authors: Emily Harris-Taylor (Independent)
Format: Oral

This study examines Roman glass artefacts unearthed from Warkton Villa, Kettering, with the aim of elucidating their manufacturing techniques, raw material provenance, and the circulation patterns of glass during Late Antique Roman Britain. Central to the research are questions concerning the transmission of technological knowledge, the dynamics of material economy, and the emergence of cultural hybridity in rural elite contexts. Employing Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) in conjunction with meticulous microscopic analysis, the investigation delivers both quantitative and qualitative insights into elemental compositions, trace element fluctuations, and microstructural characteristics of the glass samples. The collection is predominantly comprised of natron-fluxed silicate glass, consistent with classic Roman formulations from the Eastern Mediterranean. Nonetheless, marked variability in trace elements and the presence of microscopic inclusions indicate episodes of recycling and secondary production, most likely occurring within provincial workshops. Supplementary findings, such as traces of colourants, evidence of surface weathering, and distinctive textural features, further suggest post-depositional changes and small-scale craft modifications, pointing towards technological adaptation at the local level within the expansive framework of imperial exchange networks. Ultimately, the results reveal that the glass artefacts from Warkton Villa are testament to the ways in which rural elite sites in Roman Britain not only engaged with imported materials but also actively adapted and transformed them locally. This case study underscores the fluidity of trade boundaries and highlights the proactive involvement of local craftsmen in negotiating and reshaping Roman material traditions, thereby broadening our comprehension of cultural hybridity and technological interchange within the province.

274. New insights into the recycling and restoration of glass in antiquity

Authors: Šime Perovic (Museum of Ancient Glass in Zadar)
Format: Oral

The article reconstructs possible forms of recycling or restoration of damaged glass objects in antiquity, based on archaeological findings, instructions from ancient writers Martial, Statius and Pliny the Elder, as well as the results of physical and chemical analyses. This was sometimes achieved by changing the original function of the object, as witnessed by several examples from the Jader necropolis, and sometimes by attempts at actual restoration. The descriptions of the preparation of glues provided by Pliny the Elder in his work Naturalis Historia, one based on sulfur and the other on quicklime and egg white, are a vivid example of such Roman-era restoration practice, and their authenticity has been confirmed by experimental archaeology projects conducted at the Department for Restoration and Research of the Museum of Ancient Glass in Zadar. Recycling by remelting glass was also explained, which was economical in antiquity due to the unavailability or high cost of basic raw materials (quartz and sodium carbonate). In addition to historical and archaeological data, a third group of data on the possible recycling of glass in antiquity is provided by data inherent in its structural nature. The idea already presented (Harriet E. Foster, H.E. and Jackson, C.M. (2010). The composition of late Romano-British colourless vessel glass: glass production and consumption, Journal of Archaeological Science, Vol. 37, 12, 3068-3080) that the joint presence of both manganese oxide and antimony oxide in colorless samples is evidence of recycling of glass material, since only one of these two oxides was usually used for decolorization, is additionally verified by a project of systematic PIGE analysis on samples of roman and late antique glass from the Museum of Ancient Glass in Zadar.

1043. Roman glass at the twilight of the Empire: composition and recycling of Late Roman glass from northeastern Tarraconensis

Authors: Iva Mihova (GRQ-SERP, Department of History and Archaeology, University of Barcelona) – Lluis Casas (Department of Geology, Autonomous University of Barcelona) – Ignasi Queralt (Laboratory of X-ray Analytical Applications, IDAEA-CSIC | University of Girona) – Joana Teixeira (Center for Applied Photonics, INESC TEC | Department of Physics and Astronomy, University of Porto) – Diana Guimarães (Center for Applied Photonics, INESC TEC) – Montserrat Sanz – Joan Daura (GRQ-SERP, Department of History and Archaeology, University of Barcelona)
Format: Oral

Archaeometric research on Late Roman glass from the Iberian Peninsula remains limited. This study analyses 186 Roman glass fragments from two sites in the northeastern Tarraconensis province, Cova del Gegant and Masia de les Coves. A combination of analytical techniques was employed: (i) portable X-ray fluorescence (p-XRF) instrumentation to explore compositional distinctions despite its limited elemental range on 180 samples; (ii) micro energy-dispersive X-ray fluorescence (m-EDXRF) applied to five samples with identifiable shapes; and (iii) Raman spectroscopy and XRF mapping on one sample to characterise pigments used in red-coloured decorations present in nine fragments. The results reveal clear chemical differences between the assemblages of the two sites, suggesting different raw glass sources or production technologies. The Cova del Gegant glasses, ascribed to the 4th-7th

centuries CE, largely relate to Late Antiquity glass reference groups and exhibit signs of recycling. Their composition correlates with the High iron, manganese and titanium glasses (HIMT), Levantine I and Foy 2 groups. Whereas the Masia de les Coves material aligns with the Roman 'naturally' coloured blue-green and yellow glasses 2 group (RNCBGY 2). Combined with typological indicators, these results suggest that the Masia de les Coves assemblage may belong to an earlier period (1st to 4th centuries CE). Raman spectroscopy and complementary XRF confirm the use of a copper-based pigment to produce the red decorative trails. Typological evidence is consistent with a funerary or ritual setting due to the abundance of shapes, such as beakers/lamps and unguentaria, commonly attributed to such contexts. Overall, this study highlights the difference in production technologies and recycling practices across two periods of the Roman Empire in the same spatial setting.

926. Keynote: Losing Marbles: Glass Imports and Social Change in the Roman Iron Age Baltic

Authors: Karolis Minkevicius (Vilnius University, Department of Archaeology) – Kotryna Bojarskaitė (Lithuanian Institute of History, Department of Archaeology) – Gustė Mickevičiūtė (Vilnius University, Department of Archaeology)
Format: Oral

Glass, as a largely imported and technologically distinctive material, provides a sensitive indicator of long-distance connectivity and social interaction in prehistoric Europe. In the south-eastern Baltic, the earliest glass finds date to the 5th century BC, with a marked increase from the early centuries AD, reflecting the region's growing integration into pan-European exchange networks. Unsurprisingly, glass – particularly from mortuary contexts – has traditionally been used to explore cultural contacts and social differentiation through typological approaches. Recent research, however, demonstrates its broader interpretive potential when integrated with settlement archaeology and environmental evidence. This paper presents an interdisciplinary analysis of Roman Iron Age (1–400 cal AD) glass imports from south-eastern Baltic settlements, combining artefact typology with archaeobotanical, zooarchaeological, and isotopic datasets to examine how glass circulation intersected with wider social, economic, technological, and environmental transformations. The results show that shifts in glass distribution closely correlate with changes in mortuary practices, subsistence strategies, settlement organisation, and technological traditions, particularly from the late 1st–2nd centuries AD, during the expansion of major exchange routes such as the Amber Road. While archaeologically these exchange networks are most visible through Roman imports – particularly glass – other datasets indicate that their significance extended well beyond the circulation of exotic objects. Settlement evidence points to the transmission of knowledge, technologies, and ideas, which in turn contributed to broader social, economic, technological, and environmental transformations in Baltic societies. This study demonstrates how the circulation of Roman imports both reflected and actively shaped social connectivity and change in the Iron Age Baltic region, while also offering insight into the origins and dissemination of key socioeconomic developments.

1994. Glassware from a villa rustica. A case study from north-western Alps: Costigliole Saluzzo (Cuneo, Italy)

Authors: Veronica Bellacicco (University of Turin, ASSA PhD programme) – Diego Elia (University of Turin, Department of Historical Studies) – Valeria Meirano (University of Turin, Department of Historical Studies | Standing Committee of the International Bronze Congress) – Monica Gulmini – Dmytro Nykonenko (University of Turin, Department of Chemistry)
Format: Oral

The presence of Roman glassware in rural contexts is still not sufficiently documented in Northern Italy, compared to the knowledge about the circulation and use of these artefacts in funerary areas and urban centres. Excavations conducted by the University of Turin at Costigliole Saluzzo have brought to light a large Roman villa rustica and a Late Antique settlement located in a strategic position along the road leading to Gaul across the Alps. The site, which covers an area of approximately 3 hectares, is one of the largest rural complexes yet discovered in north-western Italy dating to the Imperial period. A wide range of activities have been identified at the villa, including the processing of agricultural products, grain milling, winemaking, and the manufacture of bricks, ceramics, and metal tools. The presence of a mansio suggests that the villa also accommodated travellers and merchants. The site has yielded a wide assemblage of glass vessels enabling us to reconstruct tableware and pantry glass sets (bottles, plates, cups, etc.) in a diachronic perspective, from the 1st century BC to the 5th century AD. These items exhibit remarkable morphological and typological variety as well as evidence of various production techniques, ranging from moulded to standardised blown glass vessels, some of which were imported and others produced in local workshops. Interdisciplinary approaches (e.g. hyperspectral imaging) applied to coloured and decorated specimens have allowed for the identification of colourants. A distributive analysis has shown significant concentrations of finds in specific residential units, related to food and beverage consumption, and to health and body care. Together with the study of other materials, the analysis of glassware has enabled Costigliole to be placed within a broader territorial context, demonstrating the important role of rural settlements in the circulation of products, objects and people in Roman times.

321. Glassware as Indirect Evidence of Glassworking in Barbaricum: Current State of Research and Future Perspectives

Authors: Vladyslav Shchepachenko (Institute of Archaeology National Academy of Sciences of Ukraine | V. N. Karazin Kharkiv National University)
Format: Oral

The possibility of manufacturing glassware in Barbaricum during the Roman and Early Migration periods has been a subject of conjecture since the early 1970s. The publication of the initial results of excavations at a glass workshop in Komariv on the Middle Dniester, discovered in the middle of the last century in the Cherniakhiv/Sântana de Mureș cultural area, more than 300 km from the nearest section of the Roman border, was pivotal to the development of this discussion. The numerous production waste, raw materials, and remains of a glass-melting furnace unearthed in this location essentially became the material embodiment of this hypothesis. Another argument supporting such a viewpoint was revealed in an analysis of the distribution patterns of the so-called thick-walled facet-cut beakers, which had previously been designated by H.-J. Eggers as types 230, 237-238. The majority of these artefacts were discovered outside the limes, and to date, such vessels lack any counterparts among synchronous glassware forms in the Roman provinces. The number of similar items gradually continues to increase. Recent research has revealed that the category of 'barbarian' artefacts most likely also includes vessels with coloured glass overlay, thick-walled facet-cut glass beakers of E. Straume's IB3 variant and IX type, which were common in Northern, Central and Eastern Barbaricum, glass cups with fire-rounded rims, which gained spread in Eastern Europe, mainly in the Cherniakhiv/Sântana de Mureș area, as well as many other forms of Roman period glassware, currently known only in one or two specimens. The increasing number of such artefacts prompts a more cautious approach to the definition of Roman objects in Barbaricum, thereby underscoring the significant role of 'barbarian' products in the circulation of glassware outside the limes.

2443. "Live Long and Prosper!": the many rebirths of Roman glazed-composition melon beads

Authors: Anastasia Cholakova (National Institute of Archaeology with Museum, Bulgarian Academy of Sciences | Institute of General and Inorganic Chemistry, Bulgarian Academy of Sciences) – Peter Tzvetkov (Institute of General and Inorganic Chemistry, Bulgarian Academy of Sciences)
Format: Oral

Melon beads, also known as Melonenperlen, are among the most characteristic small finds at early Roman sites, especially in those related to the Roman military. They are made of a synthetic glassy material, essentially ground quartz sintered with alkali-rich ingredient and added colourant, which is sometimes inaccurately referred to as 'faience'. Considered as products of an originally Egyptian technology, these distinguishable small items of adornment, supposedly worn also because of their ascribed apotropaic properties, have been manufactured on a large scale in the 1st c. AD but had remained popular throughout the Roman period. Due to their material durability and appealing colours, a considerable amount of these beads had survived their initial cultural and technological milieu and had evolved into a range of later and extended 'biographies'. The aim of this presentation is to outline the diverse archaeological and modern contexts in which the Roman glazed-composition melon beads are found, starting from their primary 1st – 3rd c. settings, through some quite intriguing finds from late antique and medieval burial sites, to modern cases of illicit antiquities trafficking and imitations. With an emphasis on materials from present-day Bulgaria, while also taking into account examples of melon beads from other parts of Europe and beyond, we will seek to explore the purely material, and the presumed semiotic, significance of these objects behind their longevity. The results of a combined analytical study of chemical and phase composition (XRF and XRD) of findings from present-day Bulgaria provide a further basis for a more comprehensive understanding of the phenomenon of multiple life cycles of the Roman glazed-composition melon beads.

1006. Photogrammetric approaches to studying Iron Age glass working: a case study of glass artifacts from the Odesa Archaeological Museum

Authors: Yaroslav Chentsov (Scientific and research lab «Archaïc») – Oksana Hrytsiuta (Odesa Archaeological Museum of the National Academy of Sciences of Ukraine)
Format: Oral

Currently, the glass collection at the Odesa Archaeological Museum includes over a thousand artefacts. In 2025, thanks to the museum's participation in the Ukrainian Heritage Digitisation and Dissemination Initiative (2024-2025) project, a number of 3D models of glass products stored at the institution were created using photogrammetry. The creation of 3D models from glass has its own technological specifics and requires a certain set of equipment to create a high-quality model from such a capricious material. The availability of ready-made 3D models of glass artefacts allows scientific research of such materials to be carried out for specific scientific purposes -metrological, technological, morphological, tracological or any other. If we take as an example the existing model of a glass goblet dating from the last quarter of the 4th – first third of the 5th century, some measurements can be taken directly (diameter of the rim and neck, diameter of the bottom, as well as counting the number of ornamental figures and measuring their parameters). In cases where direct measurement of the model cannot provide sufficient accuracy, the model can be edited to enable more accurate measurements - removing those parts that prevented access to the required distances. Such a 'cut' model can be loaded into a specialised software environment and measured using standard tools. These parameters include the maximum diameter of the vessel, the height of the neck, and the total height. The volume parameter involves automated calculations in the same programmes (Radchenko, Chentsov 2025). The results of such studies, in addition to their direct scientific significance for a specific object, provide an opportunity, when creating a sample, to study the processes of standardisation of glassware and to take a different look at already known glass artefacts from the collections of the Odesa Archaeological Museum.

1508. Roman glass imports in Pomerania and lower Vistula region. Typology, import routes and most

comon deposition.

Authors: Patryk Talar (Uniwersytet Mikołaja Kopernika w Toruniu)
Format: Poster

From the mid first century AD, imported Roman glass vessels became an element of social prestige in the European Barbaricum. They represent only a small fraction of the enormous range of glassware produced in the Imperium Romanum, and at the end of antiquity, manufactured to a very limited extent in the northern Black Sea region, an area of direct interaction between ancient traditions and the barbarian world. The inflow of such luxury goods was neither continuous nor evenly distributed and depended primarily on the relations between the Romans and the barbarians. The spread of glass vessels in the Barbaricum was undoubtedly influenced by the popular custom among barbarian elites of exchanging luxury items as gifts. A significant number of diverse Roman glass vessels reached the southern Baltic Sea basin, where they concentrate in Pomerania and the lower Vistula region. Here, they appear primarily as part of the grave deposition among aristocratic burials, including individuals situated at the very top of the social hierarchy, such as those found in "princely graves" of the Lubieszewo type. Among these vessels, one may distinguish, for example, rare types of cups decorated with painted scenes of gladiatorial combat, a unique fish-shaped vessel originating from Italy or the Near East, ribbed bowls and finally, a series of vessels with walls covered in ground oval facets. The latter are considered examples of products that reached the north via an exchange route linking Scandinavia and the Pontic region in the 3rd and 4th centuries AD.

2427. Luxury glass vessels from Eleutherna-Sector I: exploring the networks of interaction in Early and Middle Imperial Roman Crete

Authors: Kalliopi Nikita (Ephorate of Antiquities of East Attica, Hellenic Ministry of Culture)
Format: Poster

This paper presents and discusses selected assemblages of glass vessels that were found in two villas in Sector I of the excavated city of ancient Eleutherna in north-central Crete dating to the Early and Middle Imperial Roman period, early 1st century – late 3rd century AD. A combined archaeological and scientific analysis yielded significant information about the archaeology and technology of glass vessels that comprise wares characterised as luxuries. Starting with the distinction between luxury glass vessels and their contemporary utilitarian glass vessels that were also found in the two villas, the discussion will focus on aspects of their manufacturing technology, namely glass-making raw materials, glass-working techniques as well as glass vessel forms and decoration. More specifically, electron-microprobe analysis of selected monochrome and polychrome strongly-coloured vessel glass shed light on the range of raw materials involved in their making. Technological similarities that were noted amongst the highly-coloured vessels, glass tesserae from the wall mosaics and minor glass finds uncovered in the area of the two villas are also discussed. Given the rarity of recognised glass workshops on Roman Crete as well as the limited number of workshops for primary glass production within the empire during the chronological period considered, the study offers a comprehensive discussion about possible connections of Eleutherna with other sites on Roman Crete and with related glass workshops within the empire. By tracing the likely networks of interaction through glass trade in conjunction with other luxuries across the Mediterranean during the Early and Middle Imperial Roman times the paper aims to explain the occurrence and use of luxury vessel glass within the context of Eleutherna, in particular, and of Roman Crete, in general.

2807. Chemical composition of Late Iron Age glass bangles from Central North Bulgaria

Authors: Anastasia Cholakova (National Institute of Archaeology with Museum, Bulgarian Academy of Sciences | Institute of General and Inorganic Chemistry, Bulgarian Academy of Sciences) – Elitsa Dimitrova-Nikolova ("Man and Earth" Museum, Sofia) – Zhivko Uzunov (New Bulgarian University) – Peter Tzvetkov (Institute of General and Inorganic Chemistry, Bulgarian Academy of Sciences)
Format: Poster

This poster presents the preliminary results of an analytical study of a set of glass bangle fragments dated to the 3rd – 2nd c BCE. The majority of them were found during rescue excavations of an open settlement site near the present-day village of Dimcha in Central North Bulgaria. A few more pieces discovered at other sites in the area complement the dataset. Stylistically, the bangles belong to well-known groups of Celtic glass jewellery. Fifteen fragments were measured by ED-XRF, as semi-quantitative analysis, aiming at minimal damage of the finds and mostly non-invasive approach. The results suggest that the bangles were made of Na-Ca-Si glass, produced with mineral soda, most likely with a Levantine origin of the raw glass used. The intense blue colouration of all the fragments was achieved by addition of cobalt containing ingredients, while also increased iron, copper, and/or lead contents are evident. The white and yellow opaque glasses used for the thread decoration of the bangles were produced with calcium antimonate and lead antimonate, respectively. In terms of their chemical glass composition, morphology, and decorative style, the bangle fragments from Central North Bulgaria pertain to the glassworking traditions of the Celtic culture in Central and Western Europe. Nevertheless, their presence in the Northern Balkans rises questions regarding identities, connectivity, and exchange in the broader context of the Late Iron Age social dynamics.

183 ARCHAEOLOGY IN THE LEAD: DRIVING INTEGRATED INTERDISCIPLINARY APPROACHES TO SUSTAINABLE URBAN AND ENVIRONMENTAL DEVELOPMENT

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Friso Kater (EARTH Integrated Archaeology) – Vibeke Martens (Norwegian Institute for Cultural Heritage Research - NIKU) – Michiel Vanhecke (Geosonda Belgium)
Keywords: Archaeology-led interdisciplinary research, sustainable spatial planning, geotechnics, geophysics and geoarchaeology, hydrology, environmental sciences, data-driven approaches, urban development resilience
Format: Discussion session
Affiliation: Archaeological Prospection Community

SESSION ABSTRACT

Global challenges such as urbanization, climate change adaptation, and sustainable resource management demand cohesive, interdisciplinary approaches. Traditionally, archaeology has been introduced late in development projects, responding reactively to mitigate impacts. This session argues for a fundamental shift: archaeology should not simply participate in planning processes but actively lead them, guiding early-stage soil investigations, risk assessments, and spatial analyses while coordinating geotechnical, hydrological, and environmental expertise. Placing archaeology at the core of urban planning makes heritage protection a proactive—and structuring—component of development. Integrating archaeology within political and regulatory frameworks is essential for shaping its influence. Whether archaeology is embedded through strict legislation or flexible governance models determines its ability to act as a driving force rather than a reactive stakeholder. Understanding these political contexts strengthens archaeology's capacity to steer planning and ensure that heritage considerations inform development from the outset. By positioning archaeology as a leading discipline, this session shows how archaeological knowledge can guide research frameworks, structure interdisciplinary collaboration, and shape risk assessments. Rather than functioning as one of many parallel contributors, archaeology can integrate data from geology, hydrology, digital technologies, and environmental studies, thereby directing other disciplines involved in urban and infrastructural planning. Presenters will share case studies and methodologies that illustrate archaeology's leadership in urban planning. These examples show how archaeological and geological data, when placed at the forefront of development strategies, inform spatial design, zoning decisions, and long-term resilience. They highlight planning models where archaeological insight not only protects heritage but also enhances sustainable and culturally grounded development. In sum, this session emphasizes archaeology's capacity to transform spatial development by moving from a supportive role to a leading discipline. By advocating policy frameworks that integrate archaeology at the earliest planning stages, archaeologists can help shape future landscapes that balance contemporary needs with heritage preservation.

CONTRIBUTION ABSTRACTS

911. Build a digital twin of the subsurface and get to know your fellow soil experts

Authors: Michiel Vanhecke (Geosonda)
Format: Oral

Understanding ground investigation campaigns with the aim of pursuing sustainability starts with fostering collaboration among experts. An interdisciplinary approach provides significant support to clients navigating complex legislative frameworks. By integrating expertise and methodologies, geodata can be efficiently utilized, with the development of a dynamic digital twin. This digital simulation of the subsurface on a local scale, based on existing data, newly acquired data and real-time data, plays a key role in knowledge transfer and connectivity between geotechnical engineers, archaeologists, environmental researchers and other experts related to soil research. Secondly, a sustainable approach to ground investigation focuses on minimizing environmental impact. By combining fieldwork techniques such as geophysics, cone penetration testing (CPT) and boreholes, the need for excessive mobilization and demobilization is reduced, thereby significantly lowering CO_2 emissions. The combination of non-invasive techniques and CPT are essential for mapping landscapes with minimal disruption. Preceded by a comprehensive preliminary investigation, this enables targeted sampling during drilling and excavations, supporting a more sustainable and less intrusive research methodology. Furthermore, an integrated approach enhances economic sustainability by optimizing the use of time, energy, and resources. The dynamic digital twin acts as a central platform for data sharing, enhancing the understanding of soil properties and soil behavior and streamlining decision-making processes. By combining geodata efficiently, research teams can reduce redundancy (e.g. more correct assumptions for calculation of pile foundations), improve resource allocation, and increase the overall cost-effectiveness of projects. This methodology not only benefits archaeological and geotechnical investigations but also contributes to more sustainable urban and environmental development. By leveraging collaborative strategies, digital innovation, and sustainable methodologies, ground investigations can drive responsible development while balancing ecological and economic priorities.

1834. Archaeological Risk Assessment in Southeastern Romania: A Data-Driven Modeling Approach

Authors: Cristina Covataru (ArcheoSciences, ICUB, University of Bucharest) – Cornelis Stal (Department of Built Environment, HOGENT University of Applied Sciences and Arts) – Vasile Opris (ArcheoSciences, ICUB, University

of Bucharest | Bucharest Municipality Museum)
Format: Oral

In large metropolitan areas and their peri-urban zones, archaeological heritage is increasingly exposed to pressures generated by urban expansion, infrastructure development, and environmental processes. In this context, international organizations such as UNESCO stress the importance of preventive approaches capable of integrating heritage considerations into spatial planning from the earliest stages of development. This study presents a data-driven spatial modelling framework for archaeological risk assessment in the Bucharest–Ilfov metropolitan region, designed to quantify how environmental and anthropogenic factors contribute to the degradation of archaeological sites. The model is calibrated using logistic regression and integrates openly available geospatial datasets, including land cover change (CORINE), road infrastructure (OpenStreetMap), flood hazard data, slope derived from digital elevation models, land-use classifications from the Urban Atlas, and the dynamics of built-up areas from the Global Human Settlement Layer. The model produces high-resolution archaeological risk maps and classifies each site into risk categories (low, medium, high) based on the cumulative influence of the analyzed variables. Beyond identifying vulnerable sites, these outputs provide a decision-support framework for planners and heritage authorities by highlighting spatial patterns where development pressures intersect with archaeological sensitivity. The resulting risk layers can therefore guide zoning strategies, prioritize preventive investigations, and inform development scenarios before irreversible impacts occur. By placing archaeological risk modelling at the beginning of spatial analysis, the approach demonstrates how archaeology can actively structure planning processes rather than merely respond to them. In this framework, archaeological datasets become a coordinating layer capable of integrating environmental, infrastructural, and land-use information, positioning archaeology as a leading discipline in interdisciplinary urban planning and preventive heritage management. This research was carried out with the support of a grant from Ministry of Research, Innovation, and Digitalization, CNCS–UEFISCDI, project number PN-IV-P2-2.1-TE-2023-0876, carried out within PNCDI IV.

1969. Testing Tools to Send Archaeology in the Lead in Planning Processes

Authors: Vibeke Martens (NIKU - Norwegian Institute for Cultural Heritage Research | CCH - Community on Climate Change and Heritage) – Sunniva Halvorsen (NIKU - Norwegian Institute for Cultural Heritage Research)
Format: Oral

Archaeology can integrate data from geology, hydrology, digital technologies, and environmental studies, thereby directing other disciplines involved in urban and infrastructural planning. This paper presents results from Norwegian pilot projects testing and evaluating new tools for archaeological environmental monitoring. The study compares results across contrasting archaeological and environmental contexts and assesses the performance regarding installation, data quality, stability, sensitivity, and interpretability. A particular focus will be on communication of measured results to other sciences, heritage management authorities, and developers. Monitoring data helps inform heritage management authorities on possibilities for in situ site preservation - or needs for adaptive measures or rescue excavations. Particularly in the context of climate change, in situ site preservation may be more an illusion than reality, but archaeological monitoring data brings hard science data on the real environmental conditions and thus allows informed decisions. In addition, the SoilVue probe is evaluated as a methodological mitigation tool, with particular emphasis on its strengths and limitations relative to other established monitoring approaches. The SoilVue probe is a slim (5 cm diameter), vertically installed sensor capable of monitoring nine points in the upper metre of archaeological deposits directly from the surface. This enables targeted observation of the most vulnerable stratigraphic zones without the need for open sections or dipwells. Compared to traditional methods, the probe is less invasive, cheaper, faster to install, and more flexible in deployment. It has been tested at archaeological sites representing markedly different environmental conditions. Despite these differences, a consistent methodological framework was applied, providing a robust basis for assessing the probe's applicability, limitations, and potential role in securing that archaeology and archaeological knowledge has a leading role in planning processes that impact archaeological sites.

185 ARCHAEOLOGICAL OBJECTS AND THEIR TEXTUAL AND VISUAL AFTERLIVES: A COMPLEMENTARY BIOGRAPHICAL PERSPECTIVE

Theme: 1. Widening perspectives in material culture studies
Organisers: Daniel Modl (Universalmuseum Joanneum Graz, Department Archaeology & Coin Cabinet) – Katie Meheux (University College London, Institute of Archaeology, Library)
Keywords: Archaeological object biographies, Afterlives of archaeological objects, Transmedia documentation, Recontextualization and reinterpretation
Format: Regular session

SESSION ABSTRACT

The afterlives of archaeological objects constitute an important and much-discussed issue in archaeological thought, heritage studies, and critical museology. It has been the subject of decades of crucial anthropological and material-culture theory. The fundamental works of Igor Kopytoff, Arjun Appadurai, and Alfred Gell as well as the more recent works of Michael Shanks, Daniel Miller, Bjørnar Olsen, Timothy Webmoor, Christopher Witmore, and Dan Hicks have transformed the field of research by repositioning material culture from passive residue to active, relational, and politically charged participants in social worlds. This session invites

contributors to explore theoretical ideas about object agency, temporality, identity, ontology and epistemic authority, and movement in practical work-based contexts, examining how our theoretical models work when applied to objects in post-excavation contexts, for example, museums, heritage sites, archaeological companies, and even libraries. Contributions examining how the practical processes of conservation, restoration, documentation, scholarly interpretation, and public presentation change objects are invited. An emphasis on case studies from museums, but also archives and libraries, is encouraged, allowing for an analytical understanding of both the practical processes that create change and the networks of sources that arise from these changes, for example the network of interlinked textual and visual sources: excavation diaries, field plans, drawings, and photographs record the circumstances of discovery while museum inventories, exhibition catalogues, loan records, digital databases, publications, 3D-modells, films, audio content, and social media document the museum's handling or public presentation. By examining the practical afterlives of artefacts and the evolving histories of their transmedia documentation within theoretical contexts, researchers gain a multidimensional understanding of how archaeological heritage is continuously reconstructed, recontextualized, and reimagined across time and whether our theories find practical application.

CONTRIBUTION ABSTRACTS

143. The cult wagon of Strettweg and its afterlife in textual and visual sources after 1851

Authors: Daniel Modl (Universalmuseum Joanneum Graz, Department Archaeology & Coin Cabinet)
Format: Oral

The cult wagon of Strettweg is a miniature cauldron wagon dating in the Early Iron Age period and ranks among the most significant archaeological finds in Austria. The object is displayed at the Universalmuseum Joanneum in Graz. Through a comprehensive analysis of textual and visual sources, in combination with the examination of three-dimensional plaster and metal replicas, it was possible to reconstruct the object's 175-year-long biography since its discovery in 1851. This approach enabled the identification of at least eleven distinct phases of restoration, ranging from early mounting and completion efforts in the nineteenth century to modern conservation and stabilization measures. The documentation of these interventions is highly heterogeneous in both scope and quality. While some restoration campaigns are thoroughly recorded through detailed reports and correspondence, others can only be traced through fragmentary evidence such as brief entries in accounting records or isolated photographic documentation. These gaps highlight changing standards in conservation practice and documentation over time. Beyond the object's material transformations, the analysis of textual and visual sources reveals shifting modes of museum presentation as well as significant changes in public perception of the cult wagon. Over the decades, the object has been variously interpreted and contextualized, reflecting broader developments in archaeological scholarship and museological practice. Moreover, the examination of its media presence and changing value demonstrates the cult wagon's growing importance within the cultural awareness in Austria. Taken together, these findings underscore the cult wagon's outstanding status as one of the most important prehistoric artefacts in Europe.

2467. Displaying Libation: The Afterlives of Zoomorphic Cups in Museums

Authors: Turkan Pilavci (Brooklyn Institute of Social Research)
Format: Oral

Animal-shaped cups of the second millennium BCE are iconic cultic vessels embedded in practices of libation, feasting and rituals across the ancient Western Asia and the Eastern Mediterranean. Their materiality through form and medium enhance their active roles in ritualized performance, manifesting the mythic and embodied qualities of the zoomorphic shapes they take on. Yet their post-excavation journey to conservation, storage, documentation, and exhibition profoundly transform their meaning by means of altering the level of engagement by the onlooker. The shift in the epistemic framework will be examined in this paper through selected examples from major museum collections. Tracing the changes stemming from reconstruction, mounting, classification, and display, material and perceptual ontologies of the cups will be examined as a case study for afterlives of archaeological objects in museum collections. Recast as arrested visual cues instead of functional containers, the zoomorphic vessels behind glass appear as small-scale animal figurines to be admired only aesthetically. Lost in this transition is the active role of the ritual object, which will be pursued in contemporary textual and material culture.

856. The excavation as a material object – models in archaeological exhibitions

Authors: Charlotte Schreiter (LVR-Landesmusem Bonn)
Format: Oral

For almost 200 years, analogue models have been an indispensable part of archaeological museums and exhibitions for communicating and visualising complex excavation situations. They make it possible to comprehend large-scale situations on a small scale and to locate the finds, which are often exhibited in close proximity. These models thus have a variety of functions: they document findings, reconstruct buildings and terrain situations, and provide insight into historical living environments. As a rule, they reflect the state of research at the time of their creation. Produced at great scientific and financial expense, they often remain in the corresponding exhibition contexts for decades, even when knowledge about the subject of research has changed. The lecture will present various types of models from a historical perspective in order to answer the question of the extent to which the excavation itself experiences an afterlife as an archaeological object in visualisation. The focus will be on the interplay between models, objects,

text and possibly also graphic representations, and their impact on communicating archaeological contexts to a broad audience.

496. The Rongorongo Tablets in the Weltmuseum Wien: Object Biography and Colonial Provenance

Authors: Peter Rohrbacher (Austrian Academy of Sciences)
Format: Oral

This paper explores the diachronic object biography of the two Rongorongo tablets at the Weltmuseum Wien from combined object-biographical and object-agency perspectives. Acquired in the context of the German SMS Hyäne expedition (1882) via Alexander Salmon Jr. and Heinrich August Schlubach, the tablets demonstrate how colonial collecting practices, shifting interpretations, and evolving museum classifications influence the significance and epistemic status of archaeological artifacts. This study focuses on the material and medial afterlives of the tablets, including squeezes, plaster casts, photographs, publications, and ongoing digital 3D documentation. It traces how these objects have been continuously reproduced, mediated, and recontextualized. The tablets' interpretive history, ranging from early diffusionist interpretations and transoceanic contact hypotheses to independent invention models supported by recent radiocarbon dating, exemplifies how museum practices actively construct and reconstruct the epistemic agency of these objects. Examining the interplay of physical artifacts and their textual and visual representations highlights the hybrid archaeological-ethnographic nature of the Rongorongo tablets, which are both prehistoric writing media and colonial collection objects. The study offers insights into how post-excavation contexts, such as museums, mediate knowledge production and participate in shaping the resonant pasts of material culture.

2343. Post-excavation public imaginaries and itineraries of seals and sealings of the Indus Valley Civilisation

Authors: Swati Chandra (Indian Institute of Technology Kanpur)
Format: Oral

This research explores the Indus Valley Civilization (IVC) seals and sealings within their post-excavation contexts, tracing their journeys as they have evolved into various material and interpretive expressions. While IVC seals and sealings have predominantly been studied within the framework of their ancient origins, uses, and value, their post-excavation lives have forged distinct paths of significance, encompassing archaeological, art-historical, commercial, and national dimensions. Throughout these re-engagements, seals have navigated different scholarly interpretive frameworks shaped by colonial, post-colonial, and decolonial trends. This study highlights IVC seals in two distinct roles: as a colonial cultural imaginary and as a postcolonial cultural commodity, both influenced by spheres of publicity and sensationalism. By emphasizing IVC seals within the socio-cultural context of early 20th-century colonial archaeological publicity and the post-colonial drive for nation-building, this paper reveals the intricate ways in which these artefacts and their narratives are interconnected in the formation and dissolution of national and global identities. By revisiting archival and publicity broadcast instances, the study underscores how artefacts, in their post-excavation lives, continuously transform and emerge with varying meanings, identities, and social positions. Adopting an object itinerary approach, the study examines how IVC seals navigate these two roles, acquiring or losing value and accumulating new layers of meaning through their interactions with ideologies, perceptions, and disciplinary methods. The research views the seals as active agents in the social processes of constructing and deconstructing the meanings they represent. The examined itineraries demonstrate the profound interconnection between the artifacts and their narratives in shaping national and global identities. Ultimately, this study enriches our understanding of material culture while shedding light on the role of archaeological artifacts in producing, sustaining, and shifting broader cultural, political, and social narratives.

1139. The Afterlives of a Wartime Excavation: Museum Practices, Documentation, and the Changing Meanings of a Chernyakhov Collection

Authors: Dmytro Teslenko (Universalmuseum Joanneum Graz)
Format: Oral

In 1943, during the Nazi occupation of Ukraine, a "Gothic" burial ground was excavated near the village of Novooleksandrivka on the Dnipro River. The post-excavation afterlives of the artefact collection included conservation and processing in the Museum of Early History of the Dnipro, its transfer to Germany, and partial restitution to the USSR in the 1960s. The most "valuable" artefacts were not returned. Only the ceramic assemblage was brought back, first to the Mykolaiv City Museum and later to the Dnipro Museum. The ceramics were displayed as artefacts of the Chernyakhov culture and became an object of scholarly analysis only in the 2010s, in connection with growing interest in Nazi cultural policies. This collection represents not a stable archaeological assemblage, but rather the result of successive institutional and documentary practices. Wartime excavation, forced displacement, restitution, museum inventory practices, exhibition, and delayed academic research created different "afterlives", in which the collection was repeatedly redefined in terms of value, identity, and epistemic authority. The absence of associated finds and the incompleteness of field documentation contributed to a long suspension of interpretation. Theoretical interpretations depended on prevailing scholarly paradigms. Initially, the collection was interpreted by German scholars as "Gothic"; later, its interpretation depended on Soviet and post-Soviet archaeological frameworks, which conceptualised the Chernyakhov culture in different ways. The provenance of the collection was also a politically sensitive and often avoided topic in the Soviet period. By tracing the evolution of a network of textual and visual sources – from field reports and museum inventories to exhibition narratives and later publications – this Abstract demonstrates that archaeological knowledge is produced unevenly through post-excavation practices. The case highlights

the limitations of object agency shaped by political and institutional contexts and shows how archaeological heritage is continuously reconstructed and recontextualised within museum and heritage settings.

1540. Mutably Displaced Objects: Archaeological Afterlives of Forced Migration in Museum Contexts

Authors: Hadiqa Khan (University College London | Pitt Rivers Museum)
Format: Oral

This paper introduces the concept of mutably displaced objects to examine how objects associated with forced migration acquire shifting meanings, agencies, and ethical valences as they circulate through museum and archival systems. While object biography approaches have been central to understanding how objects accrue value across social contexts, they often presume a relatively linear or stage-based life history. By contrast, mutably displaced objects foreground non-linear, recursive, and institutionally mediated transformations, where displacement is repeatedly reactivated rather than resolved. Drawing on contemporary archaeology, material culture theory, and critical museology, the paper argues that objects linked to forced migration are not simply documented after displacement, but are continually displaced anew through practices of collecting, cataloguing, conservation, exhibition, and digital remediation. These post-excavation processes generate dense textual and visual afterlives (inventory records, exhibition texts, photographs, databases, and media outputs) that materially reshape what the object is understood to be and do. Using the Pitt Rivers Museum as a case study, this paper traces how everyday items carried during flight or created in refugee camps are reframed as evidence, testimony, or humanitarian symbol. Unlike conventional object biography, which often emphasises accumulation of meaning, the concept of mutability highlights instability, epistemic contestation, and ethical tension. Objects do not move toward closure but remain suspended between personal history, institutional authority, and public affect. By testing archaeological theories of object agency, temporality, and material presence in museum contexts, this paper demonstrates how displacement persists as an ongoing material condition. It contributes to debates on archaeological afterlives by showing how heritage is continuously reconstructed through practices that simultaneously care for, transform, and control displaced material worlds.

2521. Afterlives of Jericho's Objects: Textual, Visual, and Institutional Biographies

Authors: Ilia Salvaterra (Paris 1 Panthéon-Sorbonne)
Format: Oral

This paper explores the "afterlives" of artefacts excavated at Tell es-Sultan, ancient Jericho, through a complementary biographical approach that integrates material culture theory with archival and museological analysis. Excavated during multiple campaigns throughout the twentieth century, the objects from Jericho were distributed through systems of excavation partage, institutional transfers, and museum acquisitions and are today dispersed across more than forty institutions worldwide. Their biographies extend far beyond excavation, unfolding across excavation diaries, field drawings, photographs, correspondence, museum inventories, conservation records, exhibition catalogues, and digital databases. This wide dispersion of both objects and archives forms a dense and fragmented network of sources, in which textual and visual documentation actively contributes to shaping object identities. The paper also interrogates what constitutes an "archaeological object" across time: which materials were selected, defined, and valued as objects during excavation, how these definitions have evolved, and how selection, distribution, conservation, and exhibition practices have transformed objects conceptually and materially. Particular attention is also given to restoration practices, histories of display, and movements within collections, as well as to moments of fragmentation, reassembly, and loss, when objects become known primarily through images or texts rather than direct access. By tracing these trajectories, the study highlights how archaeological objects operate as relational entities embedded in networks of individuals, institutions, and diplomatic contexts. It ultimately examines how object agency and identity have varied over the twentieth century, testing object-biography and materiality theories within concrete post-excavation and museum-based settings

2601. Expanding the study of archaeological museum materials through ancient DNA analysis

Authors: Mary Lucas – Claire-Elise Fischer – Stephen Wickler – Inger Alsos (Arctic University Museum of Norway, UiT-the Arctic University of Norway) – Antony Brown (Arctic University Museum of Norway, UiT-the Arctic University of Norway | School of Geography and Environmental Science, University of Southampton)
Format: Oral

Artefacts and bulk materials held in archaeological museum collections are an invaluable resource for understanding the human past. Biomolecular analysis of these items has the potential to evolve the way we interact with these materials. This study aims to use ancient DNA to examine materials held in museum collections to examine them as biomolecular reservoirs, holding information about their use history, past human lifeways, and advance how we interact with these materials in museum collections. As we are still understanding how different material types preserve ancient DNA, we analysed multiple object types from various storage conditions from NTNU University Museum and The Arctic University Museum of Tromsø. These objects include rope and daub from different time periods, held in the collections as well as a medieval wooden bowl, freshly excavated and stored under clean and controlled frozen conditions. Materials were analysed using both metabarcoding of plants and animals and shotgun sequencing. Results focus on a piece of unworked medieval rope that preserved DNA indicative of the use-history of the object, its depositional environment, and the storage environment at the museum. The material had a high number of marine species. These results, together with the archaeological context, suggest it was used on a fishing boat. How the results from the DNA analysis reveal information

about the depositional and storage environments will be discussed. Rope is often catalogued as bulk material in the museum collections, affecting how the item is processed and treated in the collections. This research has the potential to alter how we view and interact with this material as we gain more information from it at the biomolecular level. How these findings can further be included in the public museum databases to revise not just how we interact with these items physically but digitally will be discussed as well.

1335. Beyond Storage: The Many Lives of the Greek Pithos

Authors: Myrto Kokkalia (Postdoctoral Researcher, ULB)
Format: Oral

The transformations an object undergoes, such as wear, repair, or breakage, provide a material record of its entanglement with people. Pithoi, large earthenware storage vessels, although common in the archaeological record, remain largely understudied not only in relation to their primary function as storage containers, but especially in their broken, repaired, and repurposed afterlives. As valuable household assets, pithoi were rarely discarded when damaged but instead repaired and recontextualised, demonstrating their significance across generations and positioning them as objects with multiple biographies. This paper offers a dual perspective on the afterlives of pithoi. First, it examines how material transformations following breakage reveal changing functions and values. It engages in a re-examination of both published and unpublished material through the lens of object biography, aiming to understand the extended lives and social agency of pithoi. Case studies, from the Aegean islands and Mainland Greece, include repaired pithoi with lead clamps, pithos fragments reused as building material in workshops, as well as for wellheads, chimneys, water pipes, or basins. Ethnographic parallels are also incorporated to reflect on the long-term continuity of reuse practices. Second, the study considers the afterlives of pithoi as mediated through post-excavation processes (conservation, documentation, exhibition), focusing on how museum displays and catalogues highlight complete vessels, emphasising their monumental size and static significance. Such choices recontextualise pithoi, foregrounding particular aspects of their form while leaving other histories less visible. Using case studies from archaeological museums in Greece (Tenos, Herakleion, Sparta, Thessaloniki), this research revisits the visual depiction of pithoi, exploring how curatorial decisions, cataloguing, and exhibition practices shape, and at times limit, our understanding of their material histories and social significance. Ultimately, the study aims to highlight the multiple narratives pithoi carry across time, revealing their layered histories that extend from their original use through ongoing documentation and display.

275. Excavations reports: timeless tools fit for the twenty-first century?

Authors: Kathryn Meheux (University College London)
Format: Oral

Excavation reports (also known as site reports) are the bibliographic building blocks of archaeology. Seemingly the most ubiquitous and innocuous of literary formats, they record the processes and products of archaeological excavations, providing access to the archive and tying results together in coherent narratives. They are consulted and consumed by archaeologists, museum and heritage specialists, universities, and the public throughout the world. Yet their familiarity has bred indifference. Whilst important new approaches to excavation, for example archaeological ethnography, and new interests in story-telling and performance have arisen, we rarely ask questions about excavation reports and few attempts at innovation in their format or contents have been made. We show no interest in their origins and development and their astonishingly unchanged standard format, over a century old, goes unremarked. Most importantly, we neglect to question whether they remain fit for purpose for twenty-first century archaeology. This session reflects on these issues, revealing that excavation reports have a past of deep complexity, at once the product of European Enlightenment antiquarianism, late nineteenth century scientific endeavour, and colonialism. It queries whether a standard format developed to privilege visual illustration and artefactual data over most multisensory interpretation and scientific techniques is still versatile enough to support the complexities, diversities, and sophistication of modern archaeological practices and asks why the standard format remains both unchallenged and unchanged. Unpicking and critiquing the past and present of reports, the session also explores how we could do site reports differently and where new approaches could take us in creating multivocal, multisensory, participatory narratives for communities engaged in interpreting and presenting the past.

187 MATERIAL JOURNEYS AND NARRATIVES: INVESTIGATING THE LIFE HISTORIES OF PREHISTORIC STONE AXES AND OTHER OBJECTS

Theme: 1. Widening perspectives in material culture studies
Organisers: Lasse Sorensen (The National Museum of Denmark) – Tasos Bekiaris (University of Thessaloniki) – Michael Brandl (Austrian Academy of Sciences, OeAI) – Onur Bamyaci (Çanakkale Onsekiz Mart University)
Keywords: Biographies, Stone tools, Raw materials, Manufacture, Socio-economy, Meanings
Format: Regular session

SESSION ABSTRACT

Stone tools are fundamental markers for reconstructing past human activities and socio-economic behaviors. Among them, stone edge tools (axes, adzes and chisels) form a significant artefact category, employed in a wide range of activities including woodworking,

butchering, hide processing and mining. Reconstructing the life cycles of these objects from raw material procurement and manufacture, to use, maintenance, and discard or intentional deposition is, therefore, crucial for understanding the development of prehistoric socio-economic systems, as they are closely tied to the evolving needs of prehistoric communities. This session explores the dynamic biographies of materials as they move through diverse social, technological, and symbolic landscapes. Focusing on both common and exotic substances—such as jadeitite, marble, obsidian, and spondylus—we examine how materials acquire, transform, and enhance their identities through processes of extraction, production, exchange, use, and deposition. By mapping these journeys from the source to the place of deposition, contributors are invited to consider how communities actively engage with materials, shaping and reshaping their physical and cultural forms. We aim to foreground the discussion on how meanings are not inherent in artefacts but emerge relationally—through shifting forms of engagement. Through cross-cultural and interdisciplinary perspectives, this session invites dialogue on how the life histories of materials reflect broader social values, technologies, and interactions, illuminating the intertwined development of people and things across time and space. Contributions are encouraged to address among others the following points: 1. How the biographies of different materials are formed, altered, and enhanced during different processes and within different stages of their journeys. 2. How materials-both common and exotic- (e.g. various types of stone, marble, obsidian, spondylus etc) are treated by different communities. 3. How the meaning(s) ascribed to objects emerge, and change during their life-cycle, through manufacture, use and deposition.

CONTRIBUTION ABSTRACTS

2380. Perspective and the Order of Things in the Museum: A Hermeneutic-Philosophical Systematization Exemplified by Neolithic Stone Axes

Authors: Julia Menne (Niedersächsisches Landesamt für Denkmalpflege) – Michael Schultz (Independent Researcher)
Format: Oral

This paper addresses the interpretation of Neolithic stone axes and critically analyzes how they are staged as artifacts within the museum space. It contrasts two fundamental presentation strategies: on the one hand, the "cabinet presentation," in which objects are detached from their original context to facilitate a typological comparison, and on the other, the "in-situ presentation," which reconstructs the original context of use. To theoretically ground these approaches, the study draws on cultural-philosophical concepts of engagement, affordances, and semiotic networks. Within this framework, "perspective" is understood not merely as a visual viewpoint, but as an active means of ordering things. Against this background, the paper examines central questions: How does the chosen staging support the viewer in recognizing aesthetics and the ordering of objects? To what extent is this perception culturally mediated? Finally, the work addresses the epistemological challenge of whether a contemporary museum perspective can claim objectivity, or if reliving the original user experience remains an illusion due to historical distance. The aim is to re-evaluate the interaction between museum presentation and the construction of subject identities.

2273. Material interplay: antler and stone axes in the Baltic Sea region during the Mesolithic

Authors: Aija Macane (Stockholm University | University of Latvia | Klaipeda University | University of Tartu) – Erika Rosengren – Joan Leffler (Historical Museum at Lund university) – Björn Wallebom (National Historical Museums) – Sara Gummesson (Stockholm University)
Format: Oral

This paper investigates the material interplay between antler and stone axes in the Baltic Sea region during the Mesolithic, with particular attention to how raw material availability shaped technological choices and cultural practices. While axes and adzes are commonly manufactured from a range of lithic materials, several areas around the Baltic Sea lack suitable stone, possibly prompting the use of osseous resources for the production of these tool types. Drawing on new analyses of antler and bone assemblages from the region, this study examines how antler functioned not only as a substitute for stone but as a complementary material with distinct mechanical and functional properties. By comparing raw-material selection, manufacturing techniques, and depositional contexts, the research emphasizes that hunter-fisher-gatherer communities made raw material decisions based on task requirements, resource availability, and/or cultural preferences. The resulting material interplay accentuates broader themes of adaptability, mobility, and resource management in postglacial landscapes but also raises questions of preservation and the "hidden" archaeological record. Antler and stone axes emerge as components of an integrated technological toolkit that reflects the ingenuity and ecological responsiveness of Mesolithic groups across the Baltic Sea region.

2357. Lithic chopping tools of Russian Karelian type: From quarry to deposition in "sacred" and profane contexts

Authors: Alexey Tarasov (—)
Format: Oral

The industry of chopping tools (axes, adzes, chisels) of the Russian Karelian type, which were produced on the western shore of Lake Onega during the Eneolithic period from local volcanic rocks, can be regarded as a striking phenomenon of exchange-oriented production in the Early Metal Age. Items of this type, which were distributed across a vast territory of Northeastern Europe through exchange operations, have been found in various contexts, including primarily workshops, settlements, with a very significant

portion of stray finds – objects that are lacking archaeological context as such but deposited in various landscape situations. The paper discusses their generalized life histories from rock procurement and making these tools to final discard / deposition. Analysis of the features of items from different contexts shows that stray finds generally exhibit higher quality compared to those from settlements, which can evidently be seen as evidence of intentional non-utilitarian actions accompanying their deposition.

1278. Polished stone artefacts of Jomon in Japan: Distribution and transportation of nephrite and jadeitite from a geological perspective

Authors: Yoshiyuki Iizuka (Institute of Earth Sciences, Academia Sinica | Tohoku University)
Format: Oral

In East Asia, the production and exchange of polished stone artefacts, made of nephrite, was active during the Neolithic. However, their utilization, distribution, and transportation are still little understood. In this study, a series of lithological investigations of polished axes and ornaments carried out by non-invasive chemical analyses using p-XRF and SEM-EDS, focusing especially on nephrite and its geological sourcing in the Early Jomon period (ca. 5000-3500 BCE) in Japan. The results show that large quantities of S-type (Serpentine origin: actinolite dominant) nephrite artifacts distributed in central and northeastern Japan, and limited numbers of D-type (Dolomite origin: tremolite) nephrite were also identified based on mineral chemistry. Early Jomon polished stone axes were mostly made of S-nephrite, its associated rocks, hornblendite, and actinolite-epidote schist (so-called Aotora-stone). Ornaments, in contrast, were made of monomineralic rocks, mostly talc, and, also tremolite (D-nephrite), jadeite, pyrophyllite and muscovite. The use of D-nephrite and pyrophyllite was almost exclusively limited to the Early Jomon period. D-nephrite ornaments, slit earrings and their fragments, were confirmed in only Early Jomon sites, but disappeared after the Middle Jomon period. Typological studies suggest that such white slit earrings originated from farming societies in northern China, such as the Xinglongwa culture (ca. 6200-5400 BCE). Geological evidence with mineral chemistry indicates that D-nephrite is not from domestic deposits in Japanese archipelago but from eastern Eurasia. Thus, analytical results support the hypothesis of material transportation from the East Asian mainland. Conversely, S-nephrite tools widespread in East Japan, mostly axes and chisels, were sourced from local deposits in north Central Japan; the same geological area as jadeitite. From the middle Early Jomon period onward, jadeitite (jadeite and omphacite jade) began to be used for pendants; appearing later than talc and S-nephrite use. This may suggest advances in stone processing technology.

2389. Papa was Rolling Stones – Investigating Procurement and Curation of Ground Stone Tools in Central Anatolia and Upper Mesopotamia

Authors: Keshia Akkermans (University of Liverpool)
Format: Oral

Set in the evolutionary whirlwind of the Pre-Pottery Neolithic A, the communities that inhabited the central Anatolian sites of Pınarbaşı and Boncuklu Höyük, as well as the Upper Mesopotamian site of Mendik Tepe, showcase remarkable variety in their ways of life and site use, including their choices regarding subsistence, settlement size, and patterns of occupation. The three sites are located in markedly different kinds of environments – from ancient wetlands to areas not unlike Braidwood's "hilly flanks" – and this appears to have had its effects on the procurement, fabrication, and use of objects made of stone. What materials were sourced for use in ground stone tools at these sites? Does increased distance from material sources evoke a greater sense of value of said material? If so, how does value manifest itself? And does the choice of material change over time, with the introduction of new technologies? This paper will provide a broad overview of the complex and dynamic interplay between ground stone tools, their makers, and their users, set against the backdrop of some of Türkiye's most significant areas of PPNA activity.

1446. Symbolism of Ground Stone Tools in the Northeastern Aegean: Practises from Gulpınar

Authors: Onur Bamyaci (Canakkale Onsekiz Mart University)
Format: Oral

This work explores the functional and symbolic practices of ground stone tools and objects at Gülpınar, a Late Neolithic–Chalcolithic settlement (5320-4940 BC) in northwestern Anatolia, within the Aegean chronological framework. Typological and contextual analyses demonstrate that ground stones held significant ritual and social meanings beyond their utilitarian roles in food preperation. Their deliberate placement within architectural contexts—such as burials, pits, foundations, walls, and interior spaces—reveals patterned practices reflecting beliefs in fertility, protection, and continuity. Evidence of deliberate fragmentation and structured deposition suggests that ground stones actively participated in ritual activities, marking their transformation from functional implements to symbolic objects of commemoration. The embedding of these artifacts in architectural foundations and walls is interpreted as a form of offering or protective rite, while their occurrence in burials and pits points to connections with ancestor veneration and domestic identity. These practices illustrate the deep integration of material culture, ritual activity, and social memory in Chalcolithic Gülpınar. The study contributes to a broader understanding of the symbolic dimensions of utilitarian tools in prehistoric Anatolia and emphasizes the need for a unified methodological and typological framework for interpreting the multicultural significance of ground stone assemblages.

1627. Crafting Communities: Stone Edge Tool Technologies and Traditions in Neolithic Kastoria

Authors: Tasos Bekiaris (Aristotle University of Thessaloniki | Hellenic Ministry of Education, Religious Affairs and Sports)
Format: Oral

Macrolithic stone edge tools such as axes, adzes, and chisels have long been recognized as vital elements of Neolithic material culture, offering crucial insights into everyday life, technology, and social practices. Beyond their practical roles in woodworking, cutting, scraping, and digging, these tools reflect choices related to raw material procurement, technical knowledge, skill transmission, and social meaning. Examining how edge tools were produced, used, maintained, and discarded provides valuable perspectives on the economic strategies and social practices of early farming communities. This paper focuses on the stone edge tool industries of Neolithic communities in the Regional Unit of Kastoria, exploring the diverse ways in which axes, adzes, and chisels were produced, used, and discarded within different social contexts. The discussion is based on a comparative analysis of stone axe assemblages from three Neolithic settlements in the Kastoria region—Dispilio, Avgi, and Koromilia. By comparing assemblages from these broadly contemporary settlements, we aim to move beyond site-specific interpretations and identify patterns at both community and regional scales. This approach allows us to distinguish shared technological traditions from local practices and to assess whether differences in raw material selection, manufacturing techniques, tool forms, and use-wear reflect environmental constraints, functional needs, social identities, or interaction networks. In this way, stone edge tools provide a lens through which to explore not only technological organization but also mobility, exchange, and the social relationships linking Neolithic communities in the Kastoria region.

2658. Pieces of Places: The Discovery of Novel Neolithic Exchange Networks in the Aegean

Authors: Lasse Sorensen (The National Museum of Denmark) – Michael Brandl (Austrian Academy of Science) – Onur Bamyacı (Çanakkale Onsekiz Mart University)
Format: Oral

The polished stone tools of the Eastern Mediterranean were crafted from both common and rare materials, with jadeitite standing out as one of the most exceptional. Despite its significance, the origins of the jadeitite sources exploited in the Aegean were until recently unknown. Recent archaeological and geological surveys within "The Jade Odyssey Project" conducted by a Greek-Danish team with international collaboration on the Cycladic island of Syros, Greece, have revealed previously unknown jadeitite quarries and associated sites. These discoveries provide a groundbreaking opportunity to explore the procurement, production, and distribution of jadeitite tools, illuminating the interconnected exchange networks that spanned within local, regional, and super-regional scales. This paper presents the first preliminary findings from our investigations on Syros, addressing critical questions about when, how and why the exploitations took place and the origins of jadeitite tools and their role in the cultural and economic landscapes of the Eastern Mediterranean. By mapping the scale and practices tied to jadeitite exploitation, we aim to reconstruct the pathways of exchange and uncover some significantly symbolic practices of this desirable and rare raw material in Neolithic societies across the Aegean.

1914. From Stone to Network: The Rise of Sesklo and Dimini as Neolithic Hubs of Exchange

Authors: Michael Brandl (Austrian Academy of Sciences) – Lasse Sørensen (The National Museum of Denmark) – Katia Manteli (Hellenic National Archaeological Musuem)
Format: Oral

This paper explores the material biographies of stone axes, adzes and chisels within Neolithic exchange networks of the Aegean, focusing on how their meanings and social roles were shaped through production, circulation, and use. The main goal of this study is to examine the scale and provenance of the raw materials used to produce these artefacts at the major Thessalian sites of Sesklo and Dimini to investigate how specific materials were embedded within broader networks of interaction. Approximately 800 polished stone tools from these sites excavated in the early twentieth century and curated in the National Archaeological Museum of Athens were analysed using a strictly non-destructive analytical protocol combining portable X-ray fluorescence (pXRF) and Fourier Transform Infrared Spectroscopy (FTIR). This integrated approach allows both high-precision raw material characterisation and the identification of source-specific spectral signatures. These signatures allow artefacts of unknown origin to be systematically compared with geological reference materials in order to assess their most probable provenance. Our preliminary results show that although most tools were made from regionally available lithologies, a significant minority were produced from non-local metamorphic rocks and jadeitite. While the sources of most non-local lithic raw materials are still unidentified, jadeitite predominantly originates from the island of Syros, a well-established source of this material. Notably however, even more common raw materials such as serpentinite and dolerite were frequently transported over distances of 20–30 km although suitable alternatives were locally available. We propose that Sesklo and Dimini functioned as nodal points within a dynamic exchange network in which specific materials circulated as socially meaningful objects, whose biographies linked technological practice with social affiliation, connectivity, and value across the Neolithic Aegean.

2414. Small Tools, Long Lives: Ground stone cutting tools from the Early Bronze Age Settlement at Koropi

(Attica)

Authors: Maria Mexi (Ephorate of Antiquities, Greek Ministry of Culture)
Format: Oral

This paper focuses on stone tools with cutting edges from the Early Bronze Age settlement at Koropi (Attica, Greece). Despite their limited number, these small-sized artefacts reveal rich and complex life histories—from raw material selection and manufacture, to use, reuse, transformation, and eventual deposition. The study argues that these tools were not merely functional implements, but were embedded in broader economic and socio-material practices. Made primarily from fine-grained igneous and metamorphic rocks—materials not locally available in the geological context of the prehistoric site—these tools exhibit typological and technological affinities with comparable assemblages from central and southern mainland Greece. The ground and polished cutting tools from Koropi, used as axes and adzes, along with other edge-tools employed in crushing or pounding activities, show intense use-wear, signs of repeated maintenance, and in some cases, clear evidence of functional transformation. Macroscopic examination of their active surfaces reveals that many were used to the point of raw material exhaustion, with some subsequently repurposed for alternate uses. These characteristics suggest that their perceived value extended beyond their immediate function, encompassing the significance of the material itself. Their dispersed spatial distribution across the site—often with no direct association with other tool categories—further points to diverse roles, potentially including symbolic or curated uses. The prolonged use-life of these tools and the evident care invested in their repair and processing underscore their importance within the domestic sphere and raise questions about the cultural meaning of raw material selection. By reconstructing the biographies of these objects, this study contributes to broader discussions on how prehistoric communities engaged with materials, and how even artefacts could embody both practical utility and culturally embedded significance throughout their lifespan.

1456. Flat Adzes in Motion: Wear Trajectories, Function, and the Emergence of a Key Neolithic Prototype

Authors: Laura Dietrich (Martin-Luther-University Halle-Wittenberg) – Christoph Von Tycowicz – Julius Mayer (Zuse Institute Berlin) – Lohengrin Baunack (Martin-Luther-Univesity Halle-Wittenberg) – Michael Brandl – Iris Schmidt (Austrian Archaeological Institute)
Format: Oral

Flat adzes are central implements of the Early Neolithic in Central Europe (LBK and SBK). Their emergence raises the question of whether a functionally efficient woodworking prototype—potentially developed within south-eastern European Neolithic contexts during the second half of the sixth millennium BCE—was adopted and stabilized in Central Europe, or whether flat adzes represent a locally generated innovation. Ground and polished stone adzes were already integral to forest management and carpentry in south-eastern Europe, providing a plausible technological background for such a prototype, but its role in the formation of the Central European assemblages remains to be critically assessed. The widespread and persistent occurrence of flat adzes within the LBK suggests the circulation of a proven technical solution through expanding farming communities, rather than the diffusion of a stylistic template. Once established, the design persisted because its geometry was effective and resilient, allowing repeated resharpening without functional loss. The morphological diversity observed archaeologically is best understood as the cumulative outcome of use, maintenance and discard, representing successive wear states rather than discrete cultural types.

2470. Transforming and appropriating exotics: A longue durée study on the appropriation of exotic flint in the Rhine-Meuse Delta (5500-2500 BCE)

Authors: Annelou Van Gijn – Lasse Van Den Dikkenberg (Leiden University)
Format: Oral

Combining use-wear analysis with raw material studies uniquely enables us to trace how exotic objects are appropriated by past communities. In this paper we explore the import and appropriation of exotic southern flint in the Rhine-Meuse delta from the Late Mesolithic to the Late Neolithic (5500-2500 BCE). The oldest exotic objects that were imported by communities in the delta were not used; rather, they were kept as 'pieces of places'. During the Middle Neolithic, exotic imported flints were incorporated into the local technological system. However, they were only used for specific activities, notably for fire-making, cereal harvesting, and ornament production. While they were thus put to use, they maintained a special position within the local technological system. It is not till the Late Neolithic Vlaardingen period that exotic flint items, and especially finished polished axes, are imported in higher quantities. These axes, when broken, were frequently recycled as cores for the production of small tools, which in turn were used for the same range of activities as non-exotic flint. Knapping experiments with such broken axes have shown that archaeologists have severely underestimated the importance of exotic flint for the delta inhabitants. The appropriation of exotic flint in the Rhine-Meuse delta was thus a gradual process that took place over the course of approximately three millennia, along with the increasing consolidation of contacts between the delta and inland communities.

1518. Different Ways of Being. The Quyarrying, Processing and Use of Metabasite Stone Axes in Central European Neolithic

Authors: Petr Sida (University of Hradec Králové) – Pavel Burgert – František Trampota (Institute of Archaeology of the Czech Academy of Sciences, Prague) – Antonín Přichystal (Masaryk University, Brno) – Václav Kachlík (Charles University, Prague)
Format: Oral

During the Early Neolithic period, an extensive distribution network using a specific raw material, contact metamorphosed metabasite, was established in Central Europe. This rock was quarryied and processed in several places in northern Bohemia, and subsequently distributed throughout wider Central Europe. The scale of the quarrying operation was so significant that the quantity of semi-finished polished tools produced was sufficient to supply a large part of the Linear Pottery culture area. A complex distribution system also emerged at this time, capable of transporting finished tools over hundreds of kilometres. The detailed form of this system is the subject of long-term research. Some localities where semi-finished products were finished are known, and there are indications that the size of distributed tools decreased with increasing distance (southern Bohemia was supplied via Bavaria and Upper Austria). However, we are not yet able to determine the system's exact structure. Excavations in Northern Bohemia have revealed extensive evidence of Neolithic quarrying, which has recently been documented using advanced mapping techniques (SLAM LIDAR). The age of the quarrying can be determined using radiocarbon dating of materials from contexts such as hearths, production workshops and quarrying pit fillings. In the Late Neolithic, we observe the breakdown of this complex system. Quarring on primary outcrops in the mountains of northern Bohemia probably ceased, new local raw materials emerged, and the number of secondary workshops producing ground tools locally increased. These workshops often reused older, broken Early Neolithic tools. The distribution system fragmented into many more local circuits, resembling the system used for producing chipped tools.

638. Stone in Motion: Use-Life and Recycling of Serpentinite Axes in the Neolithic

Authors: Bernadeta Kufel-Diakowska – Marcin Chłoń – Wojciech Bronowicki (Institute of Archaeology University of Wrocław) – Michał Borowski (Institute of Archaeology UMCS Lublin)
Format: Oral

Post-linear communities emerged in northern Central Europe in the second half of the 5th millennium BC. Transformations in cultural practices extended to lithic production, as demonstrated by the introduction of shaft-hole axes and an increased diversity in raw material procurement, with a marked emphasis on locally available rocks, particularly serpentinite. Stone assemblages from Lengyel culture settlements comprise complete, repaired, and fragmented shaft-hole axes, alongside extensively modified tools and reused by-products. The present study seeks to reconstruct the life cycle of serpentinite artefacts, with particular attention to the operational sequences linking the manufacture of shaft-hole axes to their subsequent use in heavily transformed and reduced forms. A multi-proxy analytical framework was employed, integrating morphometric, petrographic, technological, and use-wear analyses, complemented by experimental studies using serpentinite tools. The results contribute to the understanding of the organisation of production and patterns of use of serpentinite artefacts. This research was supported by the National Science Centre (NCN), Poland (project no. 2020/38/E/HS3/00285).

1620. Organisation of Neolithic Polished Stone Industry Production Based on the Research of Workshop Areas Processing Želešice-type Metabazite (Moravia, Czech Republic)

Authors: Jaroslav Bartík – Filip Hájek – David Cibulka – Kristýna Trnová (Institute of Archaeology of the Czech Academy of Sciences, Brno)
Format: Oral

Metabasic rocks of the Želešice-type were one of the most intensively utilized raw materials used for the manufacture of Neolithic polished industry in the Middle Danube region. Primary sources are located in the Ophiolite Belt (formerly Metabasite Zone) of the Brno Batholith, approximately 5 km SW of Brno. The paper focuses on issues of production organisation of the polished stone industry made from Želešice-type metabazite, based on the study of workshops that processed this raw material and that can, on the basis of current knowledge, be hierarchised into several categories. The investigation of workshops is crucial for understanding Neolithic production systems, as these sites linked the exploitation of raw material sources with the manufacture of semi-finished products intended for further distribution into settlement contexts. The aim of the study is to contribute to the theoretical discussion on the internal structure of workshop areas and the spatial organisation of production activities. The analysis is based on data obtained from multiple workshops located in the wider vicinity of primary metabazite outcrops, with particular emphasis placed on the spatial distribution of workshop waste. Both spatial distribution and related assemblages were analysed by machine learning statistics. By examining the concentrations of individual categories of production debitage, semi-finished products, and associated material, potential production zones and areas of specialised activities are identified. These spatial patterns are interpreted within the framework of the technological chain (chaîne opératoire) and allow for a discussion of the degree of spatial differentiation of production activities. The absence or limited occurrence of final production stages supports the interpretation of workshops situated near the primary raw material source as sites primarily oriented towards the production of semi-finished products, which were subsequently ground and finally finished in the context of secondary workshops located further away from the source.

2121. The journey of early Neolithic copper axes and their impact on the contemporary material culture

in Scandinavia

Authors: Anne Birgitte Gebauer (National Museum, Copenhagen)
Format: Oral

A large amount of copper appears in southern Scandinavia during the early Neolithic Funnel Beaker Culture (4000-2800 BCE) with an obvious peak around 3500-3300 BCE even though local copper sources were not available. According to recent analyses the metal was extracted in Serbia and Bulgaria but perhaps passed on through intermediaries in the eastern Alpine area. The Scandinavian copper objects show several characteristics that are alien in the areas where the copper originated. Consequently, the imported objects must have been remelted and used in the production of new objects matching local preferences. Evidence of local metallurgy is provided by a crucible and a possible tuyere found beneath a long dolmen. These artifacts document the introduction of pyrotechnical metallurgy 1500 years before the Bronze Age in Scandinavia. Copper was only used in prestige items as jewellery and weapons, mainly flat axes, but not in everyday utensils such as awls and fishhooks. The exotic copper items had an immense impact on the contemporary material culture with copies being made in a range of raw materials even after the copper supplies ran out around 3300 BCE. – The journey of the Early Neolithic copper in the North is an example of the transfer of knowledge and raw materials through vast pan-European as well as local networks. Additionally, communication of pyrotechnical knowledge would only be possible through direct personal instruction and perhaps restricted to certain members of society. This paper discusses the impact of the copper import on the material culture in the North as reflected in types of weapons and jewellery as well as the socio-economic role of these items. Moreover, other aspects of knowledge exchange in the supra- regional networks will be considered.

2355. Craft, Context, and Change: The Multiple Lives of Stone Battle Axes in Third-Millennium-BCE Finland

Authors: Kerkko Nordqvist (University of Helsinki | University of Tartu, Estonia)
Format: Oral

Coastal areas of Finland represent the northernmost extent in the distribution of the Corded Ware complex in Europe during the 3rd millennium BCE. In this region, unlike many others, the phenomenon emerged in a northern boreal environment inhabited by diverse hunter-fisher-gatherer communities. The area is further characterised by varied bedrock (part of Fennoscandian or Baltic shield), encompassing a range of igneous and metamorphic rocks. Within these settings, Finnish CWC groups and craftspeople developed a distinctive local tradition of producing battle axes (also termed hammer or boat axes). This tradition is particular not only in the forms and morphology of the axes, at most partially comparable to neighbouring regions of Sweden and Estonia, but also in the deliberate and regionally focused procurement of raw materials. At the same time, parallel to or underlying the similarities, there are trends that suggest changing meanings, expressed, for instance, through different deposition patterns, direct imitation, as well as reworking and reuse. Traditional views have often approached the axes though the lenses of status, violence, and burial, but have rarely ventured further. This contribution explores the qualities and potential meanings of stone battle axes found in Finland by examining the artefacts themselves, together with aspects of the social and physical contexts in which they were produced, used, and discarded.

188 URBAN DESIGN AND REGIME CHANGE

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Penelope Davies (University of Texas at Austin) – Christina Williamson (University of Groningen)
Keywords: Regime, Urbanism, Architecture, Dissent, Control
Format: Regular session

SESSION ABSTRACT

The broad impact of autocratic government on ancient cities, and indeed on cities throughout history, is well acknowledged: urban designs are often modified, sometimes radically. In a time of rapid political change across the globe, this session aims to explore, at a more granular level, any urban and/or architectural causes, mechanisms and results of ancient regime change. Scholars long believed, for instance, that the Hippodamic plan of the classical Greek city, thought to reflect democratic ideals, came to an end with the rise of kingdoms and presumed loss of autonomy; but is this the case? And how can we situate the massive scale of public monuments, not only under Greek tyrants, but increasingly sponsored by the Rome-centred elite in the East (e.g. Heller and Hallmansecker 2024, Ma 2025)? With the start of the principate, Rome grew if not more regularised in design, at least more monumental in its public spaces (e.g. Favro 1996), but what kinds of urban discontent led to political instability, how vulnerable were urban designs to sedition (e.g. Hobsbawm 2005), and what kinds of urbanistic change helped control or suppress political dissent? Beyond the euergistic provision of 'bread and circuses', articulated by Paul Veyne (1976), and the supply of water, how did local elites use urban form to propel political shift? What were the means of popular and elite seduction, as articulated in architecture? And what, in the ancient world, were the urban manifestations of regime change, abrupt or gradual? Topics might cover monumental construction and filtered access, but also urban narratives and associations, provisions for food or health, changes in housing or living standards,

or architecture of control and fear.

CONTRIBUTION ABSTRACTS

2540. Total City Planning: Urban Design and Regime Change in Akragas and Metaponto

Authors: Seraphina Vasilodimitrakis-Hart (Aristotle University of Thessaloniki)
Format: Oral

This paper examines the water resource management in two Greek colonies in Magna Graecia, Akragas and Metaponto, and the relationship between resource management and political regime. I ask how similar ancient urban theory was to the practical reality, and if and to what extent different forms of government made different provisions for water management. By outlining urban and health theories found in the works of ancient theorists, I disavow the term "Hippodamian grid planning," while introducing the concept of 'total' city planning. The focus of Classical scholarship on Athens necessitates discussions of several Athenian water systems and how resource management changed or continued through different governments in Athens as a point of comparison for Akragas and Metaponto. This is constructed through literary analysis and introduces the controversial Southeast Fountain House, with an in-depth consideration of the fountain's naming and dating problems. The role of tyrants and democracies in water management is examined through the lens of these two cities with comparison to Athens. Regardless of authorship, water resource management and water systems are necessary for any city, and so most tyrannical water infrastructure continued to be used and improved upon under different governments. Even under tyranny water management is a provision of the state and is engaged with and managed by the citizens of the city.

2698. Urban transformation at Teotihuacan: from a more exclusionary power strategy to a more collective governance

Authors: Maria Torras Freixa (Boston University)
Format: Oral

Teotihuacan (c. 1-650 CE), a pre-Hispanic city in Central Mexico, was unique in Classic period Mesoamerica for its size—with approximately 125.000 inhabitants living in an area of 25 km2—and for its grid-like plan divided into four sections by two large avenues and a civic-ceremonial center dominated by monumental pyramids. This urban site had a multi-ethnic population who lived in multi-family corporate apartment compounds, and it has been portrayed as a state with a more collective political strategy where inequality was present but not polarized. However, a more comprehensive view of the first phases of the city (1-250 CE) depicts a political shift from more exclusionary forms of governance to more collective ones. The primary aim of this contribution is to discuss the urban manifestations of this shift and how urban design and new forms of housing helped to consolidate the new government system. During this change, the city was redesigned and monumentalized, and the settlement achieved a high degree of urban planning and coordination and standardization among buildings and spaces. In addition, residential architecture was politically controlled or coordinated through urban regulations and access to construction materials. In summary, the architecture forms and the urban design of the city underwent a profound transformation due to a political shift.

2799. 'It is safer to be feared than loved': Augustus's Rome as a city of menace

Authors: Penelope Davies (University of Texas at Austin)
Format: Oral

In 27 BCE, according to Cassius Dio (53.16), before settling for 'Augustus' the young Octavian 'was exceedingly desirous of being called Romulus'. He was only deterred from his efforts to obtain the title 'when he perceived that this caused him to be suspected of desiring the kingship'. Romulus made an attractive model; the city's founder, he was also a valiant warrior, and departed mortal life in a dark cloud of apotheosis while reviewing his troops; thereafter he was a god, Quirinus. But there was also a more sinister aspect to his story, which scholars tend to downplay. When Remus mocked Romulus's city walls, Romulus murdered his own twin brother: Romulus was a fratricide. And yet, Romulus did not vanish from Augustus's political narrative; in fact, he featured prominently, especially in Augustus's architectural oeuvre. To name a few examples: references to the divinisation of the city's founder were implicit in the placement of two early monuments that alluded to Augustus's desired 'afterlife', his Mausoleum and Agrippa's Pantheon; and, decades later, a sculpture of Romulus bearing the spolia opima stood in an exedra in the Forum Augusti. That Augustus was ignorant of the darker tradition beggars belief: one of its chief purveyors was Livy, writing in his lifetime, and Ovid alludes to it as well. This paper dwells on the darker side of this and various other associations and themes emphasised in Augustus's urban propaganda (e.g., Apollo, victory), and argues that they served to instil in the urban populace a fear of resisting the new regime. To be sure, Augustus seduced the people with a gleaming city of marble, replete with generous acts of benefaction, but his public building can (and probably should) also be characterised as an architecture of political menace that, centuries later, Niccolò Machiavelli would readily have recognised.

2792. Monumental Women and the Urbanization of Augustan Power

Authors: Margaret Woodhull (University of Colorado Denver)
Format: Oral

It is well known that Augustan women gained exceptional public presence in the Augustan city, but the extent to which their unprecedented monumental benefactions helped facilitate that political transformation in the city itself is less scrutinized. This paper argues that the transition from republic to principate evolved not only through imperial fora, spectacle architecture, or the monumental self-fashioning of the princeps, but through buildings associated with imperial women that helped render dynastic power legible in the urban fabric. Focusing on the Porticus Octaviae and the empress Livia's broader program of benefactions, it examines how Augustan women's architecture materialized regime change through gendered practices of legitimation, memorialization, and spatial reordering. These monuments did more than honor elite female figures: they embedded the domus Augusta within Rome's public landscape and helped naturalize the social logic of dynastic rule. Taken together, these monuments suggest that Augustan urbanism operated not only through spectacle or coercion, but through subtler architectural modes of persuasion: ritualized movement, moralization, dynastic visibility, and the spatialization of kinship. The Porticus Octaviae demonstrates how Augustan power redirected republican monumental traditions into a new familial narrative, recoding an established urban zone through lineage, cultural display, and memory. Livia's benefactions reveal a complementary transformation mechanism that converted elite domestic and civic spaces into morally charged amenities achieved through restoration and civic repair, guided by an ethic of feminine virtue. Taken together, women's contributions indicate that Augustan urbanism operated not only through spectacle or coercion, but through subtler architectural modes of feminine persuasion. Monuments associated with imperial women were thus not peripheral ornaments of a new order, but key urban instruments through which Augustan power made itself familiar, persuasive, and enduring.

90. Early Christian Architecture and Urban Transformation in Dardania in Late Antiquity

Authors: Zana Hoxha (Institute of Albanology - Prishtina)
Format: Oral

This paper examines early Christian architecture as a material expression of ideological and political transformation in Late Antiquity, focusing on its role in reshaping urban and fortified landscapes. Framed within debates on urban design and regime change, the study argues that the emergence of Christianity altered existing spatial orders not through radical redesign, but through targeted architectural interventions that redefined access, movement, and symbolic authority. The central Balkans provide the primary context, with Ulpiana serving as a key case study. Here, the appearance of churches, martyria, and burial complexes within the Roman urban fabric reconfigured civic and ritual hierarchies, transforming the city into a space increasingly structured around Christian practices and authority. These developments reflect a gradual yet profound shift in how urban space was inhabited, perceived, and governed. Beyond urban centres, the paper addresses the rehabilitation of fortified landscapes during Late Antiquity, particularly the reuse of prehistoric and earlier hilltop castles. The construction of churches within or near these elevated sites represents a strategic convergence of defence, visibility, and ideology, converting long-standing loci of power into instruments of Christian legitimacy and control. Rather than treating early Christian architecture solely as religious infrastructure, this contribution situates it within broader mechanisms of governance, persuasion, and identity formation. By analysing how architecture articulated continuity and change, the paper demonstrates how regime change in the ancient world was materially inscribed into both cities and landscapes.

38. Did the kings invent a new urban architecture in the 4th century BC? The spread of theatre-like bouleuteria and Macedonia

Authors: Jordan Voillot (UMR 7044 Archimède, University of Strasbourg)
Format: Poster

In the study of Greek architecture, the emergence of a new architectural form or a new urban design is usually associated with the establishment of a new and strong political regime. In this way, the development of a first civic architecture and her monumental shape in the first half of the Vth century BC in Athens is linked to the birth of Athenian democracy. On the other hand, the construction of the Milesian bouleuterion, between 175 and 164 BC, is blended with the Seleucid king Antiochus IV. While the thesis of the royal origin of this building and its model can be rejected, a new study of the Greek bouleuteria sheds new light on the development of these buildings. The theatre-like bouleuteria, which feature sloping stone seats built in a long-axial rectangle room, appeared in the second half of the 4th century BC. This new design is accompanied by a new aesthetic, noticeable in the walls, their treatment and large windows. The spread of these buildings and their stylistic and technical particularities seem to suggest a Macedonian origin. This conclude is apparently paradoxical: this democratic "lieu du politique", where the boule held its meetings, knew a remarkable development in a kingdom. This result can be explained by the specific context of the time of the last Argead kings and the last decades of the 4th century BC. They brought stability, civic reforms and wealth to the cities of the kingdom during the activity of a great fertile and innovative architectural workshop. Thus, the advent and the spread of these buildings can be explained by local civic needs, which were specific to the democracies of that time, as well as the royal context – two scales that are interrelated.

189 MULTI-SCALAR STUDIES OF INEQUALITY AND DIVERSITY IN ANCIENT SOCIETIES

Theme: 7. Interaction, connectivity and mobility
Organisers: Kathryn Reese-Taylor (University of Calgary) – Felix Kupprat (Universidad Nacional Autónoma de México)
Keywords: Theory, Methods, Population dynamics, Political systems, Economics, Settlement patterns
Format: Regular session
Affiliation: Community for the Archaeology of the Americas - EAA4Am, Community for Urban Archaeology

SESSION ABSTRACT

In light of ongoing global debates surrounding social injustice, wealth distribution, and migration, archaeologists have renewed their focus on inequality and diversity in ancient societies. These topics invite comparative and multi-scalar analyses that connect household and community dynamics with regional and macro-regional processes. Such approaches reveal how inequality and diversity were created, maintained, or mitigated within ancient social, political, and economic systems. This session will feature contributions that operationalize inequality and diversity in archaeology by integrating multiple scales of analysis with critical theoretical and methodological perspectives. We invite authors to present case studies that explore the potential and limitations of these two concepts. We encourage emphasis on the interplay between inequality and diversity to ultimately address the question of how economic, social, and cultural differentiation intersected to shape lived experiences in the past. We especially welcome papers that engage with theoretical frameworks capable of refining these discussions, including economics, intersectionality, and network theory. Equally important are methodological advances that address long-standing challenges in the archaeological record: measuring wealth and access, reconciling contradictions between datasets, and identifying marginalized or underrepresented groups whose material traces are minimal. By integrating multi-scalar data, robust theoretical perspectives, and innovative methodologies, this session seeks to advance comparative studies of inequality and diversity in ancient societies and to strengthen their analytical and interpretive roles within archaeological research.

CONTRIBUTION ABSTRACTS

211. Quantifying Inequalities in the late Prehistory of Upper Mesopotamia: A Diachronic Application of the Gini Coefficient at Tepe Gawra

Authors: Marco Iamoni (University of Udine) – Riccardo Valente (CNR - Italy) – Francesco Venturoso (Sapienza University of Rome) – Sebastiano Bortoluzzi (University of Verona)
Format: Oral

Excavations conducted at Tepe Gawra (northern Iraq) during the 1930s yielded a vast body of data and finds, representing a milestone in the archaeological knowledge of northern Mesopotamia. However, this important corpus of information was recorded and made available mainly through analogue media, such as traditional printed publications. This paper presents a reassessment of the topographic data of structures documented during the Tepe Gawra excavations using open-source, well-established GIS tools, highlighting the potential of digitising archival documentation. The analyses focus in particular on the assessment of social inequality within the ancient settlement across the Late Pottery Neolithic–Late Chalcolithic phases, based on stochastic analyses of the geometric properties of architectural structures. The data extracted from these analyses are then explored through the application of the Gini coefficient in order to identify the patterns and dynamics of increasing or decreasing (in) equality over a period spanning the Late Pottery Neolithic and the Late Chalcolithic of Upper Mesopotamia. The results contribute to a renewed understanding of the site, providing new insights nearly seventy years after the last archaeological fieldwork activities.

1330. Houses, Communities, and Empires A Comparative GINI-Based Analysis of Wealth Distribution in Northern Italy

Authors: Gabriele Lamanna – Lorenzo Zamboni – Enrico Croce (Università degli Studi di Milano) – Mattia Fochesato (Università Bocconi)
Format: Oral

This paper offers a comparative investigation of long-term economic inequality in ancient Northern Italy, a region that provides an exceptional laboratory for examining how different political and economic regimes shaped wealth distribution over time. Spanning from the Early Iron Age to Late Antiquity, the study compares household-level inequality across subsequent socio-political configurations, from pre-Roman communities to Roman imperial integration and post-imperial transformations. Using a multi-scalar framework that integrates community-level with a regional, and macro-regional perspective, the paper provides the first quantitative proxies of inequality, i.e. the GINI index, from Northern Italian archaeological data. The analysis is based on a newly constructed, expandable database of residential structures and domestic buildings, covering approximately 1,500 years of evidence. This approach allows assessing both the synchronic difference between regions and the diachronic shift associated with changing political powers, economic integration, and urbanization processes. A particular focus is also on the methodological challenges, including data quality, excavation bias, and the visibility of underrepresented groups. The results highlight patterns of both continuity and rupture in

wealth concentration before and after Roman rule, demonstrating the potential of comparative, quantitatively grounded approaches to refine archaeological discussions of inequality, diversity, and lived experience in ancient societies.

2201. Household variability and the question of inequality in the Maya city of Calakmul, Mexico

Authors: Felix Kupprat (Universidad Nacional Autónoma de México) – Kathryn Reese-Taylor (University of Calgary) – Verónica Vázquez López (University College London) – Sofía Gutiérrez Rodríguez – Atasta Flores Esquivel (Universidad Nacional Autónoma de México) – Joshuah Lockett-Harris (University of Calgary) – Debra Walker (University of Florida)
Format: Oral

It has long been assumed that the emergence of complex societies and state formation on local and regional scales in Mesoamerica implied the development of pronounced inequality in wealth distribution. Influenced by Colonial accounts of a noble class and the materialist concept of class struggle, scholars have broadly used binary social categories of elite / non-elite to characterize social classes, although in recent decades there has been increasing interest in defining status and wealth on a fluent and dynamic spectrum. In this paper we integrate several proxies for inequality and cultural diversity in the larger urban Calakmul area that date from the Classic period (200–900 CE). Calakmul has long been assumed to have been high up on the scale of social complexity, at least in Mesoamerican terms, since it was the seat of one of the dominant hegemonic ruling houses of the Classic Maya. Nevertheless, our recent findings, based on large-scale settlement distribution, test excavations in residential areas, material analyses and legacy data, suggest that inequality may have been less pronounced than expected and that differences in household size and location may be related more to diverse and competing lifestyles and economic models than uneven wealth distribution. Since Calakmul features a great number of extensive, multi-courtyard domestic compounds, we furthermore argue that the predominant focus in Maya studies on wealth-differences between households should be complemented by measures of inequality withing large households.

2637. Bridging inequalities and diversity: Creating communities in an ancient Maya landscape

Authors: Jason Yaeger – M. Kathryn Brown (University of Texas at San Antonio) – Bernadette Cap (San Antonio College) – Rachel Horowitz (Washington State University)
Format: Oral

The Mopan River valley of western Belize was home to Maya farmers by at least 1000 BCE. Over the course of the 1st millennium BCE, society in that region became more complex, with the growth of social and economic inequalities and the development of hierarchical polities. By the Classic period (300-900 CE), the region was home to a series of small kingdoms, with capitals set in a landscape of dispersed urbanism marked by agricultural intensifications to support the large population. Archaeologists have long used differences in investment in domestic architecture and the content of household artifact inventories as proxies for economic differences and inequality. In this paper, we use LiDAR and excavation data to examine economic differences at two scales: within the small villages (8 to 25 households) that comprised the region's ancient landscape and within larger geographic zones (marked by differences in soil, slope, access to water and other resources) that comprised the region's heterogeneous landscape. In some of these zones, small villages show marked inequality; in others, they do not. We evaluate these differences in light of agricultural intensification and creation of landesque capital in each zone. We also discuss the diversity amongst the region's households—in economic pursuits, household composition, geographic origin, etc.—that is elided by a narrow focus on inequality. The social and economic dimensions of difference that marked ancient Maya society in this region required bridging, however, and its inhabitants engaged in commensal activities at multiple scales, including feasts in small villages; political and calendrical celebrations and rituals in hinterland focal nodes and in the capitals of the region's polities; and marketplaces in the regional capitals. Through their shared (but differential) participation in these activities, the region's inhabitants recognized their differences and their similarities at the same time, constituting communities through their shared activities.

2162. From egalitarian warriors to brokerage elites: multi-proxy evidence for early inequality in La Tène Central Europe (4th–3rd c. BCE)

Authors: Alzbeta Danielisova – Daniel Bursák – Samuel Kertés (Institute of Archaeology of the CAS Prague) – Eleftheria Orfanou – Zuzana Hofmanová (Max Planck Institute for Evolutionary Anthropology) – Jana Čimářová (Moravian Museum)
Format: Oral

We propose a multi-proxy study on how inequality and diversity formed in Central Europe (Bohemia and Moravia, Middle Danube/Amber Road corridor) between the 4th and 3rd centuries BCE. We operate with communities that appear archaeologically "egalitarian" yet foreground martial identities. Over the 3rd century BCE, long-distance connectivity intensified, production concentrated at emergent open agglomerations, which gave rise to the new "brokerage-based elites". To implement this theoretical framework into operational processes, we integrate three complementary datasets: (1) archaeometallurgy (alloy recipes, trace elements and Pb isotopes) to reconstruct shifts in procurement, standardisation and craft organisation; (2) bioarchaeology and isotopes (mobility, diet and life-courses) to evaluate differential access to resources and movement; and (3) aDNA to explore kinship, ancestry and demographic diversity. Methodologically, we treat these high-dimensional datasets as "big data" relative to conventional archaeological evidence and experiment with workflows that translate multi-proxy similarity and provenance signals into spatially explicit, weighted social-network models. We embed these proxies in a political-economy framework that combines network and resilience theories, modelling how changing connectivity altered redundancy, vulnerability and control over key material and human flows, and how these dynamics translated into intersectional lived experiences. Comparative datasets spanning other Iron Age and Roman-period contexts highlight recurrent pathways by which connectivity and technological choices produce early inequality and diversity.

2320. The variability of care: a multiscalar perspective on disability and care in a wealthy family in medieval Treviso

Authors: Lisa De Luca – Ilaria Gorini (University of Insubria, Varese) – Omar Larentis (University of Trento | University of Insubria, Varese)
Format: Oral

This study contributes to ongoing debates on inequality and diversity in past societies by exploring disability and impairment as both biological conditions and socially mediated experiences. Rather than treating disability as a fixed or uniform state, this research emphasizes how differential access to resources shaped individual life trajectories in medieval contexts. The paper focuses on two adult individuals recovered from the lost medieval context of Santa Maria di Betlem (Treviso, Italy). Using the theoretical and methodological framework of the bioarchaeology of care, osteological analyses were conducted to reconstruct biological profiles through macroscopic examination, including the assessment of non-metric skeletal traits to explore possible kinship relationships. Diaphyseal cross-sectional geometry, together with the Cortical Bone Ratio (CBR) and Cortical Index (CI), was analyzed to investigate biomechanical adaptation and pathological remodeling. Evidence suggests the presence of congenital skeletal dysplasias that would have required sustained and intensive care. Despite severe pathological impairment, skeletal markers indicate functional adaptation compatible with some degree of active social participation. The possible familial relationship between the two individuals allows a multiscalar interpretation of care variability as an expression of social diversity. The privileged burial of the individual with the most severe disability suggests potential membership in the clergy and provides an opportunity to discuss medieval charitable institutions as mechanisms of selective familial care. This case study highlights inequalities in access to care and the role of family networks, power, and patronage in supporting vulnerable individuals, contributing to broader discussions on inequality, disability, and social inclusion in medieval societies.

190 MICRO-STORIES, MACRO-QUESTIONS: AN INTEGRATED MICROSCALE APPROACH TO STONE AND CLAY ARTEFACTS IN PREHISTORIC EURASIA

Theme: 1. Widening perspectives in material culture studies
Organisers: Chen Shen (Royal Ontario Museum) – Hong Chen (School of Art and Archaeology, Zhejiang University) – Jiying Liu (School of Archaeology and Cultural Heritage, Zhengzhou University) – Huiru Lian (University of Science and Technology Beijing) – Liping Xue (Department of Archaeology, Hangzhou City University | School of Earth Sciences, Zhejiang University)
Keywords: Stone, Clay, Microscopic approach, Prehistoric technology, Economic practice, Eurasia
Format: Regular session

SESSION ABSTRACT

Stone and clay artefacts constitute fundamental archives of prehistoric human behaviour, preserving critical data on technological choices, economic activities, and social practices. This session seeks to decode these material archives by advocating for an integrated, microscopic-led approach that moves beyond conventional isolated material or typological studies. We specifically focus on utilizing high-resolution analytical methods—particularly experimental archaeology, use-wear analysis, and residue analysis—to systematically reconstruct the entire chaîne opératoire of prehistoric objects. This comprehensive approach traces artefacts from initial raw material procurement and manufacturing processes through their use-life, circulation patterns, and eventual deposition contexts. By integrating technological, functional, and contextual data at micro- and macro-scales, we aim to develop more nuanced understandings of past technological systems and their social embeddedness. This session invites contributions that employ integrated micro-archaeological techniques to investigate: 1. The organization of craft production and its relation to social complexity; 2. Economic practices revealed through functional analysis; 3. Exchange networks and interaction zones traced through microscopic sourcing and use patterns. We welcome comparative case studies from Prehistory to Early Bronze Age across Eurasia, to stimulate dialogue on technological traditions and social organization. Ultimately, this session will foster interdisciplinary discussions on how microscopic data can illuminate large-scale socioeconomic questions, thereby advancing methodological innovation in the study of prehistoric technology and exchange networks.

CONTRIBUTION ABSTRACTS

1086. Activity locales at Ohalo II, an submerged camp in Israel, reconstructed through experimental archaeology and contextual taphonomy of broken bladelets

Authors: Jiying Liu (School of Archaeology and Cultural Heritage, Zhengzhou University) – Dani Nadel (The Zinman

Institute of Archaeology, University of Haifa) – Hong Chen (School of Art and Archaeology, Zhejiang University) – Iris Groman-Yaroslavski (The Zinman Institute of Archaeology, University of Haifa)
Format: Oral

This study investigates human behavior and site formation processes at the submerged fisher-hunter-gatherer's camp of Ohalo II (ca. 23,500 – 22,500 cal BP). Combining breakage pattern analysis, use-wear studies, and contextual taphonomy, we analyze bladelets and microliths from three distinct contexts: a brush hut floor (Locus 1), an area with open-air hearths (Locus 7), and a small pit (Locus 8). Despite excellent preservation, artifacts show very high frequencies of breakage caused by intentional activities (e.g., knapping, tool use) and unintentional processes (e.g., trampling, accidental exposure to fire). Use-wear analysis reveals that bladelets and microliths were primarily used as projectile inserts, but also for processing wood, bone, and leather, indicating diverse domestic tasks. Spatial and functional analyses of the artifacts and of the various breakage patterns were used to identify activity locales: the floor of Locus 1 served as a multifunctional domestic space, showing evidence of intense trampling and exposure to fire; open air hearths in Locus 7 were focal locales of tool maintenance and wood-working, with primary refuse and secondary cleaning; and Locus 8, containing dense debris, is interpreted as a secondary dump. Our integrative methodology—linking functional, spatial, experimental, and taphonomic data—provides new insights into the details and sequences of a variety of past activities, their spatial distribution, and the interplay of multiple intentional and unintentional human actions affecting the flint assemblages. This approach offers a replicable framework for interpreting the causes of damage to delicate laminar elements, and for better understanding Epipalaeolithic open-air camps with structures and other features.

1162. Microwear Experimental Study on Stone Artifacts from Shoushan Xianren Cave, Huadian, Jilin

Authors: Yanyu Shen – Chunxue Wang (School of Archaeology, Jilin University)
Format: Oral

Use-wear analysis and experimental archaeology have become essential approaches for reconstructing the use and function of archaeological artefacts, particularly in studies of lithic technology and functional interpretation in the Paleolithic. This paper applies an integrated use-wear and experimental framework to a selected assemblage of stone tools from the Shoushan Xianrendong site in Huadian, Jilin Province, Northeast China. The analysed artefacts are made of obsidian, porphyritic rhyolite, and calcareous dolomite, representing raw materials with distinct mechanical properties and use-wear formation patterns. Low- and high-power microscopic observations were conducted to document and classify micro-wear traces, including edge rounding, micro-flaking, striations, and polish development. Experimental replication and controlled use experiments were further employed to establish comparative reference criteria for interpreting wear formation under different tool morphologies and working motions. Based on the distribution and characteristics of observed traces, the study provides preliminary functional interpretations suggesting tool use in activities such as cutting, scraping, and processing animal and plant materials. The results contribute micro-scale evidence for reconstructing subsistence-related behaviors at the site and offer methodological support for broader discussions of Paleolithic lifeways and site significance in the Jilin region.

1544. An Experimental Study on Use-wear of the Prehistoric Tektite Artifacts

Authors: Yue Wu – Jiayi Wang (Zhejiang University)
Format: Oral

Tektites, natural glass formed through special geological and astronomical events, are frequently discovered in prehistoric sites in Guangxi province, China, while research on the associated artifacts remains limited. This study comprehensively integrates methods from experimental archaeology and microwear analysis, aiming to reconstruct prehistoric subsistence strategies involving tektites and to conduct a comparative analysis with obsidian. With reference to tektite artifacts unearthed at the Yahuai Cave site in Guangxi, the study selected tektites from the Australasian strewn field, which share similar chemical compositions and derive from the same formation event as the archaeological specimens. A series of controlled experiments were designed and conducted to simulate different working materials of varying hardness and a range of tool-use motions. The experimental samples were systematically observed and documented using both low- and high-magnification microscopy. Based on the shared characteristics of natural glass in terms of formation processes, chemical composition, and material properties, the resulting microwear features on tektite tools were then compared with existing obsidian use-wear studies. The comparation shows that the two materials are highly similar: Their use-wear such as striation, polish, rounding and scars, are consistent in multiple dimensions. This study explores the formation mechanisms and diagnostic characteristics of use-wear on tektites artifacts under different working conditions while trying to extend the conclusions to the category of vitreous materials. It highlights the interpretive potential of tektite artifacts for future functional analyses related to prehistoric subsistence strategies and patterns of raw material use, particularly in regions where natural glass resources were available.

1878. Research on the tektite artifacts unearthed at the Yahuai Cave site in Guangxi

Authors: Yunhao Guo (Zhejiang University)
Format: Oral

Tektites are frequently discovered in prehistoric sites in Guangxi, yet research on the associated artifacts remains limited. This study conducts an in-depth archaeological analysis of the tektite artifacts unearthed at the Yahuai Cave site in Guangxi, exploring their role and significance in the lives of ancient humans. These tektite specimens originate from the Australasian strewn field and exhibit identical provenance to those tektites recovered from sedimentary strata within Baise Basin, Guangxi. Their formation correlates with the Australasian tektite event, dating to approximately 700,000~800,000 years before present. A comprehensive approach we employed that includes methods such as technological analysis, statistical analysis, energy dispersive Xray spectroscopy (EDXRF) analysis,and usewear analysis to investigate the physical and chemical characteristics, flaking strategies, retouch logic, postdepositional modification, and usage conditions of the tektite assemblages.Overall, this article discusses the uniqueness of these tektites and their prevalence in the Yahuai Cave site, highlighting their important role in ancient toolkits. The results suggests that the utilization of tektites reflects the ability of ancient humans to adapt to their environment and make economic strategy choices. Furthermore, it provides a new perspective and evidence for exploring both the trend of stone artifacts miniaturization in southern China and the dispersal routes of modern humans.

1094. From Utilitarian Tool to Ritual Object: A Re-investigation of the Double-winged Stone Knives of the Liangzhu Culture

Authors: Liping Xue (Hangzhou City University | Zhejiang University) – Hong Chen (Zhejiang University) – Xiqi Shi (Jiaxing Municipal Institute of Cultural Relics and Archaeolog) – Ye Zhao (Zhejiang Provincial Institute of Cultural Relics and Archaeolog) – Ling Shen (Hangzhou City University)
Format: Oral

The double-winged stone knife constitutes a distinctive class of artifact that emerged in the late Songze Culture period and prevailed during the Liangzhu Culture period in the Taihu Lake region. Previous studies, often based on morphological characteristics and ethnological analogies, have proposed various hypotheses, including its use as a weeding or hoeing tool, a harvesting tool, a leather-working tool, a tool for processing meat, bamboo, or reeds, a textile tool, or even a salt-making tool. Through a systematic examination of archaeological records—integrating analyses of typology, technology, contexts of use and deposition, and micro-wear patterns—this study reveals that these knives underwent a process of transformation from utilitarian tools into ritual objects. Their avian-inspired form was employed in rituals intended to invoke bountiful harvests. The morphological transformation and functional evolution of these knives serve as a microcosm of the developmental trajectory of the Liangzhu society, demonstrating how the ritualization of material culture facilitated the construction and expression of a communal belief system.

1839. Ground Stone Production and Emerging Craft Specialisation in the Late Neolithic Lower Yangtze: Evidence from the Xianshengwan Site

Authors: Yongming Lu – Hong Chen (Zhejiang University) – Minghui Chen (Zhejiang Provincial Institute of Cultural Relics and Archaeology)
Format: Oral

Ground stone artefacts constitute an important line of evidence for investigating handcraft production organisation, economic behaviour, and processes of social complexity in Neolithic societies. This paper examines a ground stone assemblage from the Xianshengwan site, attributed to the Late Neolithic Haochuan culture in the Lower Yangtze region of China. Guided by chaîne opératoire framework, the study combines morphology, hierarchical dynamic typology, and use-wear analysis to reconstruct production sequences and patterns of use. Focusing on stone arrowheads, the analysis identifies recurring patterns of standardisation and task segmentation, suggesting a locus of specialised production potentially operating as an arrowhead workshop. Use-wear evidence indicates that these tools were employed in specific economic activities and circulated beyond the immediate production context. When considered in comparison with similar evidence from contemporaneous sites in the Lower Yangtze region, the Xianshengwan assemblage contributes to a broader discussion of emerging craft specialisation, the organisation of handcraft production, and their roles in the development of increasingly complex economic and social networks during the Late Neolithic.

1415. A Microscale Chain of Evidence for Tin-Coated Pottery: Materials, Techniques, and Product Properties in Eastern Zhou Shandong

Authors: Meng Guo (Northwest University) – Wenbin Dong (Shandong Provincial Institute of Cultural Heritage and Archaeology)
Format: Oral

This paper investigates a group of pottery vessels with bluish-grey and greyish-white surface coatings excavated from the Eastern Zhou–period cemetery of Gejiazhuang in Qufu, Shandong Province. Rather than focusing on chronology, the study adopts an integrated microscale analytical approach to explore how fine-grained material evidence can be mobilized to reconstruct technological choices and product properties in ceramic production. A combination of portable X-ray fluorescence (pXRF), scanning electron microscopy with energy-dispersive spectroscopy (SEM–EDS), X-ray diffraction (XRD), and high-depth-of-field optical microscopy was applied to the surface coatings. The analyses demonstrate that the coatings consist primarily of tin oxides, with localized preservation of metallic tin, allowing the vessels to be identified as tin-coated pottery. Crucially, microscale observations reveal a stratified coating structure, providing direct evidence for the application of tin foil rather than pigment-based or slurry-applied surface treatments. This microstructural "chain of evidence" links material composition, manufacturing sequence, and surface modification

at the level of individual artefacts. Typological patterns indicate that tin-coated pottery is mainly associated with forms such as gai-dou, lei, zhi, and cups. The incomplete overlap with conventional bronze-imitation ceramic ritual sets suggests that tin coating gradually emerged as a decorative practice independent of established bronze-imitative traditions. By foregrounding microscale analytical resolution and cross-method integration, this study demonstrates how micro-stories embedded in artefact surfaces can be systematically translated into macro-level interpretations concerning technological innovation, craft knowledge transmission, and the social meanings of material choices in early Eurasian material culture.

1409. Technological Diversity and Independent Production: A Multi-Analytical Study of Pottery from the Aktala Site Complex, China

Authors: Wenlin Xia – Huiru Lian – Kunlong Chen (University of Science and Technology Beijing | Key Laboratory of Materials Archaeology and Conservation, Ministry of Education)
Format: Oral

The Aktala site complex, situated on the southwestern margin of China's Tarim Basin, represents a large Bronze Age to Early Iron Age settlement comprising over 60 individual sites. Its position marks it as a key zone of cultural interaction between the Tarim Basin and the Pamir Plateau. Its discovery is pivotal for refining the prehistoric chronology of the Kashgar region and establishing a spatiotemporal framework for southern Xinjiang. To investigate pottery technology and production organization within this complex, pottery samples from eight representative sites were analyzed using a multi-method approach, including petrography, XRD, XRF, SEM-EDS, and FTIR, to characterize raw material selection, manufacturing techniques, and firing conditions. The results reveal significant variation in the raw material sources and technological levels of the pottery across the complex. The pottery composition is generally similar, with mica-tempered pottery found only at specific settlements. Furthermore, pottery from the central settlement (Kangxuan site) exhibits finer craftsmanship. These phenomena indicate that the complex likely lacked a centralized system of pottery production and distribution, with individual settlements relying primarily on locally available resources and independent production. The technological variation also points to a connection between pottery production, social differentiation, and settlement development. This study provides important empirical evidence for understanding production organization and technological adaptation in early complex societies along the southwestern margin of the Tarim Basin.

1487. Technological Evolution and Production Organization of Pottery at Sanxingdui, China: A Multi-analytical Approach

Authors: Xiaotian Zeng – Huiru Lian (University of Science and Technology Beijing | Key Laboratory of Materials Archaeology and Conservation, Ministry of Education) – Honglin Ran (Sichuan Provincial Institute of Cultural Relics and Archaeology) – Kunlong Chen (University of Science and Technology Beijing | Key Laboratory of Materials Archaeology and Conservation, Ministry of Education)
Format: Oral

As a prominent archaeological site in the upper Yangtze River region, Sanxingdui is pivotal for understanding the development of early civilization in the Sichuan Basin. This study analyzes 86 pottery samples from various locations within the site using chemical composition, petrographic, and Fourier-transform infrared spectroscopy (FTIR) analysis. The results demonstrate that while pottery production across Sanxingdui relied on consistent raw material sources, variations in techniques and standards suggest decentralized production by multiple workshops rather than a unified, centralized system. Technological practices diverged significantly across cultural phases. Early production, represented by flaring-mouth jars (Labakouguan) and wide-rimmed basins (Kuanyanpen) from the late Baodun culture, displayed high uniformity in paste recipes and a preference for high-temperature firing. During the Sanxingdui culture phase, high-stemmed Dou (Gaobingdou) employed distinct paste recipes for different components. For instance, river sand temper was added to the bowls but not to the stems. Meanwhile, small flat-bottomed jars (Xiaopingdiguan) underwent a technological transition during Phase VI, shifting toward fine fabric production and increased standardization. Although the underlying drivers for these shifts require further investigation, the observed variations underscore the complexity of pottery production at Sanxingdui. By elucidating material utilization and technical features across cultural periods, this study provides a diachronic perspective on the evolution of ceramic technology, ultimately contributing to a more refined understanding of the site's chronology, cultural sequence, and internal organization of craft production.

1788. Study of Early Yangshao Burned Stone and Related Problems at the Didong Site of Central China

Authors: Tianxing Cui – Jiarui Guo – Yuan Zhao (School of Archaeology and Cultural Heritage, Zhengzhou University) – Shiwei Li (Henan Provincial Institute of Cultural Heritage and Archaeology)
Format: Oral

As a crucial physical evidence of early human fire use, fire-stained stones (FSS) serve as vital clues for studying prehistoric heat treatment techniques, food processing methods, and ancient human behavior. Although these artifacts have long attracted academic attention, existing research remains insufficient. While China has discovered a considerable number of FSS remains, their functional determination has predominantly relied on macroscopic observation and ethnographic analogy due to limitations in early archaeological data and analytical methods, with systematic scientific research being relatively scarce. This study focuses on three early Yangshao culture sandstone FSS excavated from the Lingbao Didong site in Henan Province. Through integrated approaches

including macroscopic morphology observation, thermogravimetric-differential thermal-gelation (TG-DTG-DSC) experiments, and starch grain analysis, we systematically investigate their thermal characteristics and functional applications. Results demonstrate that the samples underwent moderate-to-low intensity thermal treatment, which significantly affected clay minerals and carbonate cementation without inducing major mineral phase transformations. Additionally, starch grains from millet and root crops were detected on the surface and within cracks of the FSS, exhibiting typical water-boiling damage features. Multiple evidences collectively indicate a close association between these FSS and the "stone-boiling" cooking practice. This study provides new experimental evidence for functional determination of FSS and offers fresh research perspectives for exploring the technical characteristics and cultural context of early Yangshao stone-boiling techniques.

191 FOLLOW THE THREAD: CROSS-CULTURAL CONNECTIVITY AND MOBILITY PATTERNS OF TEXTILE FIBERS AND FIBER CROPS

Theme: 1. Widening perspectives in material culture studies
Organisers: Nofar Shamir-Shafir (Ben-Gurion University of the Negev | School of Archaeology and Maritime Cultures, University of Haifa) – Daniel Fuks (Ben-Gurion University of the Negev) – Orit Shamir (Israel Antiquities Authority) – Ali Caimi (University College London) – Christopher D Buckley (Tracing Patterns Foundation)
Keywords: Trade networks, Fibers, Textiles, Plants, Archaeobotany, Archaeological Science
Format: Regular session
Affiliation: Crop History Community, Community for Textile Archaeology and Conservation (ComTex)

SESSION ABSTRACT

As added-value commodities often traded over long-distances, ancient textiles encapsulate past journeys and exchanges. This session aims to tune into stories of connectivity in archaeological plant-based fibers and textiles, through a range of approaches and methodologies. From the identification of diverse fibre sources to the analysis of dyes and weaving techniques, the study of ancient textiles lends itself to integration across multiple disciplines. We invite submissions employing various techniques applied to organic remains – including, but not limited to fibre morphology, ethnoarchaeology, experimental archaeology, archaeobotany and the range of archaeological sciences. We also encourage submissions integrating textual, linguistic and iconographic sources. Papers in this session may deal with fiber types (e.g. linen, cotton, silk, hemp, ramie and palm), or the plants used in producing and processing them (e.g. flax, cotton, mulberry, woad, etc.). By bringing together researchers working across these diverse fields, this session aims to offer complementary perspectives on production processes and commerce. By examining textiles as focal points of knowledge transfer, cross-craft interaction, and long-distance exchange networks, we seek to follow the thread on ancient textile production and trade as catalysts for technological innovation and cross-cultural connection.

CONTRIBUTION ABSTRACTS

243. The Past Inside the Present: Piecing Together the Emergence and Spread of Weaving and Fiber Usage in East Asia

Authors: Guillaume Jacques (CNRS | EPHE | INALCO) – Christopher Buckley (Tracing Patterns Foundation)
Format: Oral

Archaeological sites with textile fragments are rare and precious: in contrast to our knowledge of more durable materials such as stone and pottery, we understand our textile pasts through brief glimpses. In this talk we will discuss how scarce early textile remains from East Asia (the region that is now China, and beyond) can be integrated into a broader picture by supplementing this information with data from indirect sources, including a wide-area survey of archaeological instances of spindle whorls, occasional discoveries of loom parts, ethnographic studies of looms, and the ethnography of present-day fiber preparation. Using mapping, we will discuss how weaving emerged alongside rice and millet agriculture between the Yellow River and Yangtze river and spread eastwards to the foothills of the Tibetan plateau and beyond with sedentary farming lifestyles, and how the spread of weaving could be correlated with that of domesticated crops and language families such as Sino-Tibetan. Trends in whorl types signal the emergence and spread of silk textiles for elites, and differences in fiber types used in the north and south. On the Tibetan plateau and 'Silk Road' routes they signal the merging of cultures from the east, west, and south, and the arrival of animal fibers and novel weaving techniques brought by nomadic herding peoples.

310. Mass-produced plant fibre textiles An investigation on use wear and recycling from plant fibre textiles in the salt mine Dürrnberg

Authors: Ronja Lau (Ruhr-University Bochum)
Format: Oral

The salt mine at Dürrnberg near Hallein, Austria, offers predestined conditions for researching prehistoric textiles because of the preservation in salt. Unlike Hallstatt, Dürrnberg dates from the late Hallstatt to the early Latène period (600-100 BC) and is usually

regarded as the replacement of Hallstatt as the economic centre of the region. The large proportion of plant fibre textiles in the mine is particularly noteworthy. Their uniformity makes them stand out. Some of them also show signs of wear and tear, cuts, seams, holes and weaving faults, allowing for specific investigation into the purpose for which these fabrics were used in the specific context of mining. The question of workwear or textiles used in the direct process of salt mining has not yet been answered anywhere else. In this presentation I would like to offer ideas and open a discussion on how to investigate work specific textile in correlation with the fibre material. The cultural shift from the Hallstatt to the La Tène period brought about changes in material culture, not only in terms of weapons and pottery, but presumably also in relation to textiles. The influences and trade relations, especially in the Mediterranean region, can be traced primarily in the burial grounds around the Dürrnberg. The sudden emergence of plant fibre textiles in this region could be linked to new exchanges of knowledge or the movement of people. For example, there is no Iron Age linen in the Hallstatt mine, just a few kilometres away. The origin of this knowledge or textile processing technique is a matter for discussion at this point.

1216. Threads Between Empires: Textile Culture and Trade in the Avar Khaganate

Authors: Kayleigh Saunderson (Independent Researcher)
Format: Oral

The early medieval Avar Khaganat encompassed parts of Central and Eastern Europe from 567 to the early 9th century CE, lying between major empires - the Frankish to the west and the Byzantine to the east. While the Avar culture formed, many diverse influences can be seen in the archaeological record. This presentation views this phenomenon from a textile archaeological perspective, whereby research has shown a very distinct textile culture in the Khaganate based on flax, which on the one hand challenges hypotheses on nomadic Avar communities and on the other hand brings up questions on the appearance of clothing. These textiles are very standardised in their production, which makes outliers all the more interesting to investigate. The evidence strongly suggests a western origin for most of these textiles based on comparable technological features. The first material evidence of silk has now also been identified in a quite inconspicuous burial. Likely connected to an armour amulet, this case shows how trade to the east can be traced solely through textile fibres.

1950. Early Islamic Textiles (7th–9th Centuries CE) Excavated in Israel: Indicators of Global Trade Networks

Authors: Orit Shamir (International Exhibitions Department, Israel Antiquities Authority)
Format: Oral

Excavations along the Spice Routes in the ʻArava and the Negev—including sites like Nahal `Omer, `En Evrona, `En Marzev, Nahal `Amram, Nahal Shahaq, Yotvata and from a site which was recently excavated (at the end of 2025)—have yielded a rich corpus of textiles. The Early Islamic period in Bilad al-Sham is marked by a technological shift: the increased use of cotton and silk, complex weaving and dyeing techniques, and the first evidence of "cut-to-shape" garments. While cotton was rare in the region prior to the Umayyad period, the Arab conquest fostered new trade links with Asian centers such as India, China, and Persia, where cotton was more common. This is most evident at Nahal ʻOmer, a small village and way station where nearly 4,000 textile fragments were recovered from ancient rubbish middens. Unlike neighboring sites where cotton remains scarce, Nahal ʻOmer yielded an abundance of imported cotton and approximately twenty rare silk fragments. The diversity of organic finds at Nahal ʻOmer—including textiles, basketry, cordage, leather, and ate-palm kernels, human hair, bird feathers, several wood artifacts, and papyri bearing Arabic writing—serves as a "social archive" of daily life. Specifically, the presence of weft-faced compound tabbies (zilu), warp-ikat cotton and cotton textiles with supplementary weft strongly suggests origins in India and East Asia. These finds attest to robust inter-regional networks, positioning small desert way stations as vital links in the vast connectivity between the East and the Mediterranean.

773. Ikat Cotton Textiles from Nahal Omer: Trade Networks and Technological Transfer in the Early Islamic Period

Authors: Nofar Shamir-Shafir (Ben-Gurion University of the Negev)
Format: Oral

This research examines an assemblage of approximately 200 cotton ikat textile fragments excavated at Nahal Omer, dating to the 8th century CE. Ikat is a complex resist-dyeing technique involving thread binding, multi-stage dyeing, and unbinding to create characteristic blurred patterns. The textiles demonstrate high standards of craftsmanship and rich color combinations. The assemblage was classified into four typological groups based on decorative patterns and technical characteristics. The study aims to determine their origins and the economic and social networks they reflect, drawing on theoretical frameworks of textile technology dispersal along trade routes, with comparisons to known production centers in East Asia, Central Asia, and the Arabian Peninsula. Analysis reveals diverse cotton fibers, various patterns, evidence of secondary use, and motifs similar to Yemeni ʻaṣb textiles. The findings suggest multiple production centers in Central and West Asia. This assemblage reflects the movement of ikat technology along the Silk Roads and positions the Arava as a reception point for luxury textiles. The Nahal Omer collection contributes significantly to understanding economic frameworks and trade patterns in the early Islamic period.

135. Taphonomic Processes and Preservation of Linen Textile Across Diverse Soil Mediterranean Environments

Authors: Nafsika Andriopoulou (Dept. of History and Archaeology, University of Ioannina)
Format: Poster

Archaeological and historical textiles are highly susceptible to decay, with their preservation strongly influenced by the mineralogical and biogeochemical properties of the burial environment. This study investigates the long-term burial behaviour of an experimental, undyed, handwoven flax-fibre linen textile (Linum usitatissimum) across six contrasting soil Mediterranean environments – Cyprus, Crete, Volos, Pella I, Pella II, and Corfu – over a period of 5 years and 9 months; and aims to determine how soil mineralogy, chemistry, and pH influence textile preservation. Comprehensive soil characterisation was performed using X-ray diffraction (XRD), X-ray fluorescence (XRF), and pH measurements. Textile fibres, yarn morphology, and fabric structure and composition were thoroughly analysed before and after burial using Optical Light Microscopy (OLM), Scanning Electron Microscopy with Energy Dispersive Spectroscopy (SEM/EDS), Fourier Transform Infrared Spectroscopy (FTIR), Thermogravimetric Analysis (TGA), and XRF. The results indicate that all soils were alkaline (pH 7.41-7.93); however, textile preservation varied according to carbonate and magnesium content. Carbonate-rich soils (Crete, Pella I/II) mitigated cellulose degradation and promoted partial mineralisation, whereas silica-dominated soils (Volos, Corfu) were associated with pronounced fibre fragmentation and significant loss of hemicellulose and pectin. Iron-bearing soils (Cyprus, Crete, Pella I/II) led to mineral encrustation and fibre staining. In several cases, lignin proved more resistant than polysaccharides, contributing to the persistence of fibre structures despite progressive degradation. Overall, the findings demonstrate that textile survival was determined not solely by alkalinity but also by carbonate buffering capacity and mineralogical composition, with clay-rich matrices accelerating fibre deterioration. These findings underscore the critical interplay between soil mineralogy, chemistry, and pH in the preservation of archaeological and historical linen, and provide a framework for predicting textile survivability, thereby informing conservation strategies across diverse burial environments.

2064. Towards a Model Conservation Protocol for Plant-Based Textiles

Authors: Magdalena Majorek-Lipowicz (University of Lodz; Institute of Archaeology)
Format: Poster

This poster presents a comprehensive overview of methods, techniques, and tools employed in the conservation of archaeological plant-based textiles. Conserving these materials requires an interdisciplinary approach that integrates knowledge of textile technology, chemistry, and archaeological conservation. The workflow begins with pre-conservation studies, including material identification, fiber characterization, and assessment of degradation mechanisms. Analytical techniques such as microscopy, spectroscopy, and colorimetry are emphasized as essential for evaluating the condition of fibers and dyes prior to intervention. Following assessment, a conservation program is developed, outlining objectives, proposed treatments, required resources, and risk evaluation. This ensures that interventions are adapted to the specific properties and deterioration patterns of plant-based textiles while respecting their historical and cultural significance. The treatment pathway includes cleaning, stabilization, and structural support, with careful selection of materials compatible with the original fibers. Emphasis is placed on reversible and minimally invasive methods, thorough documentation of procedures, and monitoring of environmental conditions throughout the conservation process. Finally, post-conservation recommendations address preventive measures, storage solutions, handling protocols, and exhibition guidelines to ensure long-term preservation. By systematically integrating assessment, intervention, and preventive strategies, this approach preserves the integrity and longevity of plant-based textile heritage. The presented framework serves as a model scheme for conservation practice, offering practical guidance for conservators while promoting sustainable and culturally sensitive preservation of fragile archaeological textiles.

192 BETWEEN DESERTS AND MOUNTAINS: CONNECTIVITY AND CULTURAL CHANGE IN BRONZE AGE CENTRAL ASIA

Theme: 7. Interaction, connectivity and mobility
Organisers: Barbara Cerasetti (Freie Universität Berlin) – Athina Nikolopoulou (National and Kapodistrian University of Athens, NCSR "Demokritos") – Abdul Hafiz Latify (Freie Universität Berlin) – Elise Luneau (CNRS, UMR 8215 Trajectoire)
Keywords: Central Asia, Bronze Age, connectivity, exchanges, technology, materials
Format: Regular session

SESSION ABSTRACT

During the Bronze Age, the geographical area known as Central Asia and its neighbouring regions witnessed the emergence of complex societies (BMAC/Oxus Civilisation/GKC) situated between some of the world's most challenging environments, in which a very dynamic interaction zone was formed in the past. Within this broad landscape, people, materials, and technologies circulated between oases, steppes, and highlands, linking communities across ecological and cultural boundaries. This session focuses on material and technological perspectives that illuminate these connections. We welcome contributions that highlight recent

archaeological and scientific research on metals, ceramics, and semi-precious materials, addressing provenance studies, resource acquisition, and production organisation, as well as the relationship between technology and local environments. Discussions may explore how raw materials, resources, and finished goods were transported, and how both mobile pastoral and sedentary groups contributed to networks of production and exchange. The aim is to bring together new analytical and contextual data on materials and connectivity in the region and to assess how this evidence fits within existing interpretative models. By comparing technological, environmental, and social perspectives, the session seeks to evaluate which aspects of current frameworks remain relevant and where new models are needed to explain the complexity of Bronze Age interaction across the Oxus basin and its neighbouring areas. Through this integrated approach, the session aims to refine our understanding of how movement, technology, and environment shaped the material worlds of Central Asia.

CONTRIBUTION ABSTRACTS

42. Herding and Hunting at Kattabulak: Animal Exploitation in Sapalli-period Surkhan Darya

Authors: Marcella Festa – Yuxuan Wang (Northwest University, Xi'an)
Format: Oral

Zooarchaeological research in prehistoric southern Central Asia has outlined general patterns of animal economies, yet site-specific studies remain limited. The newly excavated Bronze Age site of Kattabulak, located on the eastern foothills of the Kugitang Mountains in the Surkhan Darya region (Uzbekistan), provides an opportunity to examine animal exploitation strategies and landscape use within the Sapalli culture (2100–1500 BCE), the northern variant of the Bactria–Margiana Archaeological Complex (BMAC). Zooarchaeological evidence suggests a diversified subsistence system integrating ovicaprid and cattle herding, equid management, and irrigated agriculture, with domestic livestock at its core and a significant contribution from wild fauna. The presence of hunted high-altitude ovicaprids, open-steppe species, and some woodland taxa indicates the sustained use of diverse ecological zones within the local foraging range. The high proportion of wild species cannot be explained by subsistence alone. Rather, hunting contributed to complementary economic, technological, and social roles by providing raw materials for manufacture, with some products attested in funerary and ceremonial contexts. Given the availability of local salt resources and the targeted hunting of prime-age animals, wild game may also have been preserved for delayed consumption or circulated within regional exchange networks.

1684. Bombyx mori cocoons and mulberry charcoal within the BMAC highlight the Silk Road at 2000 BCE

Authors: Hui Shen (Chinese Academy of Sciences)
Format: Oral

Historical narratives hold that sericulture originated in China and spread along the Silk Road roughly two millennia ago. Challenging this paradigm, we integrate analyses (micromorphology and proteomics) of three cocoons from the proto-urban site of Sapalli Tepe (ca. 2000–1500 BCE) in southern Central Asia. We identify them as mulberry silkworm cocoons, directly dated to 1940–1765 cal. BCE, representing the earliest Bombyx silkworm remains identified outside eastern China. Complementing these results, we further report the earliest mulberry (Morus sp.) charcoal from Central Asia, demonstrating local sericulture in the Oxus Civilization (BMAC – Bactria Margiana Archaeological Complex) nearly 2,000 years earlier than previously documented. We theorize that early Bombyx mori and mulberry trees might have dispersed along the southern slopes of the Himalayas; although, given the piecemeal archaeological record, we theorize other possible explanations as well. The establishment of sericulture seems to attest to a previously undocumented aspect of long-distance trade as part of the extensive reach of the Oxus Civilization, which was reshaping Eurasian technological development much earlier than has been acknowledged.

1876. Ceramics, Environment, and Connectivity: Bronze Age Pottery from Togolok Depe in the Murghab Alluvial Fan (Turkmenistan)

Authors: Nicola Martinelli (Università di Napoli "L'Orientale") – Elise Luneau (Centre national de la recherche scientifique, Trajectoires) – Verónica Martínez Ferreras (Departamento de Historia y Arqueología, Universitat de Barcelona) – Luana D'Ippolito (School of Specialization in Archaeological Heritage, University of Trieste) – Barbara Cerasetti (Freie Universität Berlin)
Format: Oral

Increasing archaeometric studies of Bronze Age ceramics offer new opportunities to explore the interplay between technology, raw material procurement, and environment in Central Asia. This paper presents new archaeological and archaeometric analyses of ceramic assemblages from Togolok Depe 1 (ca. 2100–1500 BCE) in the Murghab alluvial fan, present-day Turkmenistan, aiming to understand how ceramic production responded to local environmental conditions that are now largely desertic. The study combines macroscopic and typological analyses with petrographic and geochemical approaches to investigate ceramic fabrics, tempers, and clay sources. Provenance analyses assess the use of local versus non-local raw materials, shedding light on the degree to which production was embedded within the alluvial and marginal landscapes of the Murghab. Special attention is given to how potters adapted their technological strategies to a dynamic hydrological and ecological context. The Murghab region also functioned as a key interaction zone between BMAC/Oxus Civilization communities and the so-called mobile pastoral groups. Comparative analyses examine similarities and differences in ceramic technologies and compositions between these groups, providing insights into

patterns of interaction, knowledge transfer, and material connectivity across ecological and social boundaries. By integrating technological, environmental, and social perspectives, this contribution offers new data for assessing models of production, exchange, and connectivity in Bronze Age Central Asia.

2087. Forging Networks: Copper Metalworking at Gonur Depe

Authors: Athina Nikolopoulou (National and Kapodistrian University of Athens | NCSR "Demokritos") – Eleni Filippaki (NCSR Demokritos) – Olga Papachristou (Independent Researcher) – Yiannis Bassiakos (NCSR Demokritos)
Format: Oral

In Bronze Age Central Asia, technological knowledge, resource circulation, and social organisation were closely intertwined. Within the Oxus cultural sphere, metallurgy constituted a key domain through which materials from different regional contexts were transformed and integrated into local systems of production and exchange. This presentation examines metallurgical remains from the workshop complex at Gonur Depe, focusing on crucible fragments and slags recovered from Areas 8, 9, 13, and 15. An integrated archaeometric methodology (XRF, OM, SEM-EDS, XRD) contributes to understanding metalworking activities within the site, allowing the examination of high-temperature processes, alloy preparation, and secondary metallurgical activities. The crucibles and slags are approached as material indicators of technological choices, craft practices, and the use of copper and alloying elements within wider regional interaction networks. By situating this evidence within broader patterns of resource acquisition and material circulation across Central Asia, the presentation considers metallurgy as a practice connected to interactions between oasis communities and surrounding resource zones. In this perspective, metal production can be understood as an important element within the economic and social organisation of Bronze Age societies in the Oxus world.

2763. Cosmetic sticks at Farkhor and in other sites of Southern Tajistan

Authors: Giovanna Lombardo (Retired)
Format: Oral

The burial ground of Farkhor, in Southern Tajikistan, is located in the hill of Urtoboz, not far from the modern town of Parkhar; it was discovered and excavated in the last ten years, more than fifty burials have been unearthed. The burial furniture included pottery vessels, personal objects like beads in semiprecious stones, once part of necklaces, metal objects, such as mirrors, pins, cosmetic sticks, sometimes daggers and spear points. We shall speak here about cosmetic sticks.Cosmetic sticks in central Asia have a decorated head, this kind of objects is well known in the necropolises of Middle East and Central Asia in the Early and Middle Bronze Age (3000-2200 BCE). There are examples of these objects in Eastern Iran, at Shahr-i Sokhta, an urban centre very important for the mining, processing, and long-distance trade of semi-precious stones such as lapis lazuli and various types of agate; there are comparisons between the cosmetic sticks from Shahr-i Sokhta and those from Farkhor and Gelot. Other comparable specimen have been found in the major urban centers of Central Asia, such as Altyn Depe, Togolok in Margiana, Djarkutan in Bactria: here and in particular in Southern Tajikistan, they have been found also in the necropolis of Gelot. What we intend to do in this paper is to examine various types of cosmetic sticks from the Tajik necropolises of Farkhor and Gelot, comparing them with specimen from Central Asian and Iranian sites, in order to give a picture of some sites of Southern Tajikistan in the broader picture of central Asian and, more generally, middle eastern metallurgy and to document the long distance trade existing in the 4th and 3rd millennia among different areas of Central Asia, Iranian Plateau and Near East.

263. Stone cosmetic vessels from the Early Bronze Age burials of Farkhor in southern Tajikistan

Authors: Natalia Vinogradova (—)
Format: Oral

The Farkhor burial ground is the earliest known burial complex in southern Tajikistan. It is located on the Urtoboz hill at the outskirts of the city of Parkhar, two kilometres from the border with Afghanistan. Of particular interest are three stone cosmetic vessels with lids that were excavated from the rich graves 18, 19, and 65. Previously, these objects have been described as lamps in the archaeological literature. However, a study of the chemical composition of the material on the walls and lids of these "lamps" from Shahr-i Sokhta and Altyn-Depe has confirmed that they were intended for cosmetic use. All stone flacons are executed from the soft stone – gypsum, flacons are of the same type in shape and ornamentation. There are two main types among their forms: 1 – rectangular vessels with an ornament of four slotted circles with a dot in the center; 2 – cubic vessels with a bell-shaped throat and an ornament in the form of vertical grooves. Cosmetic vessels, along with cosmetic sticks made of metal or stone, are revealed in both women's and men's "elite" burials at the Farkhor burial ground. The closest analogies to the stone flacons from the Farkhor burial ground can be found in the necropoleis of Altyn-Depe, Shahr-i Sokhta, Hissar IIIC, Shahdad (necropolis A), and northern Afghanistan (looted burial grounds). This wide area of distribution of stone cosmetic vessels suggests the existence of trade and exchange relations between the populations of these regions during the early and middle 3rd millennium BC. The trade route could pass near Farkhor, where there is a convenient crossing over the Panj River, allowing for the population of Farkhor to participate in interregional contacts and trade in raw materials such as lapis lazuli with neighboring territories.

1552. Central Asia as a Nexus: Reconstructing Lapis Lazuli Exchange Networks during the Bronze Age

Authors: Abdul Hafiz Latify (Freie Universität Berlin and Berlin Graduate School of Ancient Studies)
Format: Oral

During the Bronze Age, the vast landscapes of Central Asia—encompassing present-day Turkmenistan, Uzbekistan, Tajikistan, and northern Afghanistan— were home to several distinct archaeological sites with their own characteristics that functioned as significant areas of cultural material distribution. Among the many exchanged commodities, lapis lazuli from the primary geological source, located at the high altitude of Sar-e Sang in Badakhshan, was widely distributed among the communities in the surrounding regions. Before reaching the western zones where it was highly demanded (i.e., Mesopotamia), this semi-precious stone often traveled via the northwest route (one of the suggested routes), which passes through the urban centers and transit corridors of Central Asia. This paper, part of my ongoing PhD research, re-evaluates the role of archaeological sites in the above-mentioned regions by integrating quantitative archaeological data and ethnographic insights. The quantitative data comes from a comprehensive database of lapis finds across Central and South Asia, as well as Iran, tracking the stone in raw, semifinished, and finished forms. This study focuses on the contextual and typological characteristics of the finds, assessing whether particular sites were actively involved in the use, production, or circulation of lapis lazuli. Preliminary analysis provides a revised overview of lapis distribution, identifying shifts in site frequency and patterns of use across the Early, Middle, and Late Bronze Age. Furthermore, for a better understanding of the logistical challenges of these routes, the research incorporates ethnographic fieldwork from Badakhshan, interviewing modern traders who still use traditional transport methods involving human and animal labor. These modern parallels offer a framework for understanding how ancient "traders" traversed the difficult terrain of the Hindu Kush to reach the plains of Central Asia.

334. Patterns of Cultural Dialogue of the Bronze Age in Central Asia

Authors: Emma Usmanova (Saryarka Archaeological Institute Karaganda Buketov University) – Viktor Merts – Ilya Merts (Toraigyrov University, Pavlodar)
Format: Poster

Bronze Age cultures of the Eurasian steppe interacted with agricultural cultures such as Sarazm (Tajikistan), the Bactria–Margiana Archaeological Complex (BMAC), and Namazga V–VI (Turkmenistan). The movement of steppe cultures is observed for the active period of the Eurasian Metallurgical Province (XX – X centuries BC).). Fragments of the steppe Andronovo pottery were found at the settlements of Sarazm IV and Gonur. The appearance of imported pottery there indicates emerging communications between the Eurasian steppe and the Central Asian agricultural cultures. Particularly active interactions date back to the period of the cultures of roll (valikova) ceramic in the mid–second millennium BC. Towards the end of the Bronze Age, the mobility of groups of people increased in their search for new sources of metal ores, moving toward the eastern and central regions of the Eurasian Metallurgical Province. Bearers of farming cultures became transmitters of new technologies into the steppe environment, exchanging their products for local ores and metals. For the steppe peoples, Central Asian building technologies and stone and metal processing technology became part of a system of "barter". Imported thrown pottery and beaker-shaped vessels spread to the steppe peoples' daily life as prestigious status items. Local technologies for producing thrown pottery developed at steppe settlements as imitation of import ceramic. On the basis of intercultural contacts, symbolic sign systems emerged as means of transmitting non-verbal information. The settlements Kent, Akkezen, and Semiyarskoe (Central Kazakhstan and the Irtysh region of Kazakhstan) testify about the formation of the first proto-state communities in the steppe part of Eurasia at the end of the Bronze Age (16th–14th centuries BCE). Their development combined local economic achievements with innovations coming from agricultural civilizations, which contributed to the emergence of the phenomenon as "steppe urbanism."

193 INVASIONS: THE ARCHAEOLOGY OF SUDDEN MIGRATIONS

Theme: 7. Interaction, connectivity and mobility
Organisers: Lorenzo Zamboni (University of Milan) – Manuel Fernández-Götz (University of Oxford)
Keywords: Mobility, Invasions, Social complexity, Conflict Archaeology
Format: Regular session

SESSION ABSTRACT

In the contemporary world, relocations, invasions, ideological divides, and social conflicts are once again emerging as pressing global concerns. Archaeology can provide a deep-time perspective on such phenomena, revealing the diverse ways in which human communities have responded to episodes of mobility, displacement, and contact. By examining the material traces of these past encounters, archaeology enables us to explore how people negotiated change — from conflict, inequality, and domination to diplomacy, risk-sharing, and the creation of new communities. In this session we want to specifically focus on phenomena of sudden migrations, particularly those that have tended to be classified as 'invasions'. Our aim is twofold: on the one hand, to analyse case studies for which there is evidence for the substantial movement of people within a relatively short period of time; and on the other hand, to critically discuss previous archaeological interpretations phrased around 'invasionist' narratives, including the biases and stereotypes that this type of rhetoric can often entail. We seek to move beyond traditional narratives and instead invite contributions that highlight the complexity and varied outcomes of these processes. We welcome papers from all periods and regions that adopt diverse methodological and theoretical perspectives. Topics may include, but are not limited to: • Archaeological signatures of conflict, invasion, and resistance. • Material expressions of negotiation, cohabitation, and hybridisation. • Mobility, identity, and power dynamics in contact zones. • Environmental, social, and economic impacts of sudden mobility. • Comparative or interdisciplinary approaches to migration and conflict. The session aims to foster a cross-regional and diachronic dialogue on how archaeology can illuminate the human experience of invasion, encounter, and adaptation.

CONTRIBUTION ABSTRACTS

1650. Phoenician presence in the bay of Cadiz and surrounding areas: colonization and/or invasion?

Authors: Mariano Torres Ortiz (Universidad Complutense de Madrid) – Ester López Rosendo (Universidad de Alicante)
Format: Oral

The Phoenician diaspora of the late 9th century BC implied a sudden migration that reached several Mediterranean regions and Southwestern Iberia. From that moment, Phoenicia settlements such as Teatro Comico (ancient Gadir), other sites in nowadays Cádiz and Castillo de Doña Blanca (El Puerto de Santa María) are attested in the bay of Cadiz. This migration implied the arrival of a substantial amount of Phoenician population in areas inhabited by local peoples. Thus, the aim of this paper is to analyse if there is evidence of conflict and warfare in this region, the material evidence of hybridization, well attested in the pottery (Grey ware pottery), the expression of the identities of migrating and local populations (well attested in the mortuary practices and the urbanism), the technological impact (adoption of the potter's wheel) and the economic impact of Phoenician mobility (attested in the introduction of new crops such as vine and olive tree).

7. The collapse of the Hallstatt princely complexes (5th c. BC): invasion or implosion?

Authors: Sophie Krausz (Université Paris 1 Panthéon Sorbonne)
Format: Oral

In the northern Alpine region, the end of the Hallstatt princely complexes around 450-420 c. BC remains enigmatic today. Unable to resolve this question, researchers generally suggest that the collapse of this culture was linked to a combination of internal and external problems. This suggestion is not wrong, but it conflates all possible causes without ultimately identifying any of them. This presentation proposes to compare the contexts and chronology of the destruction of the Hallstatt princely complexes in the northern Alpine region. Indeed, most of them, such as La Heuneburg (Baden-Württemberg, Germany), Vix (Côte d'Or, France) and Bourges (Cher, France) show archaeological evidence of destruction by fire, with in some cases successive fires, as at La Heuneburg (Baden-Württemberg, Germany). Others reveal statues broken into pieces, as at Glauberg (Germany), or with amputated heads, as at Vix. My objective is to examine the archaeological evidence revealing the destruction of princely complexes and to compare the chronology and conditions of these destructions. From there, it should be possible to propose new hypotheses that will lead us either towards the presumption of wars of conquest or invasions, or towards internal destroys leading to the implosion of the Hallstatt princely system.

182. Rethinking the "Celtic Invasion" of Northern Italy: Mobility, Archaeology, and Narrative Bias

Authors: Lorenzo Zamboni (University of Milan)
Format: Oral

The arrival of so-called Celtic groups in northern Italy between the 4th and 3rd centuries BCE is traditionally framed as a sudden and violent invasion, derived largely from Greco-Roman literary sources and reinforced by long-standing culture-historical models. This paper critically reassesses this narrative by confronting historical accounts with the archaeological and bioarchaeological evidence from the Po Valley and adjacent regions. Drawing on recent reassessments of settlement patterns, funerary contexts, material culture, and isotopic data, the paper argues that the archaeological record does not support large-scale, homogeneous migrations corresponding to the dramatic events described in the sources. Instead, evidence points to a complex and regionally varied set of mobility processes unfolding over several generations, including small-scale movements, chain migration, elite mobility, mercenary activity, exogamy, and the gradual integration of incoming groups into existing social landscapes. Particular attention is paid to the weak archaeological visibility of 4th century BCE "invasion horizons," the heterogeneous character of communities traditionally labelled as Celtic, and the widespread presence of hybrid material cultures that defy straightforward ethnic attribution. Bioarchaeological studies, while offering important insights into individual mobility, are also discussed critically, highlighting the risks of reintroducing deterministic or invasionist interpretations through uncritical use of isotopic or genetic data. By situating the case of northern Italy within broader theoretical debates on mobility, identity, and post-colonial approaches to the past, this paper advocates moving beyond invasionist explanations toward multiscalar models that better capture the diversity of social interactions and historical trajectories in Iron Age Europe. The "Celtic invasion" thus emerges not as a single catastrophic event, but as a long-term process of encounter, negotiation, and cultural transformation.

2460. Sudden migration, gradual process... or both? The settlement of the Celtici in southwest Iberia

Authors: Manuel Fernández-Götz (University of Oxford) – Luis Berrocal-Rangel (Universidad Autónoma de Madrid) – Lucía Ruano Posada (Universidad Complutense de Madrid)
Format: Oral

This paper will address the question of the so-called Celtici that inhabited the region known as Baeturia in southwest Iberia, and which in the Late Iron Age constituted the southernmost 'Celtic' communities in Europe. According to Pliny the Elder, these Celtici would have been descendants of the Celtiberians, stating that this was recognised by their language, beliefs, and the names of their oppida. Archaeology, for its part, indicates the arrival of new populations in this region in the late 5th and early 4th centuries BC, a settlement process that is particularly visible in the development of hillforts with a distinctive material culture. Some of these sites would last until the incorporation of this territory into the Roman world. However, in addition to a relatively short-lived immigration horizon, we can also observe some longer-term trends of mobility of populations between the northern Meseta and the area of southern Extremadura, a process visible, for example, in the distribution of object types such as certain fibulae and saltboxes. In this contribution, we will try to distinguish different temporalities and types of mobility, placing the evidence of the region within the wider context of migrations in Iron Age Europe.

190. Shadows of Crisis or Footprints of Archaeologists? Spatial Patterns of Hoarding along the Central Balkan Section of the Via Militaris

Authors: Marija Maric (University of Novi Sad, Faculty of Philosophy) – Marija Kalicanin-Krstic (Cultural Heritage Preservation Institute, Kragujevac)
Format: Oral

Traditionally, the 3rd-century crisis in the Balkans is viewed through political instability, with coin hoards interpreted as indicators of "barbarian" incursions. Thus, the Great Morava valley, as a key segment of the Via Militaris in the Central Balkans, represents an archetypal example of such interpretation, where each hoard was almost automatically fitted into written sources concerning the movements of armies. Such an approach was criticised by Mihajlović (2010), who introduced the concept of equifinality as an analytical framework for understanding the fact that different processes may generate similar archaeological patterns. The present study re-examines this issue using digital analytical methods, within which equifinality is not regarded as a limitation of interpretation, but as a testing ground for multiple scenarios. Spatial-temporal analysis was applied to 18 hoards, with particular focus on the relationship between the find locations, time of deposition, and the route of the Via Militaris. Although precise findspots are mostly unknown, requiring the analysis of broader distributional trends, the crucial task was to distinguish genuine ancient patterns from the "recovery bias" within a landscape where modern infrastructure and agricultural activities largely overlap with the ancient route. The analysis is based on the application of Kernel Density Estimation and proximity analysis methods within GIS, supported by Python scripts for statistical processing. In this way, it was tested whether the spatial distribution of hoards reflects the "military logic" of the Via Militaris route or whether their clustering can be better explained by civil and economic spatial patterns. By excluding the factor of research intensity, the results revealed that the distribution of hoards in the Great Morava valley does not depict a simple conflict zone, but rather a complex landscape of risk shaped independently of military campaigns. The Via Militaris was not solely a military route, but an axis of economic instability.

1691. Nomads, Ancestors, and Invaders: A Case Study of Khazar Graves from the Pontic-Caspian Steppe

Authors: Irina Shingiray (University of Oxford)
Format: Oral

In the 7th century CE, the Pontic-Caspian Steppe of Western Eurasia experienced a wave of migrations of pastoral nomads from the East, namely from Central Asia and beyond. During those migrations, new people arrived together with innovations in material culture, new technologies, new beliefs and practices, and a new social order. The new migrants formed the Khazar Empire—a nomadic imperial confederation centered in the Volga-Don interfluve, from where they controlled various populations that inhabited the lands from modern Ukraine to Kazakhstan. Why these people migrated from the East is not entirely clear. Nomads left no records of their own. Medieval literati from the South (the Caucasus and the Byzantine Empire) saw them as invaders, although periodically, the Byzantines and the local Caucasian leaders entered into military alliances with the nomads and sought their help. Still, the stereotypes of brutal barbarians and invaders persisted in the literature. For a long time, the Khazar nomads were practically invisible archaeologically. Only in the past thirty years or so, have their ancestral graves been recognized—some have been studied and some published. But by and large, this body of material remains obscure legacy data, which deserves attention and thorough analysis. In this paper, I will deal with a sample of the Khazar burial material. I will focus on archaeological evidence which supports the view that within relatively short time after their arrival, the Khazar nomadic emigres were able to mark, ritualize, and acculturate the new landscape by burying and commemorating their dead ancestors. These actions, associated with the concept of "negative authority" (David Graeber), were paramount in the process of nomadic migration to a new territory. Nomads also rapidly recreated local exchange networks, extending trade routes and diplomacy all the way to the Byzantine Empire and to the Islamic Caliphate.

1038. Re-thinking Scandinavian-Eastern Baltic Coastal Interactions in the 'Viking East'. Transculturation and Settlement (a Case Study of Grobiņa)

Authors: Alla Kurzenkova (Gerda Henkel Scholars-at-Risk Postdoctoral Fellow, University of Glasgow)
Format: Oral

This study re-examines the Grobiņa archaeological complex (the mid-7th to the mid-9th centuries AD), a type of settlement featuring a hillfort and associated cemeteries in Latvia, by moving beyond the prevailing 'narratives of Scandinavian colonisation'. Placing Grobiņa within the wider context of Eastern Baltic coastal interaction zones, the analysis highlights the hillfort-settlement-cemetery complex and personal adornments (e.g. disc-on-bow, beak-shaped, tool and box brooches), exemplifying long-term transculturation rather than simple colonisation or assimilation. The selective 'adaptation' and re-contextualisation of some Scandinavian artefacts alongside local Baltic elements reveal a community actively negotiating its identity through these emulative practices. Rather than being seen as 'passive ethnic markers', these artefacts could be considered 'active media' in the negotiation of identities within a 'middle ground colonisation' (Mägi, 2018). Reflecting on the Grobiņa case study, the paper reveals that it represents neither full assimilation, but rather a transcultural hub within the wider Baltic and Scandinavian interaction zones. Lastly, it also makes us think about how other 'isolated' archaeological objects from 'Viking East' sites (e.g., the silver and copper alloy brooches from Kyivan Rus' hillforts) can be contextualised within the wider sphere of early medieval interaction.

1464. Latgalian expansion (7th-9th centuries AD) and lake-settlements: islands of conquerors?

Authors: Janis Meinerts (Latvian Academy of Culture)
Format: Oral

The Latgalian tribe, part of the Eastern Baltic peoples, formed and consolidated as a distinct ethno-linguistic group on the right bank of Daugava River during the 5 – 6th centuries AD. During the fallowing centuries, Latgalians expanded their territory into the lands inhabited by groups of related Baltic tribes and Baltic Finns, thus becoming the dominant cultural group in Eastern Latvia. One peculiar phenomenon connected with the Latgalian expansion is the emergence of a rare type of settlement – fortified lake-settlements on artificial platforms were constructed by the Latgallians in the lakes of Vidzeme Upland. Only 10 such sites are known up to now and only two of them have been studied in detail. Nevertheless, their construction has been explained in scholarly literature in context of violent and sudden land-grab by the warlike, migrating Latgalians, especially in context to the Baltic Finns, who are seen as driven northward or destroyed in the process. The Latgalians inhabiting the lake-settlements are portrayed as conquerors settling in unfriendly territory inhabited by vengeful past owners of the land, thus explaining the choice of constructing the fortified lake-settlements. This paper will aim to challenge this view by analysing three case studies: the lake-settlements of Āraiši and Brici and the natural Cepurīte Island settlement in Lake Indzeris. An approach using GIS environment to interpret both archaeological and palaeoecological data will be used to reconstruct the ancient landscape and settlement patterns, thus illustrating the situation before the arrival of the Latgalians, the nature of the migration processes and the changes that took place with their arrival. The paper will argue for a more source-based, case-to-case approach, highlighting the different nature that the Latgalian arrival took at each of the sites.

2324. Archaeological Evidence of Mongol Raids in the Territory of Present-day Belarus in the Mid – Late 13th Century

Authors: Mikalai Plavinski (Faculty of Archaeology, University of Warsaw)
Format: Oral

The Mongol invasion of Eastern Europe in the mid-13th century is a well-known historical event. The capture of Old Rusian towns by the Mongols, the mass extermination of their populations, and the devastation of rural areas are vividly described in both local chronicles and foreign written sources. Archaeological research conducted from the mid-20th century through the early 21st century has yielded a substantial body of evidence that largely confirms the information provided by written sources. Excavations at a number of towns – both major capital centres and so-called "small towns" of Rus' – have revealed traces of assaults and fires, abundant finds of Mongol-type arrowheads, and mass graves of massacre victims. Such features are characteristic of Mongol warfare. However, this evidence primarily pertains to the lands of southern and eastern Rus' (present-day territory of Ukraine and Russia), while the lands of Western Rus', corresponding to the territory of present-day Belarus, have remained a kind of "blank spot" on the map of Mongol raids in Eastern Europe. This paper presents an analysis of excavation materials from Belarusian towns and the identification of traces of Mongol military activity dating to the mid-to-late 13th century.

2131. The Enemy Within: Invasion and Embargo as Tools of State Warfare in the Oaxaca Valley, Mexico

Authors: Lacey Carpenter (University at Buffalo) – Sofía Pacheco-Forés (University of Minnesota Twin Cities)
Format: Oral

Conflict and sudden mobility are often correlated in the archaeological record; however the timing and nature of a relationship between these variables is complex and historically-contingent. In the Valley of Oaxaca, Mexico, the transition from the Middle

to Late Formative period (500 BCE) was a time of population movement and nucleation in the region marked by the founding of Monte Albán, a site that would be come the New World's first urban center. These population movements, documented through regional survey, coincided with possible evidence for conflict such as relocation of settlements to naturally defensible hilltops, the construction of defensive walls, and burning of public architecture at large sites. However, the nature of conflict and its relationship with these population movements is not well-understood. We examine the case of Tilcajete, one of the three largest settlements in the Oaxaca Valley at this time. The earliest occupation of the site was abruptly abandoned around 300 BCE following an episode of burning and destruction of the civic ceremonial plaza. The entire site was rebuilt 800 m upslope in a more defensible location. Following the re-building, the site's population continued to grow and persist for two centuries. We evaluate multiple lines of evidence for resistance and negotiation. Using chemical sourcing techniques such as XRF and INAA along with more traditional analyses of household assemblages to evaluate evidence for change and continuity in access to resources essential for the survival of the residents of Tilcajete. Our findings indicate that conflict continued during this period in the form of economic isolation. We document disruption in access to local, regional, long-distance resources. We argue that this is evidence of interference by other powerful sites, likely Monte Albán, whose dominance in the region was solidified by 100 BCE, coinciding with the abandonment of Tilcajete.

956. Where are the Invaders? The Case Study of the Galatians in the Eastern Mediterranean

Authors: Kevin Parachaud (UMR TRACES -Toulouse)
Format: Poster

In 280-279 BC, Celtic armies attacked Thrace, Greece, and Macedonia. After mixed outcomes (Macedonia was sacked, but Brennos died after unsuccessfully trying to plunder Delphi), other Celtic groups moved through the Hellespont, once again engaging in conflicts with local cities before threatening Byzantium. Around 277 BC, some of these groups crossed into Asia Minor, settled in central Anatolia, and became a threat to the cities and local populations of the peninsula. However, a typochronological analysis of latenian remains discovered throughout the Eastern Mediterranean reveals a different chronology from that suggested by the historical narrative. Remains from Greece predate, mainly from the 4th century BC, the attacks of 280-279 BC, while evidence from Anatolia appears later (2nd and 1st c. BC) than the assaults on the Hellenistic cities of the Ionian coast. Moreover, divergences between Anatolian and European typologies suggest local production of latenian artefacts and indicate long-term settlement processes rather than traces of sudden and violent incursions. This poster proposes an overview of the latenian remains known in the Eastern Mediterranean and a comparison between the history of the Celtic invasions, well documented in Hellenistic literary and iconographic sources, with the chronology derived from the archaeological record. The lack of correlation between these two dimensions raises questions about our ability to identify archaeologically the early phases of sudden migrations.

194 GROWTH OF POLITICAL POWER AND URBANIZATION IN SOUTHERN CAUCASIAN REGION

Theme: 7. Interaction, connectivity and mobility
Organisers: Jong-Ii Kim (Seoul National University) – Zaur Hasanov – Ceyhun Eminli (Azerbaijan National Academy of Sciences)
Keywords: the Southern Caucasian region, Scythian Kurgan, Caucasian Albania, Catacomb burial, urbanization.
Format: Regular session

SESSION ABSTRACT

In recent years, the South Caucasian region has gained increasing attention due to the discovery of numerous new archaeological sites and artefacts. These findings encompass a wide range of types and periods, for example, from Scythian kurgans to the capital city of Caucasian Albania and its associated mortuary practices such as catacomb burials, spanning from the Late Bronze and Early Iron Ages through to the Antique period (up to the 4th century AD). The artefacts recovered from these sites vividly illustrate the region's role as a crossroads of cultural exchange between East and West. Examples include Scythian art, Roman glassware, Sarmatian weaponry, and Parthian coinage, all reflecting dynamic interactions and the growth of political power in the region. This session aims to present these recent archaeological discoveries from the South Caucasus—an area seldom introduced to the Western academic world—and to explore the long-term processes of social change and urbanization as revealed through shifts in material culture.

CONTRIBUTION ABSTRACTS

1703. General issues on Kurgan in South Caucasus

Authors: Byoungrok Yu (Hanbit Research Institute of Cultural Heritage) – Donguk Yi (Sejong Research Institute of Cultural Heritage)
Format: Oral

The Southern Caucasian region, which connects Central Asia and the West, serves as a land bridge between the Caspian Sea to the

east and the Black Sea to the West. Azerbaijan, in particular, is home to numerous kurgans of Southern Caucasus. In Azerbaijan, a great number of kurgans dating from the Bronze Age (c. Fourth millennium BCE) to the Iron Age (c. First millennium BCE to 400 BCE) were identified. These kurgans display various forms across different periods and regions, believed to reflect cultural influences possibly from the northern Black Sea or Central Asia. This paper integrates existing archaeological research data from the Southern Caucasus with the presenter's own field research on kurgans, chronologically spanning from the Bronze age to the Iron Age. In specific, the study examines further on recent findings from Southern Azerbaijan, shedding light to new tomb structures and cultural aspects of Iron Age kurgans associated with Scythian influence.

2281. A preliminary report of the archaeological investigations at "Yedditepe-Fizuli", kurgan site in 2022-2025

Authors: Zaur Hasanov (Institute of Archaeology and Anthropology, ANAS) – Jongil Kim (Department of Archaeology and Art History, Seoul National University) – Byoungrok Yu (Sejong Research Institute of Cultural Heritage) – Narmin Mammadli (Institute of Archaeology and Anthropology, ANAS) – Gino Caspari (Institute of Archaeological Sciences, University of Bern)
Format: Oral

The Yedditepe archaeological site is located in Azerbaijan's Karabakh region, in a valley between the Kondelenchay and Guruchay rivers. The site consists of parallel chains of soil-built kurgans. Between 2022 and 2025, an Azerbaijan–Korea–Switzerland archaeological expedition investigated three kurgans at the site. Kurgan 3 is the largest mound, measuring approximately 5.6 m in height and 45–50 m in diameter. The soil excavated from the chamber formed two large crescent-shaped backfill features around it, covered with reed and wooden fragments. A narrow dromos was identified at the upper edge of the chamber, which had originally been roofed with massive wooden logs. Inside the chamber, a two-wheeled chariot drawn by oxen was discovered, accompanied by six horses. A human skeleton was found within the chariot cabin, together with various artifacts. Kurgan 4 revealed a complex structure consisting of a central entrance shaft and two catacombs with dromoi. The entrance shaft contained two concealed caches, yielding various gold, silver and bronze artifacts. The catacombs contained Scythian-type trilobate arrowheads, zoomorphic horse harness fittings, gold plaques, and other artifacts, along with horse skeletons and human remains. The burial architecture, finds, and radiocarbon dates place Kurgan 3 in the late 8th to 7th centuries BCE, and Kurgan 4 in the late 7th century BCE. Kurgan 5 exhibits a complex layered construction with alternating yellow and black soils, ash layers containing reed remains, wooden elements, as well as a narrow dromos and a backfill layer similar to that of Kurgan 3. Ceramic fragments, closely resemble those from Kurgan 3. Excavations at Kurgan 5 will continue in 2026. Overall, the burial rituals and material culture at Yedditepe demonstrate strong connections with Scythian traditions of the North Caucasus and Black Sea regions, while also reflecting distinctive local features in pottery and metalwork.

1716. Comparison of Kurgans between Silla and Scythia in Azerbaijan

Authors: Ikhee Nam (Sejong Research Institute of Cultural Heritage)
Format: Oral

This paper focuses on a comparative review of Silla tombs from the Three Kingdoms period of Korea and the Scythian Kurgans in Azerbaijan. Despite there is a clear differences in chronological and regional context of their construction, Silla tombs from the Three Kingdoms period of Korea and the Scythian Kurgans in Azerbaijan share a commonality, that both tombs housed a 'wooden chamber' or 'wooden cist' as a primary burial feature; furthermore, some scholars have proposed a perspective suggesting Scythian culture as a potential cultural origin of the Silla burial tradition. Therefore, this study introduces the ancient Silla tombs located in Gyeong-ju, at Southeastern region of Korean peninsula, which was the capital of Silla. Then this study focuses on the main burial feature of Silla's ancient tombs and Azerbaijan's Scythian Kurgans, termed a stone-mounded wooden chamber('Jeokseok-mokgwak'). This paper provides a concise comparison and examination regarding the tomb structure, characteristics of the tomb, and assemblages.

1756. Catacomb burials in ancient Caucasian Albania – Focusing on the Salbir site –

Authors: Sanghyun Bae – Siwon Baek (Seoul National University)
Format: Oral

Caucasian Albania is regarded as the first political power in this region. However, its material culture and lifeways have remained largely fragmented hitherto. Recent excavations disclose diverse aspects of its material culture. Life and death of people in Caucasian Albania is assumed based on mortuary practices and dwellings of the period. In this regard, 'catacomb' burials at the Salbir site are particularly noticeable. Approximately 20 catacomb burials have been investigated, each consisting of a vertical shaft, a burial chamber and a passage (or 'dromos'). These burials yielded various burial goods, including Antique pottery, armoury (i.e. iron bident and arrowheads), Roman glass, Parthian coins, beads and dress fittings. Fragments of human skeleton were also recovered. The mortuary practices mediated by these catacombs reveal that they were contemporaneous with other burial types, such as inhumation, urn, and roof tile burials, Furthermore, they demonstrate dynamic cultural influences, well exemplified by Sarmatian armoury (iron bident and arrowheads), Roman glass manufactured by blown technology, and Parthian coins. Additionally, cranial deformation observed in the skeletal remains would tell the presence of the Alans, one of the main ethnic groups in the Southern Caucasus.

Consequently, it can be argued that Caucasian Albania served as a cultural nexus in this region, bridging between various political and cultural powers such as the Roman Empire, Sarmatia and Parthia, while maintaining its own idiosyncratic culture through the mortuary practices evidenced in its catacomb burials.

1609. Funerary Practices of Classical Antiquity in the Tepebashi and Kish-Dokhun Necropolises (Azerbaijan)

Authors: Narmin Mammadli (Institute of Archaeology and Anthropology, ANAS)
Format: Oral

The Tepebashi and Kish-Doxun necropolises in northwestern Azerbaijan represent complex funerary landscapes with diverse grave types and both individual and collective burial practices dating to Classical Antiquity. This study offers a comparative analysis of burial customs at both sites, focusing on grave architecture, interment types, and associated ritual practices. At Tepebashi, burials are predominantly individual and include earth and jar graves, anatomically intact interments, disturbed skeletal remains, and graves lacking human bones; collective burial occurs only once. Separate ritual areas adjacent to some graves indicate the inclusion of ceremonial elements in the burial process. In contrast, Kish-Doxun is dominated by collective and repeated burials, extended-supine inhumations, three-tiered graves, rich grave inventories, and defined ritual areas, reflecting a more complex, multi-stage funerary process. Sarmatian-type weapons and ceramics bearing tamga (symbolic marks linked to tribal identity or pottery production) suggest cultural infusions from Late Scythian–Sarmatian–Alan interactions. At Kish-Doxun, disturbed skeletal remains, retention of grave goods, reburial of earlier remains in jars, and coexisting extended-supine burials within the same structures indicate deliberate ritual interventions rather than post-depositional disturbance. Comparative analysis shows that, despite differences in grave construction and burial organization, both necropolises share common ritual elements, including intentional skeletal manipulation and the use of designated ceremonial spaces. Ceramic assemblages at both sites reflect local Caucasian Albanian traditions while incorporating imported ritual concepts, demonstrating both continuity in local craft and the infusions of external cultural contacts. These findings enhance our understanding of social behavior and cultural interaction in the Caucasian Albania during Classical Antiquity, highlighting the interplay between local traditions and Sarmatian ritual infusions.

1390. 'Frontier Dynamics' of Burial assemblage: Case of Salbir, Qabala

Authors: Young Jae Kim – Kyo Jin Eom – Dong Kyun Han (Seoul National University)
Format: Oral

Salbir is located to the south of the Caucasus Mountains in Qabala, Azerbaijan. The ancient capital city of Caucasian Albania has been identified as a major political center with structural remains, hydraulic systems, and burial pits found within the fortified area. This presentation aims to examine the burial features at Salbir, which suggests that occupation of the area continued throughout and beyond the period of Caucasian Albania. From the unique Antique tombs incorporating roof tiles to medieval Muslim pit graves, Salbir exhibits variability and shifts in mortuary customs, reflecting its significance as a cultural frontier. Since interaction and the mixture of diverse cultures are defining characteristics of frontiers, many scholars have emphasised the dynamic processes at transition zones, which involve more than just the passive adoption of foreign influences. Graves dating back to the first century CE will be examined in this paper. In addition, it discusses burials situated within the stratigraphic sequence of the earthen rampart. A long-term burial assemblage within a single archaeological context offers potential material evidence for determining the site's occupation period and identifying significant cultural changes. These archaeological remains highlight not only the broad cultural exchanges in the Southern Caucasus's, but also the specific socio-political transformations of Salbir throughout its dynamic occupational patterns.

1718. Fortification of the Salbir site and its construction technology

Authors: Jaehyun Son (KAREC) – Seungcheol Ha (Research Fellow, Gyeongnam Studies Center) – Sanghyun Bae (Department of Archaeology and Art History, Seoul National University)
Format: Oral

The Salbir site, in Qabala, Azerbaijan, has been spotlighted for over 15 years, as it has been believed it would be the capital city of Caucasian Albania-the first state in southern Caucasus. Despite its significance, comprehensive archaeological data on the site requires further effort. Ongoing joint excavation by Azerbaijani and Korean archaeologists are gradually revealing its characteristics, most notably the earthen wall fortifications. Based upon stratigraphic evidence, inhumation and roof tile burials within the wall, combined with AMS dating confirmed that the fortification of Salbir was initially constructed during the antique period (4th C. BCE to 4th C. CE), and underwent repeated modification. Intensive research has found that this process involves various sophisticated construction technologies. In this presentation, the following topics will be discussed; (1) the construction process of earthen wall (2) Adoption of various construction technologies (i.e. stacking method and varied mud brick sizes) (3) the relationship between these diverse construction technologies and their archaeological significance in terms of cultural exchange (4) the archaeological importance of the Salbir fortress within the wide context of in southern Caucasian fortification. This presentation demonstrates the urbanization process in the region through the lens of fortification.

1628. An Iron Age Settlement in Ağstafa (Azerbaijan): The 2025–2026 Seasons at Ağalıqtəpə

Authors: Martin Gruber (University of Würzburg) – Shamil Najafov – Zaur Hasanov (Azerbaijan National Academy of Sciences)
Format: Oral

In 2025 and 2026, a joint Azerbaijani-German expedition conducted two seasons of excavations at the previously unexplored settlement mound of Ağalıqtəpə. This site is located between Dağ Kəsəmən and Ağstafa in northwestern Azerbaijan. The mound revealed substantial mud-brick architecture from the mid-1st millennium BC, including multi-room structures that were partially associated with small-scale metal production, as evidenced by ash deposits, slag fragments and furnace remnants. The material culture reflects local Iron Age traditions similar to those seen at nearby sites, as well as other influences such as Scythian-type arrowheads, pottery forms, and fabrics that can be linked to the Achaemenid presence in the South Caucasus. These discoveries shed new light on previously poorly known settlements of this period, serving as a vital counterpoint to the region's dominant funerary archaeology. The Ağalıqtəpə excavations thus offer fresh insights into mid-1st millennium BC settlement archaeology—a research avenue of paramount importance for understanding how communities shaped their living spaces through time amid shifting cultural influences.

1639. Formation process of Urban Centre in Caucasian Albania in comparison with European oppida

Authors: Jinoh Kim (University of Cambridge)
Format: Oral

Comparative analysis always brings insight to archaeology. It enables archaeologists to explore universal pattern from individual peculiarities, in the sense of "difference and repetition". As long as the naive form of diffusionism is not pursued, the geograhpical and chronological distance between the compared cases does not matter. In this regard, this paper aims to compare the fortified settlement sites in Iron Age Europe north of Alps and Southern Caucasus region. For the sites of Southern Caucasus region, I will focus mainly on the Salbir site located in Gabala region in Azerbaijan, which is often referred to as the central place of Caucasian Albania. For the sites of Iron Age Europe, the hillforts of Late Hallstatt period and oppida of Late La Tene period will be discussed. First, the fortification, settlement layout, and settlement biography will be under comparison. After that, I will compare the sites from the two regions in terms of urbanism and see whether the concept of urban is relevant for them.

1723. Urbanisation Process of Caucasian Albania – by comparison with of East Asian cases

Authors: Jong-Ii Kim (Seoul National University) – Chang Eog Kim (Sejong Research Institute of Cultural Heritage)
Format: Oral

Urbanisation in Central Eurasia has a long history since the Middle Bronze Age. For example, as already known, the Sintashta culture (approx. 2200 BCE to 1700 BCE), of northern Kazakhstan, provides clear and compelling evidence of circular pattern of multiple houses and fortifications with metal production, which implicates the emergence of settled and, in a sense, an urban way of life for the first time in the region. This tendency towards fortified settlements increased steadily and continuously across Central Eurasia; Nevertheless, identifying clear evidence for such urbanisation in the southern Caucasus remains challenging, due to the scarcity of investigated settlement sites. Salbir, the capital site of Caucasian Albania, is an exemplary case highlighting the urbanisation process in this region. In particular, the site has been suggested to be the 'first evidence of urbanisation'. It invites comparison with early Neolithic settlements in Anatolia and China, for example Çatalhöyük and the Banpo site in Xi'an, China. In addition, many arguments have been made that the earliest urbanisation in Europe began with the appearance of hillfort and oppida. European views provide valuable implications for a better understanding of urbanization process in a comparative context with southern Caucasus. Likewise, the emergence of fortified capitals and the urbanisation processes in East Asia-including Wolseong and Pungnap fortress sites, which are respective capital cities of ancient Silla and Baekje kingdom (approx. from 3rd Century AD)-implicate important features to characterise the developments in Caucasian Albania. In this paper, the urbanization process and its characteristics inherent to Caucasian Albania will be examined in a comparative perspective.

2542. Reconstructing Hydrological Landscapes and Urban Development at the Salbir Site, Azerbaijan

Authors: Mirae Jo (Washington University in St. louis) – Jaehyun Son (The Korean Association of University Museums) – Euijung Kim (Kangsan Cultural Research Institute)
Format: Oral

Across time, societies have adapted to diverse environments by developing and adopting water management techniques and transforming hydraulic landscapes. Because control over water is closely tied to the organization of labor and territorial authority, water management has played a key role in shaping urban growth and political development. Understanding how past societies understood and engineered natural hydrological systems to facilitate urbanization in challenging environments remains an important archaeological question. This presentation investigates water management systems at the Salbir site (1st c. BCE–10th c. CE) of Gabala in Azerbaijan, considered as the capital of Caucasian Albania. Excavations have revealed a sequence of water systems, including qanats (kariz), wells, pipelines, ditches, and reservoirs, that correspond with shifts in urban function. These co-changes reflect deliberate

technological choices shaped by local environmental constraints as well as changing urban roles. By examining diverse water-use strategies, we hope to contribute to broader debates on the hydrosocial dimensions of urbanism in the Southern Caucasus and beyond.

195 STRATEGIES FOR PRESERVATION, VALUATION AND MANAGEMENT OF CULTURAL HERITAGE IN AN INTERCONNECTED WORLD

Theme: 3. Museums and cultural heritage in the era of 'permacrisis'
Organisers: Asmita Basu (Army Institute of Management) – Prabir Biswas (HMG College, Kolkata) – Edoardo Bedin (Witley Court and Gardens Manager English Heritage) – Durga Basu (University of Calcutta)
Keywords: Heritage, Preservation, Management
Format: Discussion session

SESSION ABSTRACT

Heritage management plays a crucial role in preserving cultural and historical assets while ensuring their sustainable use for future generations. Effective strategies integrate conservation efforts with economic valuation to highlight the tangible and intangible benefits of heritage sites. This session explores the intersection of heritage preservation and economic sustainability, emphasizing frameworks for assessing cultural heritage, funding mechanisms, and policy interventions. It will delve into different traditional and contemporary valuation methodologies, to quantify heritage's socio-economic impact. Appropriate heritage management for the complex and vast archaeological and heritage landscape of different countries requires certain new approaches for solving different issues including development of unexplored and new sites for the sustainable growth of tourism in the region. Additionally, case studies will illustrate how heritage sites contribute to tourism, local economies, and community development. By aligning heritage conservation with economic principles, this session aims to foster a balanced approach that ensures both cultural significance and financial viability. This session also invites discussions on sustainable development, preservation, and management of lesser-known archaeological sites, rich in cultural resources, beyond the purview of the list of World Heritage sites.

CONTRIBUTION ABSTRACTS

754. Negotiating Forgotten and Sensitive Archaeological Heritage on Linapacan Island, Philippines

Authors: Zuzanna Kowalczyk (Poznan Archaeological Museum)
Format: Oral

This paper addresses forms of archaeological heritage that are forgotten, unknown, contested, or at times actively unwanted. It draws on research conducted on Linapacan Island in northern Palawan, Philippines, where more than ten previously undocumented archaeological sites have been identified in recent years. These sites span a wide chronological range, from Neolithic and Metal Age contexts to Spanish colonial remains and more recent, possibly indigenous burial sites. The research combines archaeological methods with approaches from social anthropology and has been carried out in close cooperation with local authorities and community members. While such collaboration is essential for ethical research and sustainable heritage protection, it also introduces significant challenges. Archaeological interpretations do not emerge in a neutral space but are shaped through negotiation, local concerns, historical experiences, and contemporary politics. Some sites raise sensitive questions related to colonial violence, indigenous ancestry, land use, or spiritual beliefs, complicating both documentation and public interpretation. By reflecting on these encounters, the paper explores how archaeological narratives are co-produced and how decisions about visibility, protection, and interpretation are made in practice. It argues that heritage management strategies must move beyond universal models and instead adopt context-sensitive approaches that acknowledge local epistemologies, historical trauma, and the uneven power relations embedded in colonial and indigenous pasts.

1395. Financial Planning and Revenue Generation in Heritage Management: A Study of Lesser-Known Heritage Sites in India

Authors: Asmita Basu (Army Institute of Management, Kolkata) – Anustup Chatterjee (IIT-ISM Dhanbad | Techno International New Town)
Format: Oral

Heritage management in India has traditionally focused on conservation, preservation, and cultural significance, often overlooking the critical role of financial planning and revenue generation in ensuring long-term sustainability. While prominent heritage sites benefit from structured funding, institutional support, and tourism-driven revenues, lesser-known heritage sites frequently struggle with inadequate financial resources, limited visibility, and weak management frameworks. This study examines the financial planning mechanisms and revenue generation strategies employed in the management of lesser-known heritage sites in India, with the objective of assessing their financial sustainability and operational viability. Using a qualitative & quantitative, case-study-based approach, the research analyzes selected lesser-known heritage sites across different regions of India to understand the need for structured financial planning models, diversified revenue streams, and participatory governance frameworks that involve local communities and stakeholders. By linking financial management with heritage conservation, the study contributes to policy discussions on sustainable heritage management and offers practical insights for heritage institutions, policymakers, and conservation practitioners seeking to enhance the financial resilience of India's lesser-known heritage sites.

2035. Archaeological sites in local tourism and promotion strategies: two case studies from Poland

Authors: Jan Czeski – Paulina Sowa (Adam Mickiewicz University, Poznań)
Format: Oral

Our paper discusses the results of research conducted in 2024 and 2025 within the framework of the project "The value of archaeological heritage from the perspective of local communities – a comparative analysis". It addresses key issues of heritage management and the sustainable use of archaeological resources by examining how local tourism and promotional strategies shape the socio-economic visibility of heritage sites. The analysis is based on a methodology combining a review of relevant academic literature and local policy documents—particularly development strategies—with field research carried out in the summer of 2024. It compares two archaeological sites in Poland — Wietrzychowice and Lubomia — regarding their integration into local tourism development and heritage management frameworks. The first case study concerns a Neolithic megalithic complex known as the Kuyavian Pyramids, while the second focuses on an exceptionally well-preserved early medieval stronghold, one of the largest in Silesia. Both sites are located in rural areas, possess clearly distinguishable forms, and cover extensive areas, yet they differ markedly in terms of their management approaches, public visibility, and contribution to local development. Wietrzychowice constitutes a central element of the local tourism strategy, which integrates natural and cultural heritage and contributes to sustainable tourism growth. The site forms part of the main local tourist route and hosts a nationally recognised archaeological festival, generating both economic and social value for the local community. By contrast, the Lubomia stronghold remains largely absent from local tourism and promotion strategies and, despite its significant heritage potential, functions primarily within academic discourse, with limited impact on the local economy and community engagement. By analysing these contrasting cases, the presentation seeks to identify the factors shaping effective and ineffective heritage management practices and to highlight the role of local policies and valuation approaches in the sustainable development of lesser-known archaeological sites.

2727. Heritage: has it reached the saturation point? Reflection on heritage management and its financial viability in United Kingdom

Authors: Edoardo Bedin (Independent researcher)
Format: Oral

Heritage management has grown from a niche study to a well established field with the aim to preserve and promote heritage to present and future generations, but it faces the challange of a world in constant evolution, changes of interests by users, new technologies, new competitors in an environment which could be at saturation point. Like any other business, heritage management needs to reflect on what it has achieved since its first notable example (National Trust 12th of January 1895) and how it can rejuvenate and evolve. In United Kingdom there are 5 main heritage organisations: National Trust, English Heritage, National Trust for Scotland, Historic Scotland and Cadw. The author will reflect on their achievements and challenges and draw comparisons with non-heritage businesses to propose ways to survive the current challenging economic environment which is posing a threat to preserving and promoting our heritage and maintaining adequate staffing levels and creativity within its field.

196 LATE BRONZE AGE IN EUROPE, AS A REVOLUTION IN THE SOCIAL, ECONOMIC AND ANTHROPOLOGICAL DOMAINS

Theme: 7. Interaction, connectivity and mobility
Organisers: Mihai Wittenberger (National History Museum of Transilvania) – Jeanette Varberg (National Museum of Denmark) – Alexandra Comsa (Vasile Piarvan Institut)
Keywords: bronz, social, economic, demografic, revolution
Format: Regular session

SESSION ABSTRACT

The purpose of this session is to try to decipher the revolutionary changes which took place between the Middle and Late Bronze Age. First of all, bronze becomes popular, even if there are also prestige goods, some made from precious metals. The enormous quantity of bronze pieces (tools, weapons, ornaments, moulds, ingots) proves a radical change in society regarding the metal use. Even if bronze metallurgy, as a technique, remains the same, there are many other aspects that should be highlighted. The changes we are referring to encompass all economic, social and demographic, as well as other anthropological aspects. The economic changes that occurred in society, from the production to the sale system, made this period a revolutionary one. Trade develops extraordinarily, exchanges being now trans-European. The most eloquent example is the circulation of glass and amber in the South-North direction and vice versa. A second objective of this session should be to establish and define the characteristics of the economic life, as it could be archaeologically documented in the new stage of development of the societies, possibly in comparison with the previous

period. It would be interesting for the participants to focus on the causes of these changes, of economic life, of trade exchanges, of relations between cultures and people, from all points of view. Of course, in society, the demographic changes, as resulted from the economic development, had played an important role. We should try to evaluate their role in those profound transformations, which could be archaeologically and anthropologically observed in the communities from the half of the second millennium BC. It is a known fact that that during that time, two large groups of populations penetrated the central and eastern space of Europe: Noua-Sabatinovka-Coslogeni and the Tumulars in central Europe.

CONTRIBUTION ABSTRACTS

653. The Bloody Rise of Velim: Biological Consequences of Demographic Change in the Tumulus Culture Revealed by New Bioarchaeological Data

Authors: Dalia Pokutta (Stockholm University | Rzeszow University)
Format: Oral

The transition from the Middle to the Late Bronze Age in Central Europe is widely recognised as a period of profound economic and social transformation, marked by intensified metallurgy, long-distance exchange networks and demographic growth. Far less is known, however, about the biological costs of these changes for local communities. This paper addresses this gap through new large-scale bioarchaeological evidence from Velim, one of the largest fortified settlements of the Tumulus Culture in Central Europe (c. 1800-1200 BC). Velim represents an exceptional case study of a densely occupied, strategically fortified center embedded within trans-regional exchange systems. The site is characterised by complex depositional practices and abundant evidence for interpersonal violence, suggesting prolonged social tension during a period of rapid economic expansion. Here, we present an integrated dataset comprising 50 new AMS radiocarbon dates, dietary reconstructions for approximately 100 individuals based on stable carbon and nitrogen isotopes, and several hundred $^{87}Sr/^{86}Sr$ measurements obtained through high-resolution strontium isotope analysis. These data allow, for the first time, the construction of a refined internal chronology for Velim alongside detailed reconstructions of mobility patterns, dietary strategies and population dynamics across successive occupation phases. The results reveal marked temporal shifts in mobility regimes and subsistence practices, consistent with increased population density, intensified resource exploitation and heightened interaction between local and non-local groups. Taken together, the bioarchaeological evidence points to significant biological stress accompanying economic growth, manifested in altered life histories and changing patterns of mobility and diet.

832. Anthropological changes occuring in the Bronze Age of Romania

Authors: Alexandra Comșa (“Vasile Pârvan” Institute of Archaeology -Bucharest)
Format: Oral

Bronze Age was a period of intense transformations, in all domains of life, but also an economic revolution, for the entire Europe. On the teritory of Romania, the population movements that manifested all accross the continent had partly modified the characteristics of the local populations, both concerning the general appearance of their body, but also their cephalic index. For the last mentioned situation, we could observe that the weight of the intruding populations was rather significant and we refer here to the bearers of the tumular ochre burials, like Yamnaya, Katakombnaya, or Mnogovalikovaya (with a predominant influence exerted by the Yamnaya communities) which determined the diminishing of the cephalic index in the extra-Carpathian region of Romania, but also to those of the Otomani Culture which, on the contrary, resulted in the increasing of its value. Demographically, it was observed an increase of life duration with about four years, resulted from the improvement of their living conditions, which were determined by the significant economic and commercial changes that occured at that time. Anyway, further and more detailed studies have to be done, in order to establish the full amplitude of these changes, from anthropologicall point of view.

996. Observations on the Social, Economic and Spiritual Revolution in the Late Bronze Age of the North-Eastern Carpathian Area

Authors: Bogdan Niculica (National Museum of Bukovine)
Format: Oral

The large-scale spatial analysis of cultural phenomena specific to the Bronze Age, with a particular focus on the north-eastern Carpathian area, allows for the reinterpretation of an entire body of earlier discoveries in the light of the most recent research. Our contribution primarily addresses several key aspects of the transformation of Bronze Age society within the studied region, aiming at a precise definition of its cultural content, chronological framework, and internal periodisation. Secondly, we focus on the artefact repertoires and on understanding the technologies involved in the production of copper and bronze objects, highlighting local evidence for metallurgical activities, corroborated with the spiritual dimension of bronze hoarding practices. The specificity of this large-scale, Europe-wide phenomenon of hoarding can be further understood through the detailed discussion of selected case studies, as well as by integrating certain categories of exogenous prestige objects which, when discovered in the north-eastern Carpathian area, shed light on long-distance connections, distinctive social status, and refined chronological considerations. The systematic inventory of copper and bronze artefacts and their comparative analysis now allow us to approach from a new perspective issues related to typological developments and changes in hoarding practices, within which Middle and Late Bronze Age communities of the region displayed particular preferences that require further clarification. Our discussion also highlights amber, salt, stone

maces and the characteristics of settlements and barrow cemeteries within broader trans-Carpathian exchange networks. Special attention is devoted to the funerary landscape, in which tumuli occupy a central position, recent research carried out over the last 25 years allowing the identification of new traits in funerary behaviour.

1103. Analysis of the exchange network of singular objects and personal ornaments in the Late Bronze Age of eastern Iberia

Authors: Esther Frances Galvañ (INAPH, University of Alicante) – Gabriel García Atiénzar – Virginia Barciela González (INAPH, University of Alicante | Departamento de Prehistoria y Arqueología, University of Alicante)
Format: Oral

The Late Bronze Age (c. 1500–1250 cal BC) represents one of the most transformative periods in the recent prehistory of the Iberian Peninsula. Along the eastern façade, the reorganisation of different cultural groups laid the foundations for an increasingly structured society, characterised by the growth of settlements and the development of processes of territorial and social hierarchisation. These changes are clearly reflected in the economy, where, alongside a consolidated agricultural and pastoral base, an intensification of exchange networks involving prestige goods can be documented, particularly personal ornaments and other singular items. In order to analyse the dynamics and scope of these networks, a multiscalar approach is proposed. At the small scale, the main materials involved in exchange are identified, focusing on personal ornaments made from exogenous raw materials—such as gold, silver, ivory or glass—as well as singular objects characterised by advanced manufacturing techniques, most notably three-barbed, tanged bone arrowheads. At an intermediate scale, the distribution patterns of these objects and their spatial articulation are examined, allowing for the identification of possible circulation axes and areas of concentration. Finally, at a big scale, a historical interpretation is proposed, aimed at evaluating contacts between different groups and the role of these networks in processes of social differentiation. From a methodological perspective, this study is based on Social Network Analysis (SNA), understood as a relational approach that enables the modelling of interactions between archaeological sites. Through the application of specific metrics, SNA facilitates the analysis of network structure, the identification of central and peripheral nodes, and the assessment of cohesion and hierarchisation within the system, providing a robust framework for the historical interpretation of social dynamics during the Late Bronze Age.

1197. The Glass Road – Exchange Networks between South Scandinavia and the Eastern Mediterranean in the Late Bronze Age

Authors: Jeanette Varberg (National Museum of Denmark)
Format: Oral

Around 1400 BC, the first glass beads appear in Danish Bronze Age graves. Chemical analysis shows that the glass was produced in Mesopotamia and Egypt. The same type of glass has been found throughout Europe, indicating that an exchange network between the Eastern Mediterranean and South Scandinavia was being activated (c. 1400 BC) and expanded (c. 1300 BC) during the transition between the Central European Middle and Late Bronze Age. Glass beads are often found together with amber, suggesting that they were part of the same exchange network — one material coming from the south (glass) and the other from the north (amber). Part of the presentation will discuss glass analyses of beads excavated at Cioclovina cu Apă Cave between 2016 and 2019. These beads were made using Mesopotamian raw glass; however, they were probably produced in a secondary workshop that cannot be identified through chemical analysis alone. This suggests that Mesopotamian glass was widely distributed during the Bronze Age. Its presence has been documented at Amarna in Egypt, in Romania, France, Germany, and Denmark in the far north. By the transition between the Middle and Late Bronze Age, long-distance exchange systems had developed connecting the shores of the Euphrates and Tigris in Mesopotamia and the Nile in Egypt with the beaches of the Baltic and North Seas, as well as key intermediary sites such as Cioclovina cu Apă Cave in Transylvania. Nordic amber and Egyptian and Mesopotamian glass linked the widest expanse of this world, the two materials forming a kind of dialogue between exotic materials from distant lands.

1742. At the Currents of Change: Connectivity and Mobility at the Late Bronze Age cemetery of Inzersdorf, Austria

Authors: Michaela Fritzl (Austrian Academy of Sciences)
Format: Oral

The Bronze Age is widely recognised as a period of profound social transformation across Europe, reflected in changing burial practices, settlement patterns, and material culture. From the expansion of the Middle Bronze Age Tumulus culture to the emergence of the Urnfield phenomenon, increasing homogeneity in archaeological assemblages has often been linked to intensified connectivity and, in some cases, population movements, potentially facilitated by bronze technology and long-distance exchange networks. This paper presents results from the Urnfield-period cemetery of Inzersdorf ob der Traisen, located in the Lower Traisen Valley (Austria) near the Danube confluence. Tributary rivers (Traisen and Kamp) provided access to southern and northern regions, while the Danube formed a major west–east corridor for supra-regional interaction. Material culture analysis, focusing on imports and external influences, is combined with strontium isotope data from 182 individuals to investigate patterns of mobility and connectivity during the formation of the Urnfield phenomenon. A regional baseline of bioavailable strontium, established using 163 plant samples, indicates intensified land use along the valley floor and river corridors during the later Urnfield period. While individual

mobility appears limited, the combined isotopic and archaeological evidence reveals structured interaction patterns. Early phases of cemetery use show stronger eastern material affiliations, consistent with Urnfield expansion trajectories, while western influences increase during later phases. Raw material procurement patterns further reflect the site's favourable geographical position. Bayesian modelling of 49 radiocarbon dates and correspondence analysis document a gradual transition from Middle Bronze Age-influenced burial rites to standardised Urnfield practices. Integrated with an analysis of local topography and surrounding settlement patterns, these results embed the Lower Traisen Valley within wider regional networks of interaction. Overall, the study highlights how local developments, situated within broader supra-regional exchange systems, shaped Late Bronze Age social change.

668. Economic Life in the Late Bronze Age in the Carpathian Space

Authors: Mihai Wittenberger (National History Museum of Transylvania)
Format: Oral

We will try to discern, based on the extent of the information we have, the revolutionary nature of the economy in the Late Bronze Age in the Carpathian area. Starting from the inventory of settlements, a picture of economic life can be drawn: the osteological remains speak of animal husbandry and the carbonized grains and tools discovered add important data about plant cultivation, diet and household economy. The presence of bronze pieces and patterns also gives us a picture, even if incomplete, of metallurgy the end of the Bronze Age. Unlike the Middle Bronze Age, now bronze pieces are not only prestigious but also accessible tools. The huge number of pieces is proof of this. In just one deposit, Uioara, over 6,000 bronze pieces were discovered: sickles, celts, saw blades, bronze cakes, bracelets and others. From the data we have, we cannot speak of a discontinuity between the metallurgy of the Middle and Late Bronze Age, most likely due to the influence of the local element, of the Wietenberg tradition, which certainly held the secret of processing bronze with tin. An argument in this sense is the technology of processing bronze with tin, which did not change essentially, but only improved. This seemingly trivial change actually hides a profound change in mentality and perhaps in the structure of society. The Carpathian space is very rich in mineral resources: salt, gold, copper, silver, lead and even tin. I will try to present the changes in the main areas of economic activity: agriculture, animal husbandry, mining and metalworking, stone processing, trade both short-distance and trans-European, from the Mediterranean Sea to northern Europe.

1270. Late Bronze Age Communities in the Eastern Carpathians. Classical and new interdisciplinary approaches

Authors: Vasile Diaconu (Neamt National Museum Complex)
Format: Oral

The Late Bronze Age communities in Eastern Romania developed during the XVI-XII centuries BC and are associated with the Noua culture that experienced various territorial dynamics. The lifestyle of these populations was focused on pastoral practices, leading thus to a more intense habitation of the low-lands areas, with open landscape and dominated by forest-steppe vegetation. In the hilly Subcarpathian area, the Noua culture communities are less frequent, reason for which the investigation of Late Bronze Age sites has not been very intensive. Over the last two decades, efforts have been made to conduct a more consistent analysis of the Noua culture communities in the area at the foot of the Eastern Carpathians, in order to map settlements patterns, the anthropic impact on the natural environment, the use and reliance of resources, the factors of attractiveness, but also the connections to other populations and geographical areas. Although no extensive archaeological research has been done, new interdisciplinary approaches allow us to better understand these groups. Particular emphasis was placed on studying the settlements configuration and inventories. In order to do this, we used magnetometry to map and assess the shapes and dimensions of sites, while selected artifacts went through various laboratory procedures such as use-ware analysis, petrography and ceramic study. Several recent burial findings were also analyzed. Until recently there were no known absolute chronological landmarks for the Late Bronze Age in the Subcarpathian region of Eastern Romania either. Here we also provide 14C dates for a couple of sites, providing clarifications about the temporal setting of this culture. Overall, we show that interdisciplinary studies and the usage of new laboratory techniques complement classical research methods, offering a more complex and detailed picture of the lifestyle of Late Bronze Age communities in Eastern Europe.

1739. The Golden Fleece, between legend and reality

Authors: Mihai Wittenberger (National History Museum of Transilvania)
Format: Poster

We all know the legend of the Golden Fleece, but this time we move the legend from Cholchida (Caucasus) to the reality of the Apuseni(Western) Carpathians at Roșia Montană. A few years ago, a menhir representing a miner was discovered. The equipment is well defined: a lamp, an axe-pick and a bag on the back for ore. Whether it was a deity of the miners or a representation of a miner is still a mystery. Personally, I think it represents a deity. Also in Transylvania (in the Sic-Gherla area) another menhir, of a female gender, was discovered. This one comes from a saline area, where salt is extracted by evaporation. In the 1930s, a great photographer, Teofil Pop, photographer the gold-mining peasants of Roșia Montana (Alburnus Maior in Roman times). The equipment of the children who entered the mine is identical to that on the menhir after breaking the raw ore with stamps, the resulting material was washed through sheep fleece. The source of the legend, Golden Fleece, very likely comes from the technique used. The interpretation from the Greek legends must be considered metaphorical.

2237. Indigenous and Allochthonous, Social Status, Elites. From the Late Bronze Age to the Iron Age in the North-Eastern Carpathian Area

Authors: Bogdan Niculica (Muzeul National al Bucovinei)
Format: Poster

The present poster addresses the dynamics of change between indigenous and allochthonous elements in the north-eastern Carpathian area from the Late Bronze Age through the Iron Age. Particular attention is paid to transformations in settlement patterns, the funerary landscape, and the material manifestations associated with social status and the expression of elites. The integrated approach correlates data concerning settlement organisation and funerary practices with the circulation and deposition of specific categories of artefacts carrying significant symbolic and social value. Indigenous resources—such as salt, copper and gold, as well as human resources—are examined within the broader context of ancient communication routes that traversed the north-eastern Carpathian region. Stone and copper axes, together with bronze hoards, represent key markers for understanding both local continuities and external influences, reflecting indigenous technological traditions alongside mechanisms of cultural transfer. At the same time, prestige objects made of gold and bronze, whether isolated, integrated into funerary contexts, or associated with ritual depositions, signal processes of social differentiation and the consolidation of elitist structures acting as mediators between local communities and supra-regional networks. The evolution of a standardised funerary landscape, characterised by accentuated symbolism—most notably tumuli organised into cemeteries—constitutes a clear indicator of profound ideological and spiritual transformations, as well as of the reconfiguration and redefinition of social identities among allochthonous groups interacting with the indigenous cultural substrate. Consequently, the north-eastern Carpathian area emerges as a dynamic zone of ethno-cultural synthesis, distinctly structured into layers of power, in which emerging elites played a central role in shaping and articulating new social and cultural models from the end of the Bronze Age into the Iron Age.

198 DIGGING SITES OVER AND OVER AGAIN: EVOLVING APPROACHES, VISIONS, AND METHODOLOGICAL INSIGHTS

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Eva Kars (Earth Integrated Archaeology BV) – Dušan Medin (University of Donja Gorica, Faculty of Culture and Tourism, Podgorica) – Ernst Dekkers (EARTH Integrated Archaeology BV)
Keywords: Interdisciplinary approaches, Long term excavations, Contract archaeology, Methodological development, European network, Multi-scalar
Format: Regular session

SESSION ABSTRACT

This session brings together projects from long-term and repeatedly excavated archaeological sites — from early medieval trading centres such as Dorestad, Ribe, Kaupang, and Birka to major Roman and Greek settlements and sanctuaries and prehistoric cult sites. These sites share a common challenge: decades of excavations have transformed research questions, field strategies, and interpretive frameworks. Such long-term investigations raise crucial questions about the advancement of archaeological practice. How have our archaeological field work strategies, research agendas and theoretical frameworks changed, and how should we investigate these sites today? The session explores how approaches and visions have shifted — from early culture-historical traditions toward interdisciplinary, multi-scalar, and technologically advanced frameworks that increasingly intersect with cultural heritage management and contract archaeology. central focus will be the interaction between academic and commercial approaches. We will look at how new data systems, digital recording tools, and the combination of different research methods are changing the way projects are designed and how findings are interpreted. With these new ways of working — which often include faster workflows, standardized procedures, and data-driven decision-making — we ask: Do current methods give us the tools to revisit and update earlier conclusions? Or do they, within these new operational models, actually risk fixing existing narratives even more firmly in place? We also aim to address the broader European dimension of these practices: how archaeologists working on sites with continuous or recurrent excavations can exchange experiences and methodologies across regions and time periods. By linking projects from diverse archaeological traditions and periods, the session seeks to encourage comparative thinking and a discussion on what constitutes "progress" in archaeology conducted over decades, balancing scientific continuity with practical innovation.

CONTRIBUTION ABSTRACTS

978. Re-excavating Dorestad? The value of already excavated terrain in the Vicus Famosus

Authors: Ernst Dekkers – Arhur Griffioen – Timo Verhoeven – Eva Kars – Nils Schuurmans (Earth Integrated Archaeology BV)
Format: Oral

Since the middle of the 19th century archaeological excavations have taken place in Wijk bij Duurstede, on which grounds Dorestad,

the famous early medieval trade-settlement, was discovered. Especially since 1967 a lot of this site has been excavated: about 65 hectares. Most of those areas have been built over with new quarters of the ever-growing town of Wijk bij Duurstede. The last few years however, the first buildings in those quarters, developed since the nineteensixties, have been demolished to make way for new developments again, unveiling again parts of already excavated terrain. Since this part of Dorestad had been excavated, no archaeological remains were expected. Therefore, in this part of Wijk bij Duurstede no regulations on archaeology were in place anymore. However, while the contractor was busy digging trenches for foundations, pipes and drains, a human burial had come to light. EARTH Integrated Archaeology was called in to inspect the burial and come up with advice on how to proceed. The two-week excavations that EARTH executed yielded interesting new information. Features in the already fully excavated former trenches were not excavated at all, not sectioned etc. Especially many of the waterwells/cesspits seem not to have been excavated below groundwater level. The process itself, but also the consequences of the fact that important archaeological remains of Dorestad were/are still in place, raises questions: • How can we assess the value of the already excavated archaeological remains of an important site like Dorestad, which has proven to still hold a lot of information? • How can local, regional and national authorities deal with these archaeological remains? • How can we link digitally recorded data to analogue data? • What new knowledge has been gathered in the recent excavations by Earth Integrated Archaeology?

2366. Re-excavating Prehistoric Settlements: A Geoarchaeological Protocol for Updating Interpretations at Long-Term Sites from the ERC GEODAP Project

Authors: Federico Polisca (University of Padova | University of Bologna) – Marta Dal Corso – Francesco Breglia – Cristiano Nicosia (University of Padova)
Format: Oral

Within the framework of the ERC "GEODAP - Geoarchaeology od Daily Practices" project, a dedicated geoarchaeological excavation protocol has been developed for prehistoric settlement contexts, specifically addressing sites with long research histories and earlier excavation phases conducted using markedly different methodologies. The case study discussed here, the terramara site of La Muraiola di Povegliano Veronese (Middle Bronze Age, Verona, Italy), was partially excavated during the 1980s, resulting in an interpretative framework that was conditioned by a culture-historical approach and limited stratigraphic resolution. New excavations took place between 2022-2025. The geoarchaeological approach adopted by GEODAP places stratification – largely anthropogenic in this context – at the centre of archaeological interpretation, treating it as an artefact of human behaviour. Stratified deposits are considered not only as containers of finds, but as archives of contextual information for those finds and meaningful records of ancient practices and activities in their own right. Excavation was directed by geoarchaeologists and systematically coupled with targeted micromorphological sampling at key points for interpreting space use, diachronic transformations, and the formation processes of deposits and structures that proved ambiguous at a macroscopic scale. This strategy provided a robust stratigraphic framework for extensive archaeobotanical sampling carried out for each stratigraphic unit in close coordination with specialists present on site, together with zooarchaeological and artefact analyses. Field observations and micromorphological data were integrated within a GIS environment, supported by photogrammetric documentation. A rigorously constructed and graphically enhanced Harris Matrix enabled the integration of all datasets within a coherent stratigraphic grid, forming the basis for improved radiometric dating and Bayesian modelling. Crucially, the application of this protocol has led to the modification – and in some cases complete reinterpretation – of earlier conclusions, demonstrating how updated field strategies and analytical integration can critically reassess legacy data rather than simply reinforcing established narratives.

1134. Urban Archaeology in Motion: Methodological Shifts and Long-Term Research at Budva (Montenegro)

Authors: Dušan Medin (Faculty for Culture and Tourism University of Donja Gorica | Association for Cultural Development "Bauo") – Martina Blečić Kavur (Faculty of Humanities University of Primorska)
Format: Oral

Budva, located on the eastern Adriatic coast of Montenegro, preserves an archaeological record spanning over 2,500 years of continuous occupation. Archaeological research began in the late 1930s with the chance discovery of Hellenistic and Roman necropoles near the fortified Old Town. Early investigations, conducted without local institutional heritage frameworks, caused significant disturbance and dispersal of finds, many of which entered regional museums or private collections. Subsequent campaigns in the 1950s, led by teams from Croatia and later Serbia, introduced more systematic approaches but remained limited in scope and continuity. The most extensive excavations followed the destructive 1979 earthquake, under emerging Montenegrin heritage institutions. However, prolonged deficiencies in local heritage infrastructure, including the absence of a museum and specialised staff, resulted in uneven methodological practices and fragmentary records, leaving significant archaeological remains unpublished for decades. Only in the early 2000s, with the establishment of the Budva City Museum, could archaeological finds be systematically curated, studied and displayed. This paper examines Budva as a site of repeated but discontinuous investigations, shaped by evolving methodological paradigms, institutional capacities, and socio-political contexts. Focusing on ancient necropoles and museum collections as cumulative outcomes of long-term research, it explores how successive interventions reshape archaeological interpretation, how earlier practices constrain contemporary analyses, and how future work on complex urban sites can reconcile scientific continuity, methodological innovation, and heritage management. By reflecting critically on the history of excavation at Budva, the study contributes to broader debates on the evolution of urban archaeology, long-term research strategies, and the adaptive management of Mediterranean coastal heritage.

2699. From Paper to Point Clouds: Re-investigating "Old" Sites Through Digital Synergies

Authors: Nenad Joncic (IARC)
Format: Oral

Revision excavations of previously investigated archaeological sites are often undertaken to address unresolved questions or respond to new development-driven opportunities. This session examines how contemporary digital technologies have fundamentally reshaped the planning, execution, documentation, and interpretation of such "legacy" sites through three case studies from Slovenia and Serbia. At the Zavrč site, emphasis is placed on effective data management: from collection and documentation to the analysis of legacy digital archaeological data and their impact on archaeological theory. The presentation covers changes in digital archaeology at the European level, with particular focus on format obsolescence, the need to create metadata and paradata, and recommendations for long-term data accessibility and usability. This highlights the transformation of archaeological discourse through digital data. The eponymous Starčevo site (Grad-Starčevo), a key Early Neolithic settlement (ca. 6200–5300 BC) and the namesake of the entire Starčevo culture, has been excavated since 1928, with significant revision campaigns in 1969 and 2003/2004. New investigations launched in 2025 began with the digitization of historical documentation, georeferencing of old plans and maps, acquisition of archival aerial photographs, analysis of satellite imagery, new field prospection, and drone-based LiDAR scanning at three adjacent locations with Neolithic remains. This integrated approach enables a better understanding of pit-houses, painted pottery, and early agriculture at this site of exceptional cultural significance. At Donja Branjevina, excavations resumed in 2020 to establish precise stratigraphy and resolve open questions. From the outset, cutting-edge technologies were integrated: for the first time in Serbia, mobile LiDAR scanning (using iPhone Pro/iPad Pro) was applied for documentation, complemented by drone LiDAR and thermal imaging—establishing an innovative methodology for high-resolution spatial recording. These examples illustrate the transition from paper archives to multidimensional digital point clouds, improving data quality, interoperability, and theoretical contribution while addressing challenges of digital obsolescence and preservation.

2642. New methods - old problems: Benefits and challenges of integrating scientific innovation into established ways of working

Authors: Andy Boucher – Christopher Carey – Peter Turner – Ruschane Joginder (Headland Archaeology)
Format: Oral

Excavation is a destructive process, the very nature of gaining an understanding layer by layer of a site removes those same deposits and features leaving nothing for future methods to explore. This paper explores the potential of two innovative scientific approaches to excavation and our understanding of sites. It will look at the use of detailed geophysical survey applied direct to the excavation surface alongside the vertical susceptibility profiling of deposits across excavation sites. The aim is to place these methods in the hands of the site archaeologist rather than the specialist. We look at the value of the information recovered and how it contributes to understanding elements of an excavation that standard observation fails to elucidate. The use of a range of detailed geophysical survey can distinguish the orientation of features such as kilns allowing interventions to be planned in advance rather than having to blindly remove deposits, this approach is particularly suited to long running excavations allowing better planning for the next season at the end of the last. We also look at the relationship between susceptibility profiles to advise on features that fill concurrently as well as ones that hold more detailed clues about depositional sequences. Finally, we consider why, when these methods show such strong potential, it is difficult to change the ways in which people have always worked. We will also look at the impact of changing methodology over part of a site where previously a different one was used. We are looking to empower the next generation of archaeologists with accessible scientific methods that will further advance our understanding of past societies and the environments they occupied.

2539. Covering Old Ground: Ground Stone Tools as Part of Legacy Data from Ayia Irini, Kea

Authors: Jami Baxley Craig (Florida State University)
Format: Oral

Excavations at the Bronze Age town of Ayia Irini on Kea, conducted in the 1960s-70s by the University of Cincinnati, uncovered thousands of artifacts inside and nearby houses, much of which is currently under (re)study. Using the ground stone assemblage as a case study, this paper discusses the various challenges involved in the ongoing analysis of the Ayia Irini archaeological record. Two post-excavation practices, combining lots and the discard of less diagnostic or interesting artifacts, impact greatly the current state of the assemblage. In addition, the roof of the original apotheke collapsed in 2007, requiring the relocation of all stored artifacts to a new apotheke. The ground stone assemblage was especially impacted by this event: their field tags were damaged or lost, and the subsequent storage of many on the floors and in the bathroom of the new apotheke led to their poor preservation. These issues exacerbate the already difficult nature of ground stone tool studies of the prehistoric Aegean, where they have often been relegated to appendices of early excavation volumes and rarely integrated into major interpretations of sites. The recent examination of archival excavation documents and micro- and macroscopic studies of the tools emphasize that ground stone tools from legacy data can yield important technological and social information about prehistoric peoples if using the right investigative techniques. As studies of ground stone tools have become less marginalized in the prehistoric Aegean over the last 20 years, it is necessary that we readdress those recovered from earlier excavations, utilizing new analytical techniques that have developed over the past two

decades. This paper elucidates the ways in which we can begin to integrate this artifact class into interpretations of BA sites excavated in 20th century and enhance our overall understanding of socio-economic practices of houses in the prehistoric Aegean.

2742. Magnetic Susceptibility Fingerprinting: Old method - new approach

Authors: Andy Boucher – Christopher Carey – Ruschane Joginder (Headland Archaeology)
Format: Poster

To advance understanding in quantum science Richard Feynman proposed that it is necessary to guess, theorise and then test when developing any idea. The poster outlines an idea that has developed along the lines of this methodology. It looks to explore the difference in understanding of an archaeological site both with and without the application of a new method for understanding and comparing depositional sequences. Firstly the variations in susceptibility are compared against the excavator's original interpretation. The variation between two simple metrics (does a feature have one fill or more?) is illustrated across 100's of features measured using this method. Secondly we explore whether there are patterns in the data and how these can help us group or understand different features across a site based on changes in surrounding depositional environments throughout the period that the feature served as a receptor. Overall the poster aims to highlight the value of introducing science to archaeological investigations at any stage of the work on site.

202 MOUNTAIN HISTORIES THROUGH SOILS AND SEDIMENTS: GEOARCHAEOLOGICAL FRAMEWORKS FOR HIGH-ALTITUDE LANDSCAPES

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Kerstin Kowarik – Valentina Laaha (Austrian Academy of Sciences) – Francesca Cornella (Newcastle University) – Isabella Prackwieser (University of Innsbruck)
Keywords: Mountain Archaeology, Geoarchaeology,, Digital Archaeology, Bioarchaeology, Soils, Sediments
Format: Discussion session

SESSION ABSTRACT

Mountain regions pose distinct challenges for archaeological research. Sparse and discontinuous material traces, fragmented preservation, and dynamic environmental processes—combined with the logistical difficulties of accessing high-altitude and high-relief settings—create enduring obstacles for fieldwork and interpretation. In recent years, however, advances in bioarchaeology, geoarchaeology, and soil science—alongside targeted digital and instrumental techniques—have markedly improved our capacity to investigate human engagement with mountain environments. Crucially, mountain soils and sediments have emerged as central archives, preserving evidence of ecological change, land-use practices, and human activity across diverse temporal and spatial scales. This session brings together researchers who develop and apply innovative approaches to study mountain soils and sediments as primary repositories of past human–environment interactions. We are especially interested in interdisciplinary frameworks that integrate geoarchaeological, bioarchaeological, and soil-focused digital methods to access, characterize, and interpret these sedimentary archives. Relevant approaches include, but are not limited to: soil geochemistry, multi-element and isotopic analyses, micromorphology, biomolecular techniques (e.g., ancient DNA, lipids, proteins), geophysical prospection specifically applied to soil stratigraphy or sediment architecture, and digital terrain or erosion modelling used to contextualize soil formation and sediment movement. We also welcome contributions addressing sampling strategies, scale-related challenges, and the practical or ethical complexities of working in dynamic mountain environments. We welcome: • Approaches that leverage new methodological advances to generate fresh perspectives, theories, and research questions grounded in soil and sediment analysis • Critical assessments of methodological effectiveness, including partially effective, ineffective, or still-emerging soil- or sediment-focused techniques • Contributions from researchers whose soil/sediment methods have strong potential for mountain contexts but have not yet been applied there By fostering exchange across disciplines and scales, this session seeks to deepen expertise and build synergies in the soil- and sediment-oriented geoarchaeological study of mountain landscapes.

CONTRIBUTION ABSTRACTS

586. SLOPE: Soil Loss and Pastoral Ecologies. A Digital Geoarchaeological Approach

Authors: Francesca Cornella – Francesco Carrer (Newcastle University) – Tim Kinnaird (University of St Andrews) – Thomas Reitmaier (Archaeological Service of the Canton Grisons) – Lisa-Marie Shillito (Durham University)
Format: Oral

Soils constitute invaluable natural archives for reconstructing landscape changes, especially in high-altitude mountain regions. Recent studies suggest that different long-term pastoral strategies have shaped mountain landscapes and triggered soil erosion since prehistory. Despite growing research, the functional relationships between pre-modern pastoralism and soil loss remain poorly understood, suggesting that some practices might have been more sustainable than others. This study applies Digital Geoarchaeology to investigate the extent to which long-term Alpine farming (Alpwirtschaft) triggered soil loss in two high-elevation sectors of the Silvretta Massif (Central-Eastern Alps). By integrating geoarchaeology, landscape modelling in GRASS GIS and soil analysis, the research develops a novel interdisciplinary framework to reconstruct the co-evolution of pastoral systems and mountain environments, exploring the effects of different land-use strategies and assessing ecological changes through time. To do so, the research adopts a methodological framework rooted in Socio-Ecological Systems (SES), a dimension that helps building and testing hypothesis about the bi-directional connections between human factors and changing environments. The research demonstrates this approach to be effective for exploring landscape transformations at three analytical scales: i) landscape, ii) catchment, and iii) micro. By bridging the gap between different scientific disciplines, the research assesses long-term socio-ecological changes and trajectories in Alpine upland regions, clarifying the role of pastoralism in shaping mountain landscapes and ecosystems –while eventually shedding light on how natural systems have influenced pastoral choices. Furthermore, the study also hopes to inform and support future sustainable Alpine pasture management.

626. Geoarchaeology of Mound Structures: A Sedimentary Micromorphological Analysis of Lapa da Meruje Dolmen (Viseu, Portugal)

Authors: Daniel Hindson Martins – Carlos Duarte Simões (ICArEHB, University of Algarve) – António Faustino Carvalho (CEAACP | ICArEHB, University of Algarve)
Format: Oral

Megalithic monuments are among the most visible markers of Neolithic landscape transformation, yet their earthen components and formation processes remain poorly understood. This study presents a geoarchaeological analysis of the Lapa da Meruje dolmen (municipality of Vouzela), focusing on mound construction, chamber infilling, and pre-monument land-use practices. Sedimentary micromorphology was applied to undisturbed samples collected from both the mound and the funerary chamber. Thin-section analysis under a petrographic microscope enabled the identification of depositional processes, sediment sources, and post-depositional alterations, allowing the distinction between anthropogenic and natural dynamics. Results indicate that the construction sediments were predominantly of local origin, derived from granitic soils and nearby fluvial terrace deposits. The presence of abundant amorphous organic matter, charcoal fragments, and other plant-derived materials suggests possible vegetation clearance and soil preparation activities prior to monument construction. The mound exhibits stratigraphy indicative of multiple construction and preparation phases rather than a single accumulation event. In contrast, the funerary chamber shows clear evidence of medieval and post-medieval disturbances, although basal Neolithic deposits (ca. 5800 cal BP) remain partially preserved. These findings highlight the analytical potential of micromorphology for reconstructing megalithic construction practices and human–environment interactions. They demonstrate that Neolithic monument building involved structured landscape modification and deliberate sediment selection within a mountainous granitic setting, while also raising important questions about preservation processes.

2508. A row of houses, a combination of proxies: micromorphology and phosphate mapping in and around La Tène-period buildings

Authors: Isabella Prackwieser – Susanna Cereda – Florian Müller (University of Innsbruck)
Format: Oral

A substantial number of La Tène-period hilltop settlements have been identified in the Tyrolean low mountain ranges in western Austria. The region's topography is characterised by terraces formed by the former Inn Valley glacier, lying c. 100–500 m above the valley floor. This shared landscape setting provides a broadly comparable framework for analysis. Although the predominant house type — buildings that are either partially or completely dug into the ground and surrounded by low dry-stone walls — is well documented and widespread, many questions remain unanswered. This is partly because finds are often limited, and many buildings were investigated during previous excavation campaigns and subsequently disturbed. Key issues therefore concern identifying functional areas within and around buildings, reconstructing flooring and assessing maintenance and abandonment processes as recorded in the remaining sediment archives. This study presents the results of a microarchaeological investigation of three adjacent La Tène-period buildings located at the Hohe Birga settlement in Tyrol, Austria. Soils and sediments are regarded as primary archives for reconstructing domestic activities and formation processes. The methodology combines micromorphological analyses of undisturbed sediment blocks with phosphate spot tests on soils and near-surface deposits. While micromorphology is used to document microstratigraphic evidence potentially related to floor construction and maintenance, phosphate spot tests are employed to explore spatial patterns of organic enrichment that may indicate activity zones within and immediately outside the buildings. Alongside the results, the study also shows which problems the methods have in this setting and how strongly this affects the interpretation of activity areas.

207 RECONSTRUCTING PREHISTORIC LIFEWAYS: MULTIDISCIPLINARY APPROACHES TO STUDYING MOBILITY, SUBSISTENCE, POPULATION STRUCTURE, AND SETTLEMENT PATTERNS

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Tamara Blagojevic – Jelena Jovanovic – Aleksandra Žegarac (BioSense Institute) – Camille De Becdelièvre (The Hebrew university of Jerusalem, Institute of Archaeology | Ass. Research.: Lampea, Aix-en-Provence) – Jelena Bulatovic (University of Gothenburg)
Keywords: Multidisciplinarity, Prehistoric lifeways, Population structure, Mobility, Diet, Settlement patterns
Format: Regular session

SESSION ABSTRACT

A rapid increase in bioarchaeological, biogeochemical, and molecular studies that combine different methods and analyses is undeniable. These methods are often coupled with traditional archaeological approaches, such as settlement archaeology and contextual analyses, as well as quantitative methods that include basic statistics, simulations, and modeling of various datasets. Therefore, multidisciplinarity has been present in archaeological studies more than ever, covering a vast number of subjects and subfields, refining theoretical frameworks and methods. Such versatility enables the researchers to tackle some grand processes, such as demographic changes on a continental level, individual histories of single sites, or even the level of one person's lifetime diet and mobility. The multiple-scale approach is becoming fundamental in studying prehistoric phenomena such as Mesolithic-Neolithic contacts, the Neolithic Demographic Transition, and Bronze Age social differentiation, to mention some of the most prominent topics. In this session, we would like to welcome studies that employ multidisciplinary approaches to research demographic patterns, as well as the population structure, including kinship and settlement patterns. We particularly encourage studies that adopt multiple-scale perspectives on archaeological questions and processes, ranging from individual experience to demographic patterns. Multidisciplinarity involves the use of stable isotopes, aDNA, and various methods in archaeology, biological anthropology, and zooarchaeology in defined archaeological contexts, regardless of region, method(s) applied, or period in prehistory. We also encourage researchers to present their work that employs different modeling techniques and frameworks (such as Bayesian or agent-based modeling) to stimulate discussion about the role of modeling in archaeological studies and to enhance interest in a better understanding of the practice and its potential in developing evidence-based interpretations.

CONTRIBUTION ABSTRACTS

241. SPEGEOCHERT: Innovative Analytical Approaches to Upper Palaeolithic Mobility in the Pyrenees

Authors: Marta Sanchez De La Torre – Julien Le Guirriec – Eulàlia Rafart – Jonàs Alcaina – Xabier Lizarralde – Alejandro Prieto (SERP-IAUB. Universitat de Barcelona)
Format: Oral

The ERC Starting Grant project SPEGEOCHERT examines patterns of human mobility across the Pyrenean mountain range during the Upper Palaeolithic, challenging long-standing interpretations of mountainous environments as marginal or restrictive landscapes. Recent archaeological evidence increasingly demonstrates that hunter-gatherer populations not only occupied high-altitude regions but also moved through them repeatedly, even during the coldest phases of the Late Pleistocene. In this perspective, the Pyrenees are understood as active corridors of movement and interaction that facilitated connections between human groups located on both sides of the range. A core component of the project is the investigation of chert, a primary raw material for prehistoric lithic production. The complex petrographic and geochemical variability of chert has traditionally limited the effectiveness of provenance studies. To overcome these constraints, SPEGEOCHERT applies portable Laser-Induced Breakdown Spectroscopy (LIBS), enabling fast, minimally invasive, in situ analysis of stone tools, including artifacts held in museum collections. This approach is complemented by portable X-ray fluorescence and VNIR spectroscopy, alongside advanced multivariate statistical analyses. By identifying and characterizing the main geological sources of lithic raw materials, the project aims to reconstruct mobility networks of Homo sapiens during the Late Pleistocene. More broadly, SPEGEOCHERT contributes to a renewed understanding of mountain landscapes as integral to the social, economic, and technological organization of prehistoric populations.

1182. Discussing the importance of multidisciplinary approaches in studying Neolithic mobility

Authors: Tamara Blagojevic – Jelena Jovanović – Maja Kokanović (BioSense Institute, University of Novi Sad)
Format: Oral

The period of the Neolithic represents a huge shift in human organization of life in all segments—economic, residential, social, and ideological. New practices, originating in Anatolia, spread further to Europe, including movements of people as a crucial catalyst of these changes on the continental level, with different paces at different stages and points in space and time. Understanding mobility patterns of Neolithic communities, especially those pioneering through new landscapes, can help us in better understanding of the ways they adapted to new environments and how they organized their settlement and subsistence strategies. An increased mobility is often assumed for the Early Neolithic as part of these processes of "getting to know" and adapting to new environmental conditions.

The importance of a multidisciplinary approach lies in the fact that there is no one unambiguous line of evidence, but rather a set of different indicators that, combined together, could offer answers about Neolithic mobility patterns. Project MOVE represents an example of this kind of approach in studying lifetime movements of both Early and Late Neolithic communities in the Southern Carpathian Basin. The combination of stable isotope analyses of carbon, nitrogen, sulfur, and strontium with archaeozoological research provides data both on economic practices and lifetime movements of people. Combined with the settlement archaeology approach, the project aims to reconstruct this important aspect of Neolithization as well as the consolidation of Neolithic practices in this part of Europe. Throughout its implementation, numerous questions regarding Neolithic settlement mobility have emerged, and this paper represents a step toward defining them and promoting discussion and potential solutions. This research was supported by the Science Fund of the Republic of Serbia, GRANT No. 7498, Moving across the plain: reconstructing the lifetime movements of farming pioneers and their successors during the Neolithic in the Southern Carpathian Basin-MOVE.

2525. Tracing Neolithic lifeways: a multi-proxy biogeochemical study of bioarchaeological remains in the Southern Carpathian Basin (7th-5th millennium cal BC)

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Format: Oral

Reconstructing population movements, interactions with the environment, and spatial behaviors is crucial in the research of human residential mobility patterns during the period that shaped human practices toward sedentary and agriculture-based lifestyles. This is especially important when studying communities that settle in new areas for the first time and establish new economic practices during the Early Neolithic. The Southern Carpathian Basin (SCB) represents a key region for investigating these processes and dynamics of agropastoral expansion, as well as the ways in which different elements of the "Neolithic package" were adapted to new environmental settings. The MOVE project seeks to explore the emergence of sedentary lifeways by examining residential mobility, lifetime movement, and settlement organization among early farming communities and their successors in the SCB during the Neolithic period (~6250–4500 cal BCE). Furthermore, examining individual dietary choices during events of migration provides important insights into the diversity of food consumed and/or mobility and visited environments. To address this, stable isotope analysis on bone collagen (δ13C, δ15N, δ34S) and teeth apatite (87Sr/86Sr), are employed to directly assess the degree of individuals' mobility throughout their lifetime and reconstruct the dietary and environmental exploitation patterns of Neolithic communities. Overall, results suggest that Neolithic communities practiced mixed subsistence strategies that combined plant and animal resources, and that only a few consumed aquatic resources in moderate amounts. A trend toward higher animal protein intake among males is observed, potentially reflecting gendered roles or differences in activities through their lifetime. Variability among individuals and sites likely reflects local environmental conditions and community-specific adaptations to available food resources. This research was supported by the Science Fund of the Republic of Serbia (GRANT No. 7498)-Moving across the plain: reconstructing the lifetime movements of farming pioneers and their successors during the Neolithic in the Southern Carpathian Basin-MOVE. Acknowledgment: Other coauthors contributed to the preparation of this paper: Maja Kokanović and Tamara Blagojević (BioSense Institute, University of Novi Sad), Lidija Balj and Darko Radmanović (Museum of Vojvodina, Novi Sad), Maja Krznarić-Škrivanko (Municipal Museum Vinkovci), Pierre Deschamps (UMR 7330 CEREGE, Aix Marseille Univ, CNRS, IRD, Collège de France, INRAE, Aix en Provence).

1666. A Hidden Gem of the Wilderness: Faunal Remains and Environmental Adaptation at the Early Neolithic Site of Golokut-Vizić

Authors: Maja Kokanovic – Jelena Jovanović – Tamara Blagojević (BioSense Institute, University of Novi Sad) – Darko Radmanović (Museum of Vojvodina, Novi Sad) – Gwenaëlle Goude (CNRS, Aix Marseille University, Ministry of Culture, UMR 7269 LAMPEA)
Format: Oral

Animals and their products were essential to Neolithic subsistence systems, although the balance between husbandry and hunting differed greatly depending on local environmental conditions. The Early Neolithic site of Golokut-Vizić, located on the forested western slopes of the Fruška Gora Mountain in northern Serbia, provides an exceptional case for exploring the lifeways of the first agropastoralists of the Starčevo culture (~6250–5300 cal BC) in the Southern Carpathian Basin. Excavated intermittently between the early 1970s and the early 2000s, the site has yielded a substantial faunal assemblage. This study integrates new faunal data with published and previously studied assemblages. Preliminary results indicate a higher representation of domestic mammals, accompanied by a significant proportion of wild species. Previous studies emphasized the predominance of wild fauna, and the new findings likewise confirm the continued importance of hunted species within a mixed subsistence system. Unlike many contemporaneous lowland communities of the Pannonian Plain, where domestic taxa predominate, this assemblage shows a comparatively elevated proportion of wild species, reflecting intensive exploitation of forest resources and indicating that hunting remained a significant

component of local subsistence practices. Faunal evidence is examined alongside stable isotope analyses of carbon, nitrogen, and sulfur, complemented by seasonality and anthropological data, providing insights into diet and resource use. This integrated multi-proxy approach enables a comprehensive reconstruction of subsistence behavior and environmental exploitation while questioning simplified diversities between hunting and herding in the Early Neolithic economy. Golokut illustrates the micro-regional diversity of Early Neolithic lifeways and the distinct character of upland woodland settlements, where hunting persisted as an adaptive component of early farming economies. This research was supported by the Science Fund of the Republic of Serbia, GRANT No. 7498, Moving across the plain: reconstructing the lifetime movements of farming pioneers and their successors during the Neolithic in the Southern Carpathian Basin—MOVE.

2082. Vinča - Belo Brdo settlement catchment

Authors: Kristina Penezic (Biosense institute, University of Novi Sad)
Format: Oral

Vinča - Belo Brdo is the type site for the Late Neolithic cultural complex of the Central Balkans. It is also one of the rare Neolithic tells in the area that also has stratigraphic sequences from Early Neolithic up to its final, Late Neolithic/Eneolithic phases. It is located next to the Danube, a major river that dominates the landscape and acts as a natural border between the northern flat landscape of the Pannonian plain, and the southern hilly region of Central Serbia. This study explores the position of the type-site with surrounding settlements, from both Early (45 sites) and Late Neolithic (65 sites) periods. The settlement distribution in different periods is compared to available soils and explores the possible shift in land-use strategies over the Neolithic period in the micro-region. Also, based on the limited, but available data on the crop and livestock land use of the type-site, a network of communications surrounding Vinča - Belo Brdo is reconstructed throughout its Neolithic time span.

2429. Diet of the Bronze Age population in the North Pontic Steppe according to oral pathology and stable isotope analyses

Authors: Claudia Sharapova (Lithuanian Institute of History) – Alexandra Kozak (The Institute of Archaeology of the National Academy of Science of Ukraine) – Giedrė Keen Motuzaitė Matuzevičiūtė (Lithuanian Institute of History)
Format: Oral

In the North Pontic steppe zone, the livelihoods of Bronze Age populations have been associated with various forms of pastoralism and mobility. The Yamna culture lacked permanent settlements and relied mainly on small livestock, indicating high mobility. However, researchers disagree on whether the following Catacomb Culture, which maintained even larger cattle herds, enabled a semi-sedentary lifestyle with agriculture. Currently, it is not well understood whether dietary peculiarities exist between populations inhabiting different ecologies and whether diet varies among individuals of the sample populations. The analysis of dental and jaw pathologies, along with stable isotope analysis, provides a framework for assessing the dietary practices of the Bronze Age population. Here we present research results from burials located in three regions of Ukraine: the Middle Dnipro area, the unevenly developed hydrographic banks of the Middle Siverskyi Donets River, and the valley of the Sugokleja River. The analyzed individuals were dated to the Early and Middle Bronze Age (3300-1750 BCE). Macroscopic examination revealed dental calculus, caries, apical lesions, antemortem tooth loss, periodontal disease, mandibular torus and torus palatinus, hypercementosis, tooth wear, secondary dentin formation, enamel chipping, interproximal grooves, and linear enamel hypoplasia, thereby allowing a closer look into the life history of Bronze Age individuals. We present an anthropological assessment, together with stable isotope analysis of bone collagen, to better understand subsistence strategies of the European steppe populations.

414. Quantitative Approaches to Demographic Analysis of Bronze Age Settlements in China: The Semi-subterranean Dwellings at Xiaomintun as a Case Study

Authors: Yanjun Wang (University of Munich)
Format: Oral

Eighty-six semi-subterranean dwellings dating to Phases I–II of the Yinxu period, the Chinese Bronze Age associated with Yinxu, the late Shang (ca. 1300-1050 BCE) capital (present-day Anyang), were identified at the Xiaomintun site. Located approximately 2.5 km east of the palatial core at Xiaotun, these dwellings form three spatially separate clusters. In contrast to many contemporaneous settlements within Yinxu, no cemeteries or trash pits have been identified at Xiaomintun, limiting the applicability of existing demographic reconstruction methods. This paper presents a quantitative estimation of Xiaomintun's population size based on measurements of these semi-subterranean dwellings and their associated material remains. The analysis focuses on estimating population ranges and settlement scale and compares the results with other settlements within Yinxu, contemporaneous sites outside of Anyang and selected Bronze Age contexts of other civilizations. These comparisons aim to situate Xiaomintun within broader patterns of Bronze Age demographic and settlement variability. This paper further seeks to demonstrate how quantitative methods can be employed to reconstruct aspects of residential life in Bronze Age settlements, and to propose a methodological framework applicable to sites where excavation data have not yet been fully published.

785. Ancient DNA and New Radiocarbon Dates Reframe Multiple Burials at Bronze Age Tiszafüred–Majoroshalom

Authors: Anja Furtwängler (Max Planck Institute for Evolutionary Anthropology, Leipzig) – Anett Gémes (Department of Biological Anthropology Eötvös Loránd University Budapest | Salisbury Zrt.) – Klára Fischl – Kristóf Fülöp (ELTE Research Centre for the Humanities Institute of Archaeology Budapest) – János Dani (Department of Archaeology, University of Szeged | Déri Museum) – Edit Mester (Kiss Pál Museum, Tariczky sétány 8, 5350 Tiszafüred, Hungary) – István Major (INTERACT, HUN-REN Institute for Nuclear Research ATOMKI, Debrecen) – Alissa Mittnik (Max Planck Institute for Evolutionary Anthropology, Leipzig) – Tamás Hajdu (Department of Biological Anthropology Eötvös Loránd University Budapest | Centre for Applied Bioanthropology, Zagreb) – Johannes Krause (Max Planck Institute for Evolutionary Anthropology, Leipzig)
Format: Oral

Tiszafüred–Majoroshalom I-II. (eastern Hungary) is a well-known Bronze Age cemetery excavated between 1961–1975 near to the Tiszafüred-Ásotthalom tell settlement. The cemetery (with 1,006 graves, in use until around 1300 BC) captures change across the Otomani–Füzesabony and Tumulus horizons (Hungarian Middle–Late Bronze Age transition around 1500/1450 BC). At site Tiszafüred–Majoroshalom III, between the cemetery and the tell, two settlement pits were excavated in 2020, uncovering the remains of 44 individuals. We combined this archaeological framework with genome-wide ancient DNA. Screening 81 human samples for DNA preservation we generated genome data passing quality thresholds for 37 individuals (26 males, 11 females). Forty-four normative graves were directly radiocarbon dated, and further thirteen 14C dates were measured from the settlement pits. Kinship analysis identifies no first- or second-degree relatives, supporting a burial community based on specific selection criteria other than biological kinship. Population structure shows one dominant genetic cluster in every phase, with mass-grave and regular-grave individuals present in all clusters. Outlier frequencies suggest episodic mobility and admixture tests indicate overall continuity without population replacement while permitting additional ancestry streams. An identity-by-descent (IBD) network links seven males via very distant biological ties (>6th degree) that span the mass grave (Feature 4) and normative graves, which is consistent with a shared community background concept rather than family-group deposition practice. Together, these data refine mobility models and place the phenomenon of the mass grave in context.

1915. Paleogenetic Insights into Mobility and Population Structure of Late Iron Age Individuals from North and South of the Alps

Authors: Stefania Zingale (Eurac Research, Institute for Mummy Studies, Bolzano) – Zita Laffranchi (Department of History, Area of Prehistory, University of Córdoba) – Alice Paladin (Eurac Research, Institute for Mummy Studies, Bolzano) – Sandra Lösch (Institute of Archaeological Sciences, University of Bern) – Vanessa Haussener (Bernisches Historisches Museum) – Irene Dori (Soprintendenza Archeologia, Belle Arti e Paesaggio, Verona | Department of Biology, University of Florence) – Roby Stuani (Institute of Archaeology, University of Barcelona) – Albert Zink (Eurac Research, Institute for Mummy Studies, Bolzano | Bavarian State Collection for Anthropology, SNSB, Munich) – Marco Milella (Department of Biology, University of Pisa) – Valentina Coia (Eurac Research, Institute for Mummy Studies, Bolzano)
Format: Oral

The spread of the La Tène culture in Europe during the Late Iron Age (LIA, 4th–1st centuries BCE) is traditionally associated with the migration of "Celtic" groups. Archaeological evidence places its origin mainly in central Europe and documents a subsequent southward diffusion through the Alpine region, including into northern Italy. Paleogenetic data from key regions involved in this process remain limited. To address this gap, we analyze two LIA groups from Switzerland (CH) and northern Italy (NI). Using a combined genetic and bioarchaeological approach, we reconstruct the genetic structure and mobility of CH and NI groups to investigate demographic processes associated with the southward spread of La Tène culture. We present high-quality genomic data (shotgun and enrichment of ~ 1.3 million SNPs) from 181 LIA individuals (n=88 from 15 CH sites and n=93 from 2 NI sites). Genetic sex determination identified 98 females (XX) and 83 males (XY). Kinship analyses reveal close biological relationships up to the third degree, primarily within archaeological sites, with only one third-degree relationship between two CH sites, and no close kinship links between CH and NI cemeteries. Comparative analyses show that approximately half the individuals from CH and NI share common ancestry and genomic affinity with western- and central- European IA individuals. Some NI individuals (~ 25%) deviate from this pattern, showing ancestry referable to individuals from IA Italy. Isotopic data of strontium, oxygen, and sulfur suggest short- and long-distance mobility in both studied groups. Overall, our study supports central Europe as a core region in the diffusion of the La Tène culture, with population movement contributing to its southward spread. Additionally, it suggests that the NI group also included local individuals, possibly culturally integrated in the incoming community.

2142. Dual sulfur-oxygen isoscape of Denmark using novel archaeological faunal remains

Authors: A. Ja'Net Baide – Daniel Dalmas (University of Utah) – Malene Beck (Østfyns Museer) – Jens Berthold (Bornholms Museum) – Katrine Balsgaard Juul (Museum Horsens) – Mette Klingenberg (Holstebro Museum) – Thomas Guntzelnick Poulsen (Museum Østjylland) – Jens Ulriksen (Museum Sydøstdanmark) – Dorthe Dangvard Pedersen (Syddansk Universitet) – Alexandra Greenwald (University of Utah | Natural History Museum of Utah)
Format: Oral

Isotopic methods in Danish archaeology predominantly focus on reconstructions of paleodiet and the application of strontium isotopes in paleo mobility. Recent research highlights the promise of stable sulfur isotopes (δ34S) for provenance studies in Northwestern Europe and is of particular promise for Denmark's relatively homogenous geology. We employ stable isotope analysis of bioavailable sources to model the variation of environmental signatures across Denmark's historical landscape utilizing fauna remains dating to the Viking Age and Middle Ages. We present the first spatially robust dataset representing 42 sites across Jutland, Fyn, Zealand, Bornholm, and Denmark's southern islands. Faunal remains (n = 90) belonging to genera including Sus, Rattus, and Microtus were analyzed for δ34S, stable carbon (δ13C), stable nitrogen (δ15N) and stable oxygen (δ18O). Results from these analyses are used to construct the region's first multi-isotope sulfur-oxygen isoscape utilizing archaeological sources, paving the way for research in human mobility and animal trade in Scandinavian archaeology. These data also permit the reconstruction of dietary patterns of Sus domesticus recovered from both inland and coastal sites, which shed light on animal husbandry practices and human diet across the Viking and Middle Ages.

972. A Millennium at the Edge: The Impact of Isolation on Ancient Populations from El Hierro (Canary Islands)

Authors: Rosa Fregel (University of La Laguna) – Javier Serrano (University of La Laguna | University of Copenhagen) – Jonathan Santana – Alejandra Ordóñez (University of Las Palmas de Gran Canaria) – Clara Díaz-Pérez – Sara Armas-Quintana (University of La Laguna)
Format: Oral

The human colonization of oceanic islands represents an exceptional opportunity to explore the effects that founder effects and isolation have on human populations. One extreme example of isolation is that of El Hierro in the Canary Islands. This island is the smallest, youngest and westernmost island of the archipelago, and represents a hostile environment in which the first colonizers would have needed a longer adaptation phase with the possibility of stronger bottleneck effects. This is also a remarkable case of colonization because it is thought that the indigenous people were isolated in El Hierro since the initial colonization in the 3rd century CE until the beginning of the European conquest in the 15th century. In this project, we applied paleogenomic techniques and radiocarbon data to explore signatures of isolation in the indigenous people of El Hierro though a time transect, going from the first centuries CE to present-day populations. Paleogenomic data shows extensive runs of homozygosity, bottleneck events and intense genetic drift in the indigenous population. The diversity observed in early individuals steadily declined due the effect of continuous bottlenecks, reaching the lowest diversity values and highest levels of consanguinity by the 12th-13th century. This high background relatedness likely led to the manifestation of homozygous recessive diseases, explaining the osteological abnormalities observed in the archaeological record. The present-day population also shows signs of genetic drift and inbreeding, suggesting that the same isolation processes affecting them during the indigenous period also affected them in historical times. Overall, this study sheds light on the complex demographic history of El Hierro, illustrating the profound effects of over 1,000 years of isolation in a low-resource environment but also highlighting the population's remarkable resilience in adapting to these harsh conditions.

975. Paleogenomic analysis of the temporal evolution of the human population of Gran Canaria

Authors: Sara Armas-Quintana – Clara Díaz-Pérez (Universidad de La Laguna) – Javier G. Serrano (University of Copenhagen, Lundbeck Foundation GeoGenetics Centre) – Jonathan Santana (Universidad de Las Palmas de Gran Canaria) – Martin Friess (Ecoanthropologie | UMR 7206, Muséum national d'Histoire naturelle, Paris Université) – Rosa Fregel (Universidad de La Laguna)
Format: Oral

Multidisciplinary studies of the indigenous population of the Canary Islands have concluded that the settlement of the archipelago occurred around the 3rd century CE and that its inhabitants originated from North Africa. However, whether these populations remained isolated until the European conquest in the 15th century remains unclear. A paleogenomic study published in 2023, determined that the indigenous population of Gran Canaria exhibited the highest genomic diversity across the entire archipelago. Furthermore, its genetic composition, along with Fuerteventura and Lanzarote, differed from that of the western islands. While these findings may be attributed to asymmetric migrations within the archipelago, as proposed based on archaeological evidence, paleogenomic data analyzed thus far indicates no evidence of a significant gene flow in Gran Canaria. A limitation of previous studies lies in the small sample size, particularly during the early and middle periods of indigenous settlement. To address this, we propose a detailed temporal analysis of the human population of Gran Canaria, spanning from the onset of indigenous colonization to the establishment of the colonial society. This study will examine remains from 20 new archaeological sites and 117 individuals, enabling a comprehensive reconstruction of demographic and genetic changes. Through Bayesian radiocarbon data modeled we identify the chronology of the dispersion throughout the island and explore if additional migration reached Gran Canaria.

1291. Child burials at Lepenski Vir: insights into social and population dynamics

Authors: Aleksandra Žegarac – Tamara Blagojević – Jelena Jovanović (BioSense Institute) – Camille De Becdelièvre (The Hebrew university of Jerusalem, Institute of Archaeology | Lampea, Aix-en-Provence) – Sofija Stefanović (Faculty of Philosophy, University of Belgrade)
Format: Oral

Lepenski Vir in the Danube Gorges area is one of the rare archaeological sites that provides direct evidence of contact between Mesolithic and Neolithic communities. In addition to the characteristic sandstone boulders, burials of neonates were found in association with trapezoidal houses dating to the Mesolithic - Neolithic transition period (6200–5900 BCE). These burials were cut into the red-plastered floors, always at the rear of the buildings. Although this funerary practise was not unique to the Balkans, but also well known in other cultures, particularly in Anatolia, the reasons behind it remain unknown. A multidisciplinary approach to Lepenski Vir research (integrating information on burial practices and context, individuals' age and sex, as well as genetic, isotopic and radiocarbon data), has provided detailed insights into diet, health, ancestry and kinship ties, offering a deeper understanding of socio-cultural interactions and biological admixture. Considering the recently obtained paleogenomes of infants from Lepenski Vir, as well as the growing research interest in children in archaeological contexts, here we discuss recent interpretations of this famous site and the specific practise of burying neonates. Such studies can help us to understand the function of these unique trapezoidal houses (whether they served the broader community, nuclear families, or had a protective role in transforming infant death), as well as how children were perceived in past societies.

1125. "United by Crisis?" (Part One) - A Multidisciplinary Approach to the LBK Settlement Cluster of Asparn/Schletz- Line Walking, Landscape, Pottery

Authors: Julia Längauer (University for Continuing Education Krems) – Michael Schober (Technical University of Leoben) – Cornelia Hascher (University for Continuing Education Krems) – Franz Pieler (State Collections of Lower Austria) – Maria Teschler-Nicola (Natural History Museum Vienna) – Johanna Irrgeher – Thomas Prohaska (Technical University of Leoben) – Olivier Duboc (BOKU University, Vienna) – Friederike Novotny (Natural History Museum Vienna) – Jakob Maurer (University for Continuing Education Krems)
Format: Oral

The site of Asparn/Schletz in the Lower Austrian Weinviertel ranges among the most prominent Linear Pottery Culture sites in Middle Europe, due to evidence suggesting a massive violent attack on the settlement around 5.000 BC. However, the long history of the site and the surrounding region preceding this presumably final massacre was largely unknown. To address these gaps, the project "United by Crisis?" (funded by the GFF Lower Austria) followed a multidisciplinary approach of archaeology, anthropology, and chemistry applying a range of scientific methods for the investigation. Besides new anthropological evaluations and strontium isotope ratio analysis, a strong focus was on the archaeological context of line walking surveys, archive work and integrating old find collections into the new data. A big emphasis within the project was on the inclusion of Citizen Scientists in the data collection and analysis. With this talk (Part One) we want to present the results of the line walking surveys, the landscape archaeology as well as the typochronological pottery analysis in combination with new ^{14}C dates. We will show the development of the settlement cluster, its time range, and interaction with surrounding settlements. This work was crucial for the further understanding of the 87Sr/86Sr isotope ratio analysis, discussed in the second part. (Part Two) The project "United by Crisis?" is presented in two separate contributions in order to provide a thorough information of our conclusions. Additionally we will give a short inside into the follow up project "ReCLAYm", focused on the pottery finds analysis of Asparn/Schletz.

2101. "United by Crisis?" (Part Two) - Strontium Isotope Ratios for Provenancing the Population of the Settlement at Asparn/Schletz

Authors: Michael Schober – Thomas Prohaska (Technical University of Leoben) – Maria Teschler-Nicola (Natural History Museum Vienna) – Olivier Duboc (BOKU University, Vienna) – Cornelia Hascher – Julia Längauer (University for Continuing Education Krems) – Friederike Novotny (Natural History Museum Vienna) – Markus Puschenreiter (BOKU University, Vienna) – Jakob Maurer (University for Continuing Education Krems) – Johanna Irrgeher (Technical University of Leoben)
Format: Oral

The interdisciplinary project "United by Crisis?" (UBC) investigates the settlement at Asparn/Schletz in Lower Austria from the Neolithic era. A combined approach of archaeology, bioanthropology, and chemistry examines the settlement with its surrounding region. Hereby, the research of the UBC project (funded by the GFF Lower Austria) with its first outcomes is presented in two separate parts. The settlement of Asparn/Schletz is considered a center within a network of smaller settlements due to its size and fortification. It potentially functioned as a defensive structure for inhabitants of the settlement cluster in times of crisis, especially perhaps during a violent event approximately 7,000 years ago. Line walking surveys and dating of Linearbandkeramik (LBK) pottery were conducted to research the development of the settlement cluster (Part One). Human teeth directly from the central settlement and recent environmental samples from the site and its vicinity were analyzed by isotope ratio analysis of strontium (87Sr/86Sr) to study the locality of the population (Part Two). A total of 90 enamel samples were collected from individuals excavated at the settlement of Asparn/Schletz and were first processed by hot-plate assisted acid digestion. In addition, the bioavailable Sr fraction was extracted from river water and soil samples to establish a local 87Sr/86Sr isotope signal. All samples then followed an automated Sr/matrix separation before strontium isotope ratio analysis was performed by multi-collector inductively coupled plasma mass spectrometry (MC-ICP-MS). The presented findings combine recent results from UBC and data based on earlier subsamples analyzed since the 1990s. 87Sr/86Sr isotope ratios of human enamel samples are compared with the so-called local signal of the environmental samples shown on spatial distribution maps of the Asparn/Schletz settlement cluster. In accordance with previous studies, the individuals of the settlement reflect a broad locality.

2139. The victims of the Bronze Age conflict in the Tollense valley, Northern Germany: Strontium isotope evidence for a heterogeneous community

Authors: Corina Knipper (Curt-Engelhorn-Center Archaeometry gGmbH, CEZA) – Ute Brinker – Hella Harten-Buga (MuSeEn gGmbH) – Detlef Jantzen (State Office of Culture and Heritage, Mecklenburg-Western Pomerania) – Gundula Lidke (Leibniz Center for Archaeology, LEIZA, Schleswig) – Sebastian Lorenz (University of Greifswald. Institute for Geography and Geology)
Format: Oral

Since the late 1990ies archaeological investigations documented multiple concentrations of disarticulated human remains in the Tollense River valley, Northern Germany. Traces of traumatic injuries as well as weapons suggest that the sites represent an extensive area of interpersonal violence. Weapons, especially arrowheads, some of them still stuck in the bones, as well as radiocarbon dates, place the find contexts into the Nordic Bronze Age (c. 1400 - 1000 cal. BC). An extremely heterogeneous dataset of an initial strontium isotope study attests to the involvement of people coming from multiple, geologically different locations. Currently, the interdisciplinary project "The Bronze Age battlefield in the Tollense Valley – touristic development and research", under the leadership of the MuSeEn gGmbH and the State Office of Culture and Heritage, Mecklenburg-Western Pomerania, expands the previous investigations. Strontium isotope analyses of enamel samples from additional, earlier or later forming teeth from the same individuals confirm the exceptional diversity of the dataset. At the same time, similarity of both samples of the same skulls suggests that the individuals spent several years of their childhood in consistent locations, before moving in adulthood and falling victim in the conflict. Moreover, enlarging the sample set regarding individuals confirms the wide data spectrum. It also consolidates several data groups, supposedly representing individuals from different locations. Expanding the collection of comparative data using samples of modern vegetation specifies the regional isotope baseline and addresses questions regarding the influence of modern agriculture on the isotope composition of modern plants.

2391. Beyond the Burial Context: Investigating Diet and Mobility at Jurilovca–Orgame (Romania) during the Early Iron Age.

Authors: Noria Petrache – Ana García-Vázquez (University of Bucharest) – Mihai Constantinescu (University of Bucharest | Institute of Anthropology "Francisc I. Reiner") – Cătălin Lazăr (University of Bucharest) – Viorel Atudorei (University of New Mexico) – Tiberiu Sava (University of Bern) – Sorin Ailincăi (University of Bucharest)
Format: Oral

Reconstructing ancient life-ways is a central objective of archaeological research. For this purpose, the present study adopts a multidisciplinary approach to investigate subsistence strategies, mobility, and individual life histories in the Dobruja region of Romania, during the Early Iron Age, focusing on deviant burial case studies attributed to the Babadag culture. Using stable isotope analysis of carbon ($\delta^{13}C$), nitrogen ($\delta^{15}N$), and oxygen ($\delta^{18}O$) derived from human and animal bone collagen, teeth enamel and archaeobotanical samples, the research moves from individual life histories to group-level patterns and their regional context. The research presents the isotopic data obtained from 12 human individuals interred in a single pit at the Jurilovca–Orgame site, Romania. Given the absence of designated cemeteries and the exclusive adoption of pit burials, described in literature as atypical burial treatments, characteristic for the Babadag culture, the study addresses fundamental archaeological questions concerning identity and social differentiation: who were these individuals, and why were they buried in atypical contexts? Here, we treat such labels as historiographic indicators and focus on reconstructing the social and environmental circumstances that may have produced these depositional choices. Our dietary interpretation is grounded in a local isotopic baseline, integrating stable isotope faunal data from proxy archaeological sites attributed to the Babadag culture, and mobility assessment via δ18O is evaluated against regional baseline expectations (local water/faunal ranges). Using Bayesian modeling we will present intra-pit isotopic relations and discuss how these results complement existing anthropological, zooarchaeological, and paleobotanical investigations, offering new perspectives on differentiated access to resources and social dynamics in order to refine interpretations of population structure in the Early Iron Age Lower Danube region.

1990. Stable carbon and nitrogen isotopic studies reveal uniform dietary habits in Roman age communities in Aquincum, province of Pannonia

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Format: Oral

Aquincum, as the capital of the Roman province of Pannonia Inferior was inhabited by a mixed population of Romanized Celts and immigrants of the Roman Empire itself. We analysed almost 60 humans and 17 animals from different archaeological sites of Aquincum for stable carbon and nitrogen isotope ratio to reconstruct the dietary habits of the communities. Related to animals, some effect from C4 plants is implied for the case of chicken, which we assume is due to feeding with millet. In the case of humans, most of our stable nitrogen isotope results are located in the 8-10‰ range, indicating a mixed consumption of plant-animal derived protein. The carbon isotopes do not indicate significant millet consumption, although a regional comparison revealed that the values are less negative than the range suggested by other communities assumed to be exclusively C3 plant consumers. This may have been influenced by the values of the animals consumed. We did not detect any significant differences in the diet of males and females, but the values for infants, especially those in the weaning period, clearly indicate the effect of millet consumption. Whether, this is due to some fundamental sociocultural influence or the effect of population exchange with barbarians is a subject for further investigation.

847. At the crossroad of the Mediterranean: tracing population dynamics and mobility in Sicily through archeogenomics

Authors: Rajiv Boscolo Agostini (University of Ferrara) – Margherita Vanni (University of Florence) – Federico De Pizzol – Maria Teresa Vizzari (University of Ferrara) – Giulio Catalano (University of Palermo) – Alessandra Modi – David Caramelli (University of Florence) – Luca Sineo (University of Palermo) – Stefania Vai (University of Florence) – Silvia Ghirotto (University of Ferrara)
Format: Oral

Sicily is located at the center of the Mediterranean basin and has long served as a crossroads for population movements and cultural interactions. The development of maritime trade from the early 2nd millennium BCE increased mobility, connecting Sicily with neighbouring Mediterranean and Aegean populations. Despite a rich archaeological record and the growing availability of ancient genomic data, key evolutionary and demographic processes remain poorly understood, thus preventing a comprehensive reconstruction of human population dynamics. Here, we present 18 newly generated ancient genomes (average coverage ranging from 0.1x to 4x) from 11 Sicilian necropolises, spanning from the Paleolithic (~14,000 BCE) to the Middle Ages, including individuals from key cultural contexts such as Sicanians, Punics, Greeks, and Byzantines. These data, combined with 23 previously published ancient Sicilian genomes and approximately 500 ancient individuals from the Mediterranean basin and Europe, provide high-resolution insights into demographic dynamics, ancestry patterns, and genetic contributions within the island. In addition, we investigate temporal variation in pigmentation phenotypes among Sicilian individuals. We detect evidence of Steppe pastoralist ancestry from approximately 2,200 BCE, along with elevated proportions of Iranian-related ancestry compared to the Italian mainland, consistent with increased connectivity with the Aegean, including groups such as the Minoans and Mycenaeans. In the Iron Age, we observe a genetic shift and a shared genetic variation between Sicilian and Eastern Mediterranean populations. In addition, we identify a North African genetic component, which reaches its maximum during the Middle Ages. We also detect genealogical affinities among necropolises and local patterns of genetic continuity through time. Overall, our findings provide direct archaeogenomic evidence for the complex population dynamics and long-term genetic consequences of cultural interactions that shaped Sicily during the Bronze and Iron Ages, highlighting the crucial role of the island within Mediterranean networks.

825. Exploitation of Faunal Resources in the Late Copper/Early Bronze Age Eastern Croatia

Authors: Jelena Bulatovic (University of Gothenburg) – Ivana Dimitrijevic (Institute of Archaeology in Belgrade) – Ina Miloglav (University of Zagreb) – Jacqueline Balen (Archaeological Museum in Zagreb)
Format: Poster

This study presents the results of zooarchaeological analyses of faunal assemblages from Copper Age sites in Eastern Slavonia, Croatia, conducted within the project CULPLUS (Culinary practices, husbandry, and land-use strategies during the Copper Age in Eastern Slavonia). The material derives from the Late Copper Age sites of Prisunjača (2890–2470 cal BC) and Verušed, as well as the Late Copper/Early Bronze Age site of Viškovci-Gradina (2570–2340 cal BC), providing insight into animal exploitation patterns and dietary practices. By integrating taxonomic, taphonomic, and contextual data, the study examines regional variability and diachronic trends in culinary practices and subsistence strategies. The zooarchaeological results reveal clear inter-site differences in animal management, resource use, and dietary practices. Variation in the relative importance of wild and domestic taxa suggests contrasting economic orientations among the sites. At Prisunjača, hunting and herding appear to have functioned as complementary components of subsistence, whereas at Viškovci domestic animals clearly predominated, indicating a stronger emphasis on husbandry. Although the Verušed faunal assemblage is limited in size, it displays several noteworthy characteristics, including a high degree of weathering and the presence of horse bones bearing butchery marks, suggesting occasional consumption of horse meat. Differences in refuse disposal practices further distinguish the sites, with open-area accumulation at Prisunjača contrasting with pit deposition at Viškovci. Together, these patterns point to locally specific combinations of environmental adaptation and cultural practice, underscoring the diversity of subsistence strategies and foodways during the Copper Age in Eastern Slavonia.

1997. Kinship, demography and social organization during the Bronze Age in northeastern Iberia: Insights from Mas d'en Boixos archaeological site

Authors: Cristina Santos – Maria Rosa Campoy-Caballero – Daniel R. Cuesta-Aguirre (Universitat Autònoma de Barcelona)

– Nuria Armentano (Museu d'Arqueologia de Catalunya | Universitat Autònoma de Barcelona) – Pablo Martínez (Universitat de Barcelona) – Xavier Esteve (Departament de Cultura de la Generalitat de Catalunya) – Assumpció Malgosa (Universitat Autònoma de Barcelona)
Format: Poster

Mas d'en Boixos (MDB) is the largest prehistoric archaeological site in the Catalan Pre-littoral Depression (Penedès region, Barcelona, northeastern Iberia), comprising more than 580 structures dated from the Early Neolithic to the Ancient Iberian period (~7.5–2.2 ka). This extensive stratigraphic sequence captures key demographic and cultural transformations, including the Neolithic transition and the emergence of Bronze Age social complexity. We present new genome-wide and strontium isotope data from eleven Bronze Age individuals recovered from Structure E-452, a monumental collective burial formed by a hypogeum excavated as a lateral chamber within a large silo. Published genomic data from another Bronze Age funerary structure at Mas d'en Boixos (E-35) were also compiled and integrated for broader contextualization. Genetic sexing of the E-452 individuals identified eight males and three females. Kinship analyses based on genome-wide data reveal multiple first- and second-degree relationships, indicating a highly structured kinship network in which most individuals were closely related. All males belong to Y-chromosome haplogroup R1b, with evidence for two distinct sublineages. In contrast, despite strong autosomal kinship links, mitochondrial DNA displays high haplogroup diversity, consistent with a patrilocal residence pattern. This pattern parallels observations from the previously studied hypogeum E-35, reinforcing the presence of local patrilineal groups incorporating women from neighbouring communities. Notwithstanding, the previous study of E-35 identified an Eastern European mitochondrial lineage, a result that complicates the model of a strictly male-driven Bronze Age transition and points to sporadic but notable female-mediated long-range connections. Taken together, these results position Mas d'en Boixos within broader European Bronze Age social dynamics, highlighting the persistence of kin-structured male lineages combined with predominantly localized female mobility. These findings contribute to a more nuanced understanding of social organization, mating practices, and community structure in northeastern Iberia during the Bronze Age.

2017. Paleogenetic and osteological investigation of Bronze Age individuals from Tischofer Cave (Eastern Alps, Austria)

Authors: Silvia Frigo – Stefania Zingale – Frank Maixner (Eurac Research, Institute for Mummy Studies, Bolzano) – Peter Pindur (High Mountain researcher, Münster) – Katharina Rebay-Salisbury (Department of Prehistoric and Historical Archaeology, University of Vienna | Austrian Archaeological Institute, Austrian Academy of Sciences, Vienna) – Fabian Kanz (Center for Forensic Medicine, Medical University Vienna) – Valentina Coia (Eurac Research, Institute for Mummy Studies, Bolzano)
Format: Poster

The Tischofer Cave (Kaisertal Valley) is renowned for its Paleolithic artefacts and cave bear remains. Moreover, the cave was frequented by humans during the Bronze Age, as evidenced by human remains and artefacts similar to those of the early Bronze Age northern Alpine Straubing group. However, the purpose for which the cave was used remains unknown, and there is no evidence to suggest that it was used as a burial site. The human bones are in excellent condition. Using an interdisciplinary approach, we have reconstructed the biological profile of the individuals from the cave, radiocarbon dated from 1921 to 1502 cal BC. Minimum Number Individual-analysis based on bone morphology revealed at least 23 individuals (18 subadults, 5 adults), most of which were of indetermined sex. The analysis was challenging because the bones were found disarticulated, with a greater number of postcranial bones than skulls. Molecular screening of 25 human samples (humerus, petrous bone and teeth) revealed a good preservation of human reads (HR, from 1.2% to 76%) in 15 samples, which were then enriched for informative SNPs of the human genome (~ 1.3 million). The samples with the best preservation included four humeri, possibly due to the favorable conditions of the cave environment. The remaining samples with HR <1% were excluded for downstream analyses. Molecular sex determination indicates that the number of females is approximately twice that of males. Kinship analyses identified several relatives, including a mother and daughter who share the same maternal lineage (T2b). Finally, all the males analysed have the same paternal lineage (R1b1a1b*). This study presents the first paleogenetic analysis of prehistoric groups from this Alpine eastern area and is of particular significance, as the predominant Bronze Age mortuary practice of cremation typically precludes paleogenetic investigation.

209 ARCHAEOLOGICAL DATA WORK: INTERDISCIPLINARY PERSPECTIVES TO INTERDISCIPLINARY PRACTICES

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Isto Huvila (Uppsala University) – Sabina Battle Baró (Universitat de Barcelona) – Costis Dallas (Vilnius University)
Keywords: data work, digital data, datafication, interdisciplinarity, knowledge production, digitisation
Format: Regular session
Affiliation: Computer Applications & Quantitative Methods in Archaeology (CAA)

SESSION ABSTRACT

Digitalisation and datafication of archaeological practices mean that rapidly evolving data work has become a central aspect of practising archaeology. Instead of documenting finds and features and publishing results, archaeology is more and more about making, processing, organising, managing and (re)using data. These data are increasingly digital and expected to be findable and accessible online, interoperable for digital processing and reusable for a wide range of secondary purposes, within and outside archaeology. The data work in archaeology has expanded in how it has progressively become a more interdisciplinary enterprise requiring multiple types of expertise beyond archaeology. But also, in how archaeological data is increasingly used outside of archaeology, and how understanding archaeological data work benefits from f perspectives outside of archaeology. This session welcomes presentations of evidence-based, theoretical, critical and applied research relating to contemporary and historical archaeological data work. The purpose is to inquire into how data work is conducted in practice, what influences data work and how, what implications different types and approaches to data work have on data, archaeology and archaeological knowledge production, what methods and theories help us to understand archaeological data work, what concerns and new challenges are introduced or exacerbated by the increasing centrality of data work in archaeological research, curation and communication, and how we can theorise and practice data work in the future. Submissions are invited from archaeologists but also from other disciplines conducting research on archaeological data work or working with archaeological data, and practitioners who are engaged in data work. The session is sponsored by the CAA SIG ARKWORK Archaeological practices and knowledge work in the digital environment.

CONTRIBUTION ABSTRACTS

2248. Understanding data reuse: the role of excavation reports in Catalan archaeological research practice

Authors: Sabina Batlle Baró (Departament de Biblioteconomia i Documentació, Universitat de Barcelona)
Format: Oral

The increasing emphasis on the FAIR principles in archaeology presumes that making raw digital data openly available will facilitate reuse and advance knowledge production. However, this study of data reuse practices among archaeological researchers in Catalonia reveals a more complex reality. Through semi-structured interviews with researchers—predominantly based in universities and institutes across all archaeological periods—, this research demonstrates that while data reuse occurs, it remains limited and shaped primarily by social rather than technical barriers. Findings reveal that researchers rarely engage directly with raw datasets, instead relying on excavation reports as their primary source. This practice reflects both pragmatic constraints—data are often unavailable—and epistemological beliefs that data lack interpretive value without the data creator's expertise. Significantly, social norms discourage accessing others' work without direct contact, and researchers express concerns about appropriateness of reuse without collaboration. These social barriers—trust, professional etiquette, and perceived requirements for personal communication—fundamentally shape reuse practices. This research highlights excavation reports' crucial yet underexamined role in archaeological data sharing and knowledge circulation. Rather than bypassing reports in favor of raw data repositories, data infrastructure should recognize and enhance reports as vehicles for FAIR-compliant information sharing, bridging current practice with open science aspirations.

2534. Information Work and Data Regimes of Archaeological Research Data: Flows and Trajectories in Institutional Data Infrastructures

Authors: Michal Lorenz – Filip Hájek (Masaryk University)
Format: Oral

This presentation examines information work with archaeological research data, focusing on how data are organised, stabilised, and transformed within institutional data infrastructures. It addresses the problem of heterogeneous data regimes that shape everyday information work across institutions and the resulting tension between diverse local practices and the need for standardised procedures within shared data environments. The aim is to describe and compare flows and trajectories of archaeological research data, tracing their movement from data creation through long-term storage to preparation for reuse. The study draws on semi-structured interviews with data stewards and curators from five institutions operating their own databases or data repositories. The analysis employs Cognitive Work Analysis, with a particular emphasis on Strategies Analysis. Information work practices identified in the interviews are examined as alternative strategies for organising and managing data under different institutional data regimes. These strategies are subsequently modelled as information flows and data trajectories, representing sequences of organisational and transformational steps through which data move across the research and preservation lifecycle. The paper provides a comparative, practice-oriented account of information work with archaeological research data across institutional settings. By relating information work to data regimes and modelling it through flows and trajectories, the study offers an analytical basis for the design of standardised data infrastructures, including shared workflows and metadata configurations, while remaining attentive to the diversity of archaeological data and research contexts.

366. Tracing interdisciplinarities of archaeological data work: identifying and turning evidence visible

Authors: Isto Huvila (Department of ALM, Uppsala University)
Format: Oral

Earlier research on archaeological documentation practices suggest that the inclusion of different aspects of archaeological work in documentation vary heavily. Especially knowledge representation and organisation related decisions and practices in the context of data work are explicated seldom in comprehensive detail. It has been, however, noted that evidence of such activities can be identified across documentation and in investigation data. What remains particularly underresearched in this context so far is where specifically in research documentation such evidence could be found and how it could be identified. The aim of this presentation is to report results from a qualitative/quantitative investigation drawing from information science methods and theory to summary descriptions of archaeological research projects to understand how data work is described directly and indirectly in archaeological documentation, and how the representation of different types of data work differ from each other. The purpose of the work is to identify keywords, contexts and articulations how documentation refers to and indirectly implicates varieties of data work, and to understand how the disciplinarities of data work are reflected in the documentation. The findings suggests that data work is often implied in documentation through its outcomes and effects on other practices but that it is also possible to identify keywords that directly suggests of data work taking place. In parallel, the findings suggests that the disciplinary origins and traditions of specific practices of data work influence how they are described and implicated. The practical relevance of the findings is that they can inform development of protocols for identifying and extracting process documentation (i.e. paradata). On a theoretical note, a better understanding of the documentation of data work helps to understand how archaeologists conceptualise data work and how it is positioned as a part of the cross-disciplinary practice of archaeological work.

2031. Dealing with Uncertainty: Archaeological Practices Around Osteological Sex Data

Authors: Eleonore Pape (Marburg University)
Format: Oral

Burials materialize past funerary practices while generating dense datasets that today span multiple forms of expertise, from geology and zoology to osteology and biomolecular analysis. Across Europe, archaeologists have long relied on osteological assessments to determine age and sex—and, by extension, gender—of deceased individuals in prehistoric, preliterate populations. Importantly, this osteological knowledge is most often encountered through archaeological publications, frequently in brief annexes authored by osteologists, which archaeologists then integrate, interpret, and operationalize within broader archaeological narratives and datasets. Although methods such as aDNA and proteomic sex determination now enable chromosomal sex identification, these techniques are rarely applied to systematically reassess existing collections. As a result, vast bodies of burial data continue to depend on osteological determinations that carry historically and methodologically sedimented uncertainty. This uncertainty stems from a largely unquantifiable combination of methodological error margins, population variability across time and space, preservation conditions, and the life histories of individuals. It is further compounded by heterogeneous documentation practices and the accumulation of assessments made with different methods over decades of research. Yet abandoning these datasets is not an option—not for archaeology, nor for other disciplines seeking longue-durée evidence. This paper asks: how do archaeologists work with uncertain and sometimes contradictory osteological data in practice? Focusing on Central European burial sites, it examines how uncertainty has been recorded, ignored, negotiated, or operationalized in archaeological analysis . Through selected case studies, the paper demonstrates how data practices shape archaeological interpretation and knowledge production, and outlines strategies to make legacy osteological data more transparent, interoperable, and analytically productive.

2210. Transforming Archaeological Data Work: Evidence from ArcheoBase Implementation in Swiss Archaeology from Fieldwork to Publication

Authors: Emmanuel Clivaz (AnalyticBase - ArcheoBase)
Format: Oral

Contemporary archaeology increasingly centers on data work, the practices of making, processing, organizing, managing, and reusing archaeological information. This presentation examines how comprehensive digital platforms reshape archaeological data work practices, using ArcheoBase as a case study with evidence from multi-year implementation across Swiss archaeological institutions. ArcheoBase is a web-based platform integrating the complete archaeological data lifecycle: field documentation, post-excavation analysis, laboratory work, storage management, and online publication. Developed through collaboration between computer engineers and archaeologists, it centralizes previously fragmented data work into a unified environment with customizable forms, GIS integration, automated Harris matrix generation, vector drawing tools, AI-assisted analysis, and collaborative workspaces. Drawing on user testimonials and project documentation from excavations managing up to 50 team members across 2+ hectares, this presentation analyzes how platform design influences data work practices and archaeological knowledge production. Evidence demonstrates dramatic transformations: elimination of manual data transcription, reduced post-excavation processing time, instant access to linked documentation, and real-time collaboration across multiple specialists. Three critical transformations emerge: direct field-to-database capture replacing repeated manual transcription; simultaneous specialist collaboration replacing sequential workflows through shared access to linked documentation; and restructured publication workflows. The Swiss Archaeology AS Portal demonstrates this final shift: ArcheoPublication enables archaeologists to write directly in a digital environment that automatically synchronizes content to organizational websites, transforming over 6,000 publication records from static archives into searchable, interconnected resources. This represents a fundamental shift from publication as endpoint to publication as integrated data work practice. By analyzing concrete evidence of how tool architecture shapes archaeological practice, this contribution addresses the session's core concerns: how interdisciplinary expertise collaborates in platform development, how data work practices change when

systems become integrated, and what implications these transformations have for archaeological knowledge production, particularly for making archaeological data FAIR while maintaining scholarly rigor and institutional control.

974. From Graves to Graphs: Archaeological and Anthropological Data Work with OpenAtlas and THANADOS

Authors: Nina Richards (Natural History Museum Vienna | Austrian Centre for Digital Humanities) – Stefan Eichert (Natural History Museum Vienna)
Format: Oral

Digital archaeological research increasingly depends on complex data work that bridges disciplinary boundaries, infrastructures, and epistemic traditions. This paper examines archaeological and anthropological data practices through the lens of two interconnected digital projects: OpenAtlas (https://openatlas.eu/), a flexible, open-source database system for archaeological and historical research, and THANADOS (https://thanados.net/), a domain-specific digital platform for the documentation and analysis of burial contexts and associated anthropological data. Focusing on the types of data processed and presented within these projects, the paper explores how heterogeneous archaeological and anthropological information—ranging from burial contexts, spatial and temporal relations, and material culture to biological and osteological observations—is modelled, structured, and made interoperable. Particular attention is paid to the challenges of integrating disciplinary data standards, terminologies, and analytical perspectives within a shared digital environment, as well as to the implications these decisions have for data reuse, interpretation, and knowledge production. By analysing concrete data workflows, modelling choices, and representational strategies, the paper highlights how OpenAtlas enables relational data structures that support complex contextualisation, while THANADOS translates specialised burial and anthropological datasets into a format that is both analytically robust and accessible for broader reuse. The contribution situates these practices within ongoing discussions on FAIR data principles, interdisciplinarity, and the increasing centrality of data work in archaeology. Ultimately, the paper argues that projects such as OpenAtlas and THANADOS exemplify how archaeological data work is not merely a technical task but a form of scholarly practice that actively shapes research questions, interpretative possibilities, and cross-disciplinary collaboration between archaeology and the Digital Humanities.

1813. Making Methods Explicit: The Modular Research Pipeline in Archaeological Research

Authors: Steffen Strohm (Cluster of Exc. ROOTS, Kiel University) – Daniyal Kazempour (Kiel University) – Andrea Göhring – Hendrik Raese – Hartwig Bünning (Cluster of Exc. ROOTS, Kiel University) – Nicolas Da Silva (Kiel University) – Jutta Kneisel – Matthias Renz – Peer Kröger (Cluster of Exc. ROOTS, Kiel University)
Format: Oral

Archaeological research is shaped by chains of analytical and interpretive decisions. Even when data and final results are made openly available, it is often difficult to reconstruct how specific methods were combined, which alternatives were considered, and why particular choices were made. Standards such as the FAIR and FAIR4RS principles have significantly improved access to data and software, yet they usually leave the procedural reasoning behind archaeological analyses implicit. We propose the **Modular Research Pipeline (MRP)** as a conceptual approach to make these research processes more transparent and communicable. MRP understands research not as a single linear procedure, but as a sequence of clearly distinguishable and connected research steps (similar to a pipeline) in which data are prepared, analysed, and interpreted. Conceptually, it brings together two established perspectives: the Research Data Lifecycle, with its emphasis on planning, documentation, and long-term reuse, and a structured approach to data-oriented analysis that emphasise the stepwise transformation of data towards interpretation. The main benefit of MRP lies in making research practices easier to understand, discuss, compare, and reuse. Explicitly describing research steps and their relationships supports collaboration among project members, facilitates critical assessment by reviewers, and allows later researchers to better contextualise and build upon existing work. Importantly, MRP does not aim to standardise archaeological interpretation; instead, it highlights methodological choices and their consequences. The applicability and versatility of MRP is illustrated through two use cases. The first addresses ancient DNA (aDNA) research, where complex analytical procedures (Principal Component Analysis and Machine Learning-based predictions) intersect with expert-driven interpretive decisions. The second focuses on an archaeological research process in which an existing Bronze Age chronology for Denmark was refined. Together, these examples demonstrate the potentials, challenges and limits of how MRP can help communicate complex research processes in a clear and discipline-sensitive manner.

1066. Why Data Work Matters: Translating Narrative Flood Histories into Interdisciplinary Evidence on Flood Resilience (THR-FRD)

Authors: Mei Ai (Ludwig-Maximilians-Universität München)
Format: Oral

In the context of climate change, "learning from the past"is frequently invoked, yet empirically grounded explanations of how prior experience shapes future disaster resilience remain limited. One key barrier is insufficient interdisciplinary integration: geography and risk research often lack long, continuous, high-quality and computable datasets, while historical scholarship frequently privileges political history or case-based narratives with limited engagement with contemporary climate-risk governance. This paper argues that data work—the production, processing, organisation, management and reuse of historical climate information is a crucial

component of enabling such interdisciplinary collaboration. The Tea-Horse Road region in southwest China has been repeatedly exposed to floods over the last two millennia and preserves rich documentary evidence. However, these materials largely circulate as narrative texts, heterogeneous archives and fragmented records whose temporal scales, spatial units and evidential logics are often incompatible with spatialised and quantitative models. Using the Tea-Horse Road Flood Resilience Dataset (THR-FRD; AD 0–2025; 50-year bins; county-level historical administrative units) as a case, this paper discusses the significance and costs of data work, and examines how it is shaped by documentary regimes, digital tools/infrastructures, and interdisciplinary divisions of labour. Three points are emphasised: (1) datafication can serve as a bridge for interdisciplinary communication, enabling narrative evidence to enter spatial and quantitative reasoning while also reshaping how evidence is understood and compared; (2) datafication is also a process of interpretation and selection—extraction, coding, standardisation and aggregation are not neutral steps—therefore key rules and decision points must be documented, and each record should carry provenance and uncertainty annotations so that downstream users can assess scope and potential bias; and (3) when datasets are reused beyond history (risk assessment, heritage management, public communication), they must balance computability with source fidelity to avoid decontextualised indicators.

2677. From Technical Data to Archaeological Data: Interdisciplinary Work with LiDAR in Forested Areas

Authors: Vanessa Antunes (CGeo - Centro de Geociências | Universidade Autónoma de Lisboa | Instituto Politécnico de Tomar | Património Cultural IP | ERA Arqueologia) – Telmo Pereira (Universidade do Minho | UNIARQ—Centre for Archaeology, School of Arts and Humanities | CGeo - Centro de Geociências) – João Fonte (ERA Arqueologia | Centre for the Humanities - CHAM, Universidade NOVA de Lisboa) – João Marques (CEAACP- Centro de Estudos em Arqueologia, Artes e Ciências do Património | CHAIA – Centro de História da Arte e Investigação Artística) – Paulo Regato (Centro Português de Geo-história e Pré-história)
Format: Oral

The increasing digitalization of archaeological practices has shifted the discipline's focus from documenting remains to creating, processing, managing, and reusing data. In this context, remote sensing data, particularly LiDAR (Light Detection and Ranging), play a central role in contemporary archaeological knowledge production, especially in forested areas where direct observation is limited. Working with LiDAR data exemplifies the interdisciplinary expansion of archaeological data work, involving collaboration across multiple fields and circulation of data between different application domains. Data originally produced for cartography, forest management, or wildfire risk modeling are reinterpreted within archaeology to identify and analyze structures hidden beneath vegetation. This process engages specialists in geospatial engineering responsible for point cloud processing, forestry technicians who interpret vegetation dynamics and erosion patterns, and archaeologists who attribute cultural significance to topographic anomalies. Simultaneously, the resulting archaeological data are reused beyond archaeology, including in forest planning, protected area designation, and wildfire mitigation strategies. This study analyzes LiDAR as a specific form of archaeological data, emphasizing the processes through which technically generated data are transformed into interpretable information for research and heritage safeguarding. By describing workflows for acquisition, filtering, visualization, and interpretation, it shows how archaeological knowledge emerges from technical and interpretative practices involving multiple actors and specialized expertise. In regions with dense vegetation and recurring disturbances, such as wildfires, LiDAR proves particularly valuable, enabling identification of hidden structures, monitoring of vulnerable areas, and assessment of post-event impacts. In this way, working with LiDAR data supports a preventive approach to heritage management, integrating archaeological information into broader land-use planning. By linking technical practices, interpretative decisions, and institutional contexts, this contribution reflects critically on how LiDAR data are produced, transformed, and reused as archaeological data, demonstrating how data work in archaeology constitutes an inherently interdisciplinary practice.

1717. Archaeological research questions as a basis for semantic data modeling and querying

Authors: Pavlos Fafalios (Centre for Cultural Informatics, FORTH-ICS | Technical University of Crete) – Athina Kritsotaki – Christianna-Despina Pratikaki – Martin Doerr (Centre for Cultural Informatics, FORTH-ICS)
Format: Oral

Representing knowledge about the past in the form of semantic database schemata is particularly effective for worldwide access to and integration of research data, especially archaeological records. The adequate design of the schemata and query systems requires the analysis of real, detailed research questions. However, people and domain experts equally do not easily remember more detailed questions, but instead their good answers. Consequently, respective IT systems are mostly based on intuitive guesses, often not even from the domain experts, but from their IT consultants. To our knowledge, there are no publicly available collections of archaeological research questions below the level of research grant applications. For that sake, we have provided an empirical collection of detailed scientific questions of archaeologists, as a corpus for further studies and for improving the adequacy of IT systems for archaeology, by extracting questions from the abstracts of the EAA 19th Annual Meeting, section A: "Interpreting the Archaeological Record" (Sessions A01-A08), or by reconstructing the questions reversely each abstract appears to answer to. This material is directly related to the above problem, and is representative of the research trends of that year. After a linguistic formulation of 388 questions covering the above material, we used several abstraction and classification methods to assess the frequency of occurrence of certain types of questions, by subject coverage, entities of interest, interpretative processes, generalization levels and a parametric form of query structures, accessible at https://isl.ics.forth.gr/archaeological_questions/. The results reveal a rich variety and complexity, hardly addressed so far by database designers. We present our conclusions from this analysis for database design and query systems, including requirements for a theoretical data model for addressing the questions, a comparison of its coverage by CIDOC CRM, and the need of query mechanisms exceeding first-order query languages like SPARQL. Further studies may refine this analysis.

212 TRANSFORMING DATA INTO EXPERIENCE: INTERDISCIPLINARY STRATEGIES FOR SUSTAINABLE ARCHAEOLOGICAL TOURISM

Theme: 3. Museums and cultural heritage in the era of 'permacrisis'
Organisers: Marta Rakvin – Jacqueline Balen (Archaeological Museum in Zagreb | Iron Age Danube Route) – Szilvia Fábián (Hungarian National Museum | Iron Age Danube Route) – Sarah Kiszter (Universalmuseum Joanneum | Iron Age Danube Route) – Raffaela Woller (University for Continuing Education Krems)
Keywords: Archaeological Tourism, Interdisciplinary Collaboration, Sustainable Heritage Management, Public Archaeology, Archaeological Interpretation, Knowledge Transfer
Format: Regular session

SESSION ABSTRACT

This session is dedicated to exploring interdisciplinary and collaborative strategies that successfully transform complex, and often highly academic, archaeological knowledge into engaging, accessible, and sustainable cultural tourism products. In an era demanding resilience and renewed relevance from heritage institutions, we spotlight the vital necessity of bridging the gap between academic research and public engagement. We seek to highlight effective approaches—developed through collaboration among museums, universities, cultural routes, and other heritage institutions and often within international projects, in regard of or in partnership with local communities within their respective cultural landscapes—that enhance public awareness and generate sustainable cultural tourism models and new visitor programs. We welcome papers that demonstrate successful knowledge transfer, showcasing innovative methodologies and tools that apply archaeological academic research to offer tangible connections to the past (e.g. using databases or ALS imagery to assess site suitability for public presentation, developing new interpretations based on academic research, connecting archaeological research with new digital technologies, utilizing the results of various archaeological analysis to recreate the past (such as past environments, menus, clothing...etc.) Ultimately, this session calls for abstracts that underscore the critical role of strong interdisciplinary and international collaboration in creating vibrant, educational, and economically viable heritage experiences.

CONTRIBUTION ABSTRACTS

445. Digital Twins and Open Trenches: Bridging Research and Public Engagement at the Chalcolithic Site of Cucuteni-Cetățuia (NE Romania)

Authors: Radu Brunchi – Andrei Asăndulesei – Felix-Adrian Tencariu – Casandra Brașoveanu (Alexandru Ioan Cuza University of Iasi)
Format: Oral

The Chalcolithic settlement of Cucuteni-Cetățuia (NE Romania, Iași county) represents a cornerstone of "Old Europe," yet its academic depth often remains disconnected from the public. This paper examines the interdisciplinary strategy of the Arheoinvest Center to transform complex research into sustainable archaeological tourism products. Our approach integrates physical outreach with digital innovation. A central pillar is the "Acad. Mircea Petrescu-Dîmbovița" Research Base, established by repurposing an abandoned school in Băiceni. This facility now acts as a multifunctional hub for experimental archaeology, workshops, and scientific events, revitalizing local infrastructure. During the 2025 "Open Doors Day," the site transitioned from a specialist enclave into a transparent platform where visitors engaged with active stratigraphic sections and "fresh" artifacts in situ. While social media dissemination reached over 119,000 views, the initiative highlighted a stark paradox: academic research and spectacular results versus severe rural demographic decline and logistical barriers. To ensure long-term sustainability and overcome physical limitations, we developed a comprehensive 3D Virtual Tour. Utilizing ArcGIS Pro, we created a digital "Hub" centralizing research data from 1909 to 2025. By overlaying magnetometric surveys with high-resolution 3D models of active trenches, we offer tangible connections to the past for a global audience. This dual-track model—narrative-driven for tourists and analytical for specialists—demonstrates how 3D GIS and the adaptive reuse of rural spaces can mitigate accessibility issues. Ultimately, this project underscores the role of interdisciplinary collaboration in creating resilient, economically viable heritage experiences. By bridging the gap between academic research and public engagement, we preserve the relevance of the Cucuteni culture within a transitioning landscape, offering a replicable model for sustainable archaeological tourism in marginalized regions.

1587. From Hidden Archaeological Traces to Visitor Experience: Developing Sustainable Tourism Infrastructure for Roman Heritage beyond the Middle Danube Limes

Authors: Balázs Komoróczy – Katarína Liščáková – Pavla Růžičková – Marek Vlach (Czech Academy of Sciences, Institute of Archaeology, Brno)
Format: Oral

For several decades, the Institute of Archaeology of the Czech Academy of Sciences, Brno, in cooperation with various partners, has conducted systematic research on Roman military presence north of the Danube frontier, particularly in southern Moravia, western Slovakia, and Lower Austria. This long-term research has gradually produced substantial new knowledge about the dynamic relationships between the Roman Empire and local Germanic communities. As a result, dozens of Roman temporary camps and numerous remarkable finds are now known, documenting intensive contacts and, at times, large-scale conflicts within this region. Despite these important discoveries, this segment of shared cultural heritage remained largely invisible and difficult for the general public to comprehend. Due to the absence of a specialized institution for presentations in southern Moravia, our institute took the initiative to develop, drawing on its research expertise, a comprehensive concept for public presentations. The aim of this concept has been to transform specialist archaeological data into accessible physical and digital forms of interpretation and to complement them with a broad range of educational and outreach activities. The most significant outcome of this effort has been the establishment of a visitor centre at the Mušov-Burgstall site, accompanied by thematic educational trails and additional interpretive infrastructure. Current international projects, such as Interreg "Roman Trails" (CZ–AT) and Interreg Danube "Roman Legacy," provide new opportunities to further develop this infrastructure, integrate archaeological heritage across borders, and create joint tourism products based on shared Roman history. The paper will present the methodological and organizational strategies behind this process. Drawing on experience gained through communication with regional institutions, municipalities, and the public, the paper aims to demonstrate how an academic institution can effectively connect scientific research with public interest and transform archaeological knowledge into a sustainable, widely accessible cultural tourism offer.

2291. From Data to Experience: Reimagining Watermill Heritage in Senokos through Landscape, Community, and Cultural Tourism

Authors: Nemanja Pavlovic (University of Belgrade - Faculty of Philosophy | Neozoik Fondation) – Mila Mitrović (University of Belgrade - Faculty of Architecture | Neozoik Fondation) – Jugoslav Pendić (Expert Advisor-BioSense Institute, Novi Sad) – Simeun Srdanović – Anastasija Stojanović (University of Belgrade - Faculty of Philosophy | Neozoik Fondation) – Boris Rančev (University of Niš - Faculty of Civil Engineering and Architecture | Center for Sustainable Spatial Development "BalkanARHitrav")
Format: Oral

Let's Not Grind the Past is an interdisciplinary, NGO-led heritage project focused on transforming archaeological, architectural, and ethnographic data into accessible cultural experiences within rural landscapes. The project centers on the last surviving traditional watermill in the village of Senokos, located in the Balkan Mountains, a mountain tourism destination in southeastern Serbia. Although the Balkan Mountains attract hikers, nature lovers, and eco-tourists, their watermill heritage, once a vital component of local subsistence and landscape management, remains largely invisible within contemporary tourism narratives. Historically, the Vodenička River supported a network of 23 watermills that sustained local communities until the mid-20th century. Today, due to rural depopulation, the disappearance of milling practices, and the ongoing physical deterioration and collapse of the remaining structures, this knowledge and material heritage are rapidly vanishing. Many of the mills are structurally unstable, making detailed digital documentation, particularly 3D scanning and modeling, crucial for preserving their spatial, technological, and cultural information as the physical fabric continues to decay. The project addresses this gap by repositioning the watermill not as an isolated architectural relic, but as a landscape-based system embodying vernacular engineering, environmental adaptation, and intangible cultural practices. Through collaboration between archaeologists, architects, ethnologists, students, and local residents, the project employs field schools, ethnographic interviews, photogrammetry, QGIS mapping, and 3D modeling to generate research data. Crucially, these data are translated into experiential outputs: interpretative signage along hiking routes, exhibitions, a heritage trail, digital models presented through local tourist institutions, and public discussions with the community. By embedding academic research into existing tourism flows in the Balkan Mountains, the project demonstrates how data-driven heritage documentation can evolve into sustainable cultural tourism products. In the context of ongoing "permacrisis," Let's Not Grind the Past argues for heritage practices that are resilient and capable of linking scientific research with long-term sustainability.

475. Sharing Heritage Climate Data Using Shiny Apps: A Case Study from Hadrian's Wall

Authors: Francesca Gillis (The Vindolanda Trust)
Format: Oral

The Vindolanda Trust excavates and manages two Roman forts, Vindolanda and Magna, along Hadrian's Wall World Heritage Site in the United Kingdom. Since the Trust's inception in 1970, annual excavations have taken place at Vindolanda. Over the years, archaeologists have observed changes in the preservation of organic material culture, such as leather and wood, being recovered from the site. In 2022, the Trust began installing weather stations and environmental probe arrays to explore how climate change is impacting the preservation conditions of archaeological remains. The probe data collected over the last four years shows distinct variations in the soil environment in response to the local climate. While this data can be shared with colleagues in academia and the heritage sector, distributing the same information to the general public presents some issues. A primary concern is that access to the raw data would risk misinterpretation, due to lack of context or incomplete datasets. A second concern is legibility – can users truly understand the data they are looking at? To share this data in a controlled manner, the Trust has developed a Shiny Application available through the Roman Army Museum's website. At present, the app provides site history and interaction with the data through a series of plots and summary statistics. Once launched, the Trust will continually assess and gain feedback from visitors and shareholders to determine if the app is accessible and intuitive to use for those without an archaeology or statistical background. Having an online application has the potential to allow visitors to continue to engage with cutting edge and active research from their homes as well as in the museum environment. This paper reviews the experience of implementing a Shiny Application displaying heritage climate data, looking at feedback from its user base to assess its benefits and limitations.

2129. Tharros Extended Destination: integrating XR and generative AI for sustainable archaeological tourism

Authors: Matteo Pitzalis – Chiara Sanna – Gian Mario Spiga – Anthony Muroni (Fondazione Mont'e Prama)
Format: Oral

The Fondazione Mont'e Prama presents Tharros Extended Experience, a cutting-edge digital ecosystem designed to bridge the gap between academic research and public engagement through the concept of "extended archaeology." Built on the Immersive Academia platform and the WebXR standard, the web app transforms archaeological data into immersive, cross-device experiences, accessible directly on site via QR codes. The experience is structured around scientifically accurate 3D reconstructions of seven emblematic buildings—including the Nuragic village, Punic houses, and Roman baths—which act as "temporal stargates" to narrate the cultural layering of Tharros. The project's key innovation lies in the controlled adoption of generative Artificial Intelligence. A conversational chatbot, trained through data ingestion of scientific documents selected by the Foundation's archaeologists, enables visitors to interact vocally with the site, providing personalized and academically rigorous insights. Furthermore, the project introduces "synthetic cinema" for archaeology: hyperrealistic AI-generated videos that populate the reconstructions with scenes of everyday life and human figures based on anthropological studies, bringing the past back to life according to criteria of scientific accuracy. This interdisciplinary methodology—developed through ongoing collaboration between technological experts and archaeologists—defines a new model of sustainable cultural tourism, capable of transforming academic knowledge into an emotional and inclusive experience.

2041. Science for Everyone: Transforming Academic Knowledge into Public Experience

Authors: Szilvia Fábián (Hungarian National Museum)
Format: Oral

The Hungarian National Museum has developed into a dynamic scientific research centre where archaeological scholarship, technological innovation, and public engagement converge. Building on its extensive collections, infrastructure and multidisciplinary research collaborations, the museum has evolved a strategy that transforms high-level scientific archaeological knowledge into accessible, engaging, and enjoyable cultural content. This presentation examines how the institution fosters partnerships among archaeologists, museologists, natural scientists, digital technologists and local communities to create integrated knowledge-transfer pathways. Through case studies, I would like to demonstrate how methodologies—ranging from archaeometric analyses and environmental reconstructions to 3D modelling and immersive experiences—are applied to interpret and present scientific results. These tools enable the Museum to recreate past environments, diets and everyday practices, transforming raw analytical data into vivid, evidence-based narratives. The resulting outputs include interactive exhibitions, digital reconstructions, thematic heritage tours, and educational resources that strengthen cultural tourism while maintaining scientific integrity. By highlighting the Museum's collaborative frameworks, innovative workflows, and commitment to open knowledge exchange, the presentation showcases examples of how archaeological research institutions can bridge the gap between academic inquiry and public experience. The Hungarian National Museum's approach demonstrates that rigorous scientific research, when paired with creative communication and digital technologies, can generate sustainable cultural products that deepen public understanding of the past and enrich contemporary cultural landscapes.

389. Playing the Roman Past: Ancient Board Games as Educational and Interpretative Tools

Authors: Ema Kosnica – Jacqueline Balen (Archaeological Museum in Zagreb)
Format: Poster

This poster presents an educational and public engagement programme developed by the Archaeological Museum in Zagreb (AMZ) within the framework of the Interreg project Roman Legacy, which focuses on the interpretation and sustainable valorisation of the Roman limes. The programme uses reconstructions of ancient board games, based on archaeological finds and academic research, as an innovative tool for knowledge transfer and heritage interpretation. Games such as Nine Men's Morris (mill), ancient tic-tac-toe variants, memory games, and Roman-period board games have been reconstructed and incorporated into museum-based educational activities and school workshops. Through a combination of short lectures and participatory gameplay, children are introduced to archaeological research, museum collections, and material evidence related to games and leisure in antiquity. Several original gaming artefacts are also presented in the permanent exhibition of the Archaeological Museum in Zagreb, creating a direct link between research, collections, and public presentation. Within the Roman Legacy project, these games function as an accessible entry point for presenting aspects of everyday life along the Roman limes, including social interaction, leisure practices, and cultural continuity within the wider Roman landscape. The programme demonstrates how interdisciplinary collaboration between archaeology, museums, education, and international heritage projects can transform academic knowledge into engaging, transferable, and sustainable heritage products, contributing to public awareness and the development of innovative cultural tourism and educational models.

1977. Archaeology and Visitor Engagement: Museum Interpretation and Creative Industries in Vučedol

Authors: Mirela Hutinec – Mirna Šuljug – Petra Rajtarević (Vucedol Culture Museum)
Format: Poster

Using the example of the permanent exhibition of the Vučedol Culture Museum and the Archaeological Park Vučedol, the paper analyzes the process of transforming complex scientific interpretations into accessible content and products of creative industries. A contemporary museum exhibition in a museum building integrated into the cultural landscape of a prehistoric site clearly communicates with the audience, conveying knowledge as well as experiential experience. Based on many years of interdisciplinary research of the Vučedol site and the Vučedol culture, the museum exhibition dedicated to a specific Eneolithic community (3000-2500 BC) integrates contemporary museological interpretation, landscape-integrated architecture, digital tools and educational programs to enable visitors to understand the complex social, technological and symbolic aspects of a prehistoric community. The future Archaeological Park Vučedol represents an example of the successful transformation of scientific archaeological research into a comprehensive and sustainable tourist experience. The project emphasizes experiential learning by enabling audience participation in experimental archaeology and consequently creating an emotional connection with the site. By participating in international projects like Creative Europe and Interreg, and by receiving the European Heritage Label (EHL), Vučedol actively engages with the broader European community. Such an approach not only encourages the development of sustainable tourism in the Danube region, but also strongly strengthens local and wider European identity and raises public awareness of the importance of shared cultural heritage. Vučedol is a prime example of how innovative methodologies and collaborative practices create accessible heritage reconstruction using scientific interpretations of archaeological data and creating educational and experiential content in an authentic location.

214 SHOULD WE SAFEGUARD AN IMPERIAL HERITAGE? POST-IMPERIAL CULTURAL POLITICS IN AN ARCHAEOLOGICAL MUSEUM

Theme: 3. Museums and cultural heritage in the era of 'permacrisis'
Organisers: Mariia Lobanova (Odesa Archaeological Museum of the National Academy of Science of Ukraine) – Tiziana Carboni (University of Palermo) – Dmytro Kiosak (Leibniz Zentrum für Archäologie, Standort Schleswig)
Keywords: Cultural Heritage, Archaeological museums, Identity, Decolonization
Format: Session with keynote presentation

SESSION ABSTRACT

Empires have been part of human life for thousands of years. None of them disappeared without a trace, but their material legacy varies greatly: from the ephemeral encampments of Genghis Khan's Mongols to the monuments to the builders of the British Empire, from thousands of identical statues of Lenin to the Chinese bronze army. Preserving them allows future generations to understand their past – both the achievements and the injustices. On the other hand, for many, imperial heritage represents trauma, subjugation, and inequality. Preserving it "as is" is like preserving colonial dominance. Newly independent nations often seek to redefine identity through indigenous heritage, traditions, and narratives, which have been suppressed under empire. Complete forgetting is evidently not the right path, yet preserving the imperial cultural landscape unchanged is equally untenable. Which way should we proceed? We propose to address this question in the context of archaeological museums. Reclaiming museum spaces for other, non-imperial narratives – those of the suppressed, the indigenous, and the non-official – requires deliberate decisions regarding imperial heritage, both physical and cognitive. We cannot simply reproduce the same power relations in reverse, where former "goods" now dominate and former "evils" are condemned. Such an inversion does not transform the structure of discursive power – it merely flips the image. What is needed is a deeper rethinking: a change in the very frameworks of discursive power, particularly within archaeological museums. We invite contributions from archaeologists, historians, museologists, and cultural heritage specialists who have recently confronted these difficult questions, as well as from scholars examining the hidden structures of imperial cognitive dominance in archaeology.

CONTRIBUTION ABSTRACTS

1574. Keynote: Land of conquest or crossroads of cultures in the Mediterranean sea? A story of identity: The case of Sardinia

Authors: Danila Artizzu (SABAP CA OR, Italy)
Format: Oral

Sardinia's strategic position, at the center of the western Mediterranean, has marked the cultural and political history of the communities that inhabited the island since the auroral moments of human presence. If only we consider the two great antagonists of history, Carthage and Rome, it will be enough to remember that the Sardinian land was for centuries a possession of both empires, and, going forward in history, found itself alternately in the orbit of Byzantium and the barbarian kingdoms of Africa, until the

brief independent parenthesis of the Giudicati of Sardinia. The material traces of the alternating events thus briefly summarized are now preserved and exhibited in museums, but they are also the subject of debate not only within the scientific community, but also among public opinion, in light of the rediscovery of a "national identity" that views Sardinia's protohistory as the moment of the self-affirmation of an original and independent culture. But what language did museums use to construct the narrative of the different realities of those who lived in power, of those who suffered it, of those who fought it, and, ultimately, how about integration? Through what ways, and with what tools, has the narrative changed today? The aim of this work will be to define with which languages, and under the impetus of which particular social and cultural demands, in these days the museums communicate these complex concepts, of which the collections on display become vectors.

432. Expansion without Empire: Yamna phenomenon in Archaeological Museums

Authors: Svetlana Ivanova (Institute of Archaeology, National Academy of Sciences of Ukraine)
Format: Oral

Excavations conducted by Vasily Gorodtsov in Ukraine at the beginning of the twentieth century enabled him to identify new Bronze Age archaeological cultures and make a significant contribution to the creation of new museum exhibitions. Gorodtsov was known not only for his scholarly works and archaeological excavations, but was also a specialist and theoretician of museum studies. Gorodtsov, having developed a periodization of archaeological cultures, established the first scientific exhibition grounded in the cultural and chronological classification of materials, with a particular emphasis on the Yamnaya culture. It occupied an enormous territory of Eurasia, and this fact alone calls into question the existence of cultural unity. The examination of kurgans from different regions has made it possible to conclude that the unifying component is the funerary rite, which reflects the religion and social structure of ancient societies. The material culture, above all ceramics, shows these differences. In this case, the Yamna culture should be recognized as the first world religion that spread among the population of the Early Bronze Age. It should be considered in the context of a religious worldview adopted by people of different cultures. This leads to a change in the museum paradigm with regard to the "Yamna culture" and the necessity of developing a new-format museum exhibition concept connected with the history of religion.

760. Sarmatian Archaeology and Colonial Legacy: Lost Finds, Lost Contexts, and Old Myths

Authors: Olena Shevchenko (Odessa Archaeological Museum)
Format: Oral

Research on Sarmatian archaeology in Eastern Europe was largely shaped by imperial and Soviet academic systems. Interpretation and theory were concentrated in metropolitan centres, particularly Moscow and Leningrad, while archaeological work in present-day Ukraine and Moldova was treated as peripheral and limited to the extraction of material rather than knowledge production. Local interpretations were often ignored or marginalised. Linguistic domination reinforced this imbalance. Most twentieth-century publications, reports, and archival records exist only in Russian, making many Sarmatian sites and assemblages inaccessible to international scholars and largely invisible in English-language research. A major consequence of these practices is the systematic loss of bioarchaeological data. Human remains were frequently not collected or poorly preserved, resulting in the near absence of anthropological material from Sarmatian sites in the Northern Black Sea region. This prevents the reassessment of earlier interpretations and the application of modern methods such as aDNA and isotopic analysis. Colonial legacies are also evident in rigid typological models and gendered interpretations, particularly the concept of Sarmatian "Amazons," where female burials with weapons were framed as ideological proof of matriarchy rather than examined within their social context. This paper explores how Sarmatian archaeology can be decolonised today by re-evaluating legacy data, restoring local perspectives and languages, and challenging inherited interpretative frameworks.

1634. Exhibiting the Past: A Long-Term Perspective from Odesa (Ukraine)

Authors: Mariia Lobanova (Odesa Archaeological Museum of the National Academy of Sciences of Ukraine) – Dmytro Kiosak (LEIZA)
Format: Oral

The Odesa Archaeological Museum, founded in 1825, is the oldest archaeological museum in Ukraine and has long served as a major scholarly center contributing to the development of archaeological research in the region. Over nearly two centuries, the institution operated under multiple political contexts and endured significant disruptions, including revolutions, wars, and occupation, which shaped the narratives communicated to both scholarly and public audiences. This study argues that shifts in institutional narratives and research priorities are revealed through changes in administrative records, exhibition planning, and scholarly work. By analyzing increasingly systematic documentation from the 1930s onward, the study demonstrates how exhibition concepts and interpretative frameworks transformed institutional directions throughout the twentieth and early twenty-first centuries. The paper demonstrates that political contexts directly shaped how archaeological heritage was represented and which themes appeared in permanent displays. Central to the analysis is how reassessment of imperial and Soviet legacies reveals both the enduring influence and possible transformation of inherited interpretive frameworks as calls for reflection and decolonization intensify. With the permanent exhibition suspended, the museum now confronts the question of whether inherited frameworks still shape its representations of the past and its public communication of archaeological knowledge. The present moment, therefore, serves as a pivotal

test of the institution's ability to critically re-evaluate its narratives.

2796. Keynote: Constructing a Rus Empire: Archaeology and the Politics of Imagined Continuity

Authors: Alina Yarova (Rylsky Institute of Art Studies, Folklore and Ethnology) – Stepan Stepanenko (CNRS UMR 8167 Monde byzantin)
Format: Oral

The concept of "Rus as an empire" occupies a central place in both historical scholarship and modern political narratives, yet it is rarely examined across different types of evidence. This paper argues that the existence and nature of a Rus "empire" depend fundamentally on whether it is approached through textual traditions or archaeological material. Written sources suggest a more coherent political and ideological formation from the eleventh century onwards, supported by legal, religious, and historiographical developments. In contrast, the ninth-tenth centuries, often retrospectively framed as formative, present a far more ambiguous archaeological picture characterised by networks of exchange, mobility, and elite connectivity rather than clearly bounded imperial structures. This raises the question of whether a Rus "empire" can be identified archaeologically and what its material signature might be, as well as the extent to which archaeological and textual constructions of empire coincide or diverge. These issues have direct implications for museum practice, where stabilised narratives often privilege later historiographical constructions over the variability of the material record, projecting a coherence onto the past that may not have existed. The notion of a unified Rus "empire" appears less a contemporary reality than a later construction, emerging most clearly in eighteenth- and nineteenth-century historiography within the Russian Empire, where the past of Rus was selectively reinterpreted to support imperial claims. In contemporary public discourse, representations of Rus are shaped by ideological frameworks emphasising unity and continuity, often overlooking archaeological diversity. This raises the possibility that interpretations of Rus are shaped not only by historical sources but also by modern narratives, effectively reverse-engineering the past. Museums thus face a critical challenge: whether to reproduce inherited frameworks or expose the layered and contested nature of historical knowledge, confronting both the interpretative role of archaeology and the implications of reshaping deeply embedded narratives.

1517. Imperial Legacies and Colonial Silences: The Making of the Past in Algeria and Tunisia

Authors: Tiziana Carboni (University of Palermo) – Antonio Corda (University of Cagliari)
Format: Oral

Since pre-Roman times, the territories of present-day Algeria and Tunisia have been inhabited by a wide range of populations, largely organised in tribal structures, as attested by literary and epigraphic sources. Among them were the Numidae, Gaetuli, Musulamii, Quinquegentiani, Bavares, and Afri. These groups engaged with the Roman Empire in complex and evolving ways: initial phases of open conflict gradually gave way to various forms of accommodation and integration. Yet to what extent are these pre-imperial populations represented in Algerian and Tunisian museum narratives today? Taking this question as its point of departure, this paper examines the composition and organisation of two colonial-era museum institutions—the Museum of Islamic Art and Antiquities in Algiers and the Bardo Museum in Tunis—both established under French rule. Drawing on the earliest catalogues published between the late nineteenth and early twentieth centuries, the study explores the narratives of the past produced within a colonial framework of knowledge. Its aim is to assess the space accorded to pre-imperial populations within a historical discourse shaped by the interaction between the Roman imperial legacy and French colonial power.

2725. Imperial Eyes, Gendered Voices: Women Travellers, Journalists and Collectors in the Construction of Archaeological Peru

Authors: Carito Tavera-Medina (Universitat de Barcelona)
Format: Oral

This paper examines how women travellers, journalists and collectors from Europe and the United States contributed to constructing Peru as an "archaeological nation" within imperial circuits of knowledge at the turn of the twentieth century. Moving beyond celebratory narratives of female pioneers, it adopts a critical feminist history of archaeology to analyse how gendered actors participated in, negotiated and occasionally unsettled imperial epistemologies. Drawing on travel writing, epistolary fiction, press publications and museum collections, the study reveals how archaeological knowledge circulated through print culture, collecting practices and transnational intellectual networks. The paper argues that imperial heritage is not only material but also cognitive. The persistent invisibility of these women exposes a double erasure—of female intellectual labour and of the imperial infrastructures underpinning supposedly neutral displays. Rather than proposing simple moral reversals or celebratory recuperations, the contribution calls for critical curatorial strategies that make visible the entanglements of gender, empire and knowledge production. In doing so, it shifts debates on post-imperial heritage from monuments to the epistemic architectures through which archaeological pasts are constructed, preserved and communicated.

686. Beyond Relics: Curated Memories of 1857 at Meerut Museum

Authors: Rohan Nirwan (Jawaharlal Nehru University, Delhi) – Shalini Awasthi (Dr. B. R. Ambedkar University, Delhi)
Format: Oral

Revisiting the past opens new ways of interpretation and engagement with memory, shaped by discursive narratives around textual and material evidence. At times, access to material evidence is sparse, hence the past is then curated through available narratives, such as memoirs, travelogues, diaries, folklore and popular consciousness. This submission attempts to examine the visual display and aesthetics of a specific episode in Indian history, rooted in the national pride of Meerut, the city from where 1857 unfolded. The events of 1857 have been interpreted differently across various historiographical traditions. Military historians have described them as the "Sepoy Revolt", colonialists viewed these as the "Indian Mutiny", and the nationalist historians have characterized them as the "First War of Independence". On the occasion of 150 years of this event, a permanent gallery was introduced, institutionalizing memory through visual displays. The methodology of this submission examines these displays within an analytical engagement with layered memories, employing ethnographic interactions with the descendants of the participants and the systematic documentation of accessible cultural artefacts. By juxtaposing ethnographic findings with dominant British historiography, this submission seeks to decolonise the triumphalist narrative of "victory" by foregrounding absent testimonies, local memories, ritualized commemoration, and challenging archival silences, thereby offering a contested, plural, and dialogic understanding of the events of 1857.

2385. The "Soviet Stonehenge" in the Budjak Steppe: Reinterpreting the Past in the Tourist Complex Frumushika-Nova

Authors: Nataliia Petrova (Odesa I.I. Mechnikov National University)
Format: Oral

This paper explores the tourist and ethnographic complex Frumushika-Nova in the Budjak steppe (southern Ukraine) as a contemporary site of memory where the traumatic legacy of Soviet forced resettlements is reinterpreted through heritage-making practices. Established on the territory of villages liquidated during the Soviet period, the complex represents an alternative memorial landscape shaped by tourism, symbolism, and experiential engagement. Central to this space is the so-called "Soviet Stonehenge" - a monumental installation of stone blocks commemorating destroyed villages. Drawing on archetypal forms of megalithic architecture, the installation produces a sense of timelessness and sacralization, transforming historically specific acts of Soviet violence into a universalized narrative of loss. From a memory studies perspective, this process contributes to the construction of a lieu de mémoire that privileges emotional and symbolic resonance over historical contextualization. The complex also includes Soviet-era monuments removed from their original context and redefined in a new heritage setting. Though no longer used for propaganda, their inclusion raises questions about the boundary between reinterpretation, aestheticization, and depoliticization of the totalitarian past. From a heritage studies view, Frumushika-Nova shows the tensions in post-Soviet decommunization, where Soviet legacies are neither fully rejected nor critically reviewed. The case reveals the risks and possibilities of turning traumatic history into tourist heritage and stresses the need for critical narratives in Ukraine's memory decolonization.

431. Why Was Soviet Archaeology Imperialistic?

Authors: Dmytro Kiosak (LEIZA)
Format: Poster

Bruce Trigger identified Soviet archaeology as one of the classical examples of what he termed imperialistic archaeology, alongside nationalist and colonialist traditions. In his view, Soviet archaeology was imperialistic because it claimed both omnipresence (seeking to interpret the prehistory of humankind on a global scale), and omniscience (asserting that Marxism–Leninism provided methodological tools superior to those of any other archaeological tradition). However, for the inhabitants of the USSR and its surrounding territories, Soviet archaeology was imperialistic in a somewhat different sense. The acquisition of new territories was legitimised through a series of publications that asserted the historical rights of Slavs to these lands, glorified their incorporation into the Russian Empire or the Soviet Union, and vilified their previous owners. The archaeological record of newly acquired territories was rapidly appropriated and mobilised to celebrate the victorious conqueror. Archaeological expeditions were organised almost immediately, sometimes surveying landscapes that were still contaminated with landmines. Although these investigations were informed by earlier scholarship, previous research was often inadequately cited or selectively appropriated. This raises the question of whether Trigger's epistemological understanding of imperialistic archaeology and its practical, territorial manifestation necessarily represent two sides of the same phenomenon. I would argue that such a convergence is not inevitable. In the case of Soviet archaeology, however, these dimensions largely coincided.

215 UNDERSTANDING BUILDING MATERIALS: THE BROADENING FIELD OF CBM STUDIES

Theme: 1. Widening perspectives in material culture studies
Organisers: Pirjo Hamari (Finnish Institute in Athens / Independent researcher) – Annalize Rheeder (Independent researcher) – Julian Bauch (German Archaeological Institute, Berlin)
Keywords: Ceramic building materials, tile, brick, terracotta, life cycle, object biographies
Format: Regular session

SESSION ABSTRACT

Ceramic building materials have become increasingly recognized as a valuable and abundant archaeological resource in recent years. Advancements in scientific methods and technologies have enhanced documentation and facilitated the investigation of new research areas. This trend was particularly evident during our recent EAA sessions in 2024 and 2025. While traditional analyses of style, form, and function remain integral to the field, new considerations such as production, distribution, and the life cycle of objects have broadened the disciplinary scope. The 2026 session aims to consolidate discussions on new methods and the life cycle of objects. The life cycle of ceramic building materials involves various phases where objects acquire diverse functions and meanings. Throughout these stages, objects transform from products of design and production into trade goods, transported cargo, or functional building materials. Reuse is frequent, with shifts in function causing physical or symbolic transformations. Crucially, identifying traces on the objects themselves provides insights into their chaîne opératoire, construction processes, building techniques, wear, reuse, recycling, destruction, and deposition. This session invites submissions on ceramic building materials from the Bronze Age to the Medieval period across the Mediterranean and European regions. We seek papers that present new methods and recent findings concerning the CBM life cycle. Furthermore, we encourage contributions that broaden the discussion of CBM as an archaeological source, demonstrating its capacity to inform wider debates on social processes and economic factors. Specifically, papers might explore how CBM analysis enhances understanding of local production economies, trade routes, object reception within communities, resource acquisition and technological exchange.

CONTRIBUTION ABSTRACTS

2202. Future Directions in Roof Tile Research: Exploratory Analysis of Terracotta Roof Tile Data

Authors: Annalize Rheeder (Independent researcher)
Format: Oral

The study of terracotta roof tiles has advanced significantly in recent years. Pioneering research has opened new avenues of investigation, while the application of emerging technologies and methodological approaches has further expanded the field. These developments have brought roof tile studies to a critical juncture, enabling the exploration of research questions that were previously inaccessible. This paper explores several of these emerging questions through the qualitative and quantitative analysis of newly documented roof tile assemblages. By employing exploratory data analysis, it becomes possible to evaluate relationships between different roof tile parameters that had traditionally been considered in isolation. For example: innovative studies of undecorated roof tiles, for example, have demonstrated chronological developments in the profiles of pan tiles. Drawing on data from Pergamon, Olympia, and the Kerameikos, collected as part of the DAI's Digital Roofs Project, this paper examines the relationship between roof tile profiles and key indicators associated with production techniques. These include fabric grain, material density, and surface finish. By integrating morphological and technological data, this study aims to highlight the potential of exploratory analytical approaches for advancing future research in terracotta roof tile studies.

1462. The magnificent roof of the church of Ashdod-Yam

Authors: Philip Ebeling (Institute of Classical and Christian Archaeology, University of Münster) – Dana Ashkenazi (Tel Aviv-University) – Liora Bouzaglou (Paris 1 Panthéon, Sorbonne, Paris, France | Institute of Archaeology, Tel Aviv University) – Alexander Fantalkin (Institute of Archaeology, Tel Aviv University) – Myrsini Gkouma (Malcom H. Wiener Laboratory, The Cyprus Institute) – Marta Lorenzon (Department of Cultures, University of Helsinki) – Lucía Ruano Posada (Department of Prehistory and Archaeology, Complutense University of Madrid) – Johannes Sterba (Center for Labelling and Isotope Production, TU Wien)
Format: Oral

The church of Ashdod-Yam was excavated during several campaigns in 2017 and 2021 by a team from Tel Aviv University, led by Alexander Fantalkin. The site lies within the densely inhabited area of the modern city of Ashdod, Israel, but outside the limits of the ancient city of Azotos Paralios. The excavation revealed that the church is preserved only in its foundation walls, mosaic floors, and a thick collapse layer of ancient roof tiles. The tiles were embedded in a substantial mass of plastic earthen material (PEM), consisting of loam, clay, and bitumen. This assemblage is interpreted as the remains of the roof. Numerous lumps of various mortars found within the PEM and adhering to the roof tiles indicate the presence of an additional mortar layer above the PEM, into which the tiles were set. The roof tiles (tegulae and imbrices) belong to at least three different production types. The first represents a well-known and previously published production from Jerusalem. The second, less well-documented type probably originated in Cyprus, Cilicia, or northern Syria. The third type, which occurs only rarely, is also known from Cyprus but can be clearly distinguished from the second. Within the second production, different metrological types can be reconstructed. One appears to have been produced on demand and tailored to fit the dimensions of the first production type; both were likely used on the main nave of the church. Another metrological variant of the second production was probably used on the side naves. The third production type is represented too sparsely to allow further functional interpretation. In addition, many roof tiles show traces of red and black paint, applied with different purposes.

1525. Producing, Stocking and Recycling Ceramic Building Materials for Late Antique and Medieval Public Structures in Thessalonica

Authors: Konstantinos Raptis (National and Kaposistrian University of Athens)
Format: Oral

The study and the discussion on the production, the use and the life circle of the ceramic building materials have been broadened during the last decade, through thematic conferences and both traditional and interdisciplinary studies and publications. In this framework the present paper, taking into account the case studies on the quantitative requirements of large architectural projects, the organization of the production and the consumption patterns of ceramic building materials in Thessalonica, over an extended chronological period of approximately one millennium (4th - 15th c. CE), which were presented in the relative thematic sessions during the previous EAA conferences in 2024 and 2025, attempts now to discuss and draw conclusions regarding the control of the production, the possible existence of State brick and tile reserves, the extensive practical and/or symbolic reuse, and the management of the recycling of ceramic building materials, as both objects and raw material as well, in order to meet the structural needs of a large and constantly active, in terms of building activity, urban center of Late Antiquity and the Middle Ages, such as Thessalonica.

1550. Large Scale Ceramics: The Firing Temperature of Iron Age Vitrified Hillforts

Authors: Ben Medley – Malcolm Hole (University of Aberdeen)
Format: Oral

Vitrification is the melting of rock by intense heat, forming a glassy ceramic matrix that can fuse surviving rock fragments. Iron Age vitrified hillforts demonstrate large-scale ceramic building technology, likely drawing on pyro-technologies such as iron production, charcoal burning, and pottery manufacturing to create new architectural uses. Melt experiments on various local rock and surface sediments were conducted to understand the original source of the ceramic building material. Previous studies have suggested that successful vitrification requires sustained temperatures between ~1000-1250°C [1,2]. Full understanding of the temperature conditions required for vitrification is central to understanding the methods used in building these unique archaeological structures. The ceramic material (vitrified rock or vitrified surface sediment) in hillforts frequently contains quenched micro-crystalline minerals (e.g. olivine, pyroxenes) the chemistry of which can be used in geothermometers developed for magmatic systems. For use on hillforts, thermometers are calibrated for surface pressures. 5,826 individual temperature estimates were calculated across 14 hillforts using 23 thermometers. The inter-site average was 990.8°C ±148.61°C, the lower end of the previously reported temperature ranges. Firing times calculated from statistical crystal size distribution suggests that prolonged heating was needed to achieve vitrification. It seems unlikely that the timber-laced design of the walls (murus gallicus) provided adequate fuel to achieve the extent of vitrification visible at these sites and an additional source of fuel may have been required (e.g. fuel addition during firing). This geochemical approach to an archaeological problem provides a detailed understanding of vitrification mechanisms, while highlighting uncertainties relating to burn duration, scale and environment, and fuel quantities required to achieve vitrification. Our study demonstrates how techniques developed for the study of the petrogenesis of igneous rocks can be applied to archaeological investigations. [1] McCloy, J. et al. (2021), Nature, 10.1038/s41598-020-80485-w [2] Sjöblom et al. (2022), Journal of Archaeological Science: Reports, 10.1016/j.jasrep.2022.103459

1267. Bricks, Borders, and Belonging: Ceramic Building Materials and Liminal Landscapes in Northern Tuscany

Authors: Valentina Limina (UCLouvain)
Format: Oral

This paper presents new material evidence from the RELOAD project, which investigated long-term settlement dynamics in the liminal zones of the ager Volaterranus (northern Tuscany, Italy) through integrated landscape survey, ceramic analysis, and geospatial modeling. Focusing on the period between the centuries 3rd BC-5th AD, the project aimed to reassess the role of marginal areas within Volterran settlement dynamics by foregrounding ceramic building materials (CBM) as a key archaeological source. Traditionally interpreted through center–periphery models, marginal zones have often been characterized as conservative or residual spaces. Recent research, however, increasingly recognizes these areas as active components of settlement systems, capable of fostering technological adaptation, and alternative socio-economic strategies. Building on this reassessment, the project adopted the anthropological concept of liminality to reinterpret marginal landscapes as permeable systems in which identities, practices, and technologies were continuously negotiated, making them particularly informative for examining processes of long-term transformations. Particular attention was devoted to Roman-style roof tiles (a incasso) and bricks, identified exclusively within these liminal zones for the Volterran territory. Macroscopic analyses confirm on-site production and the acquisition of technical knowledge distinct from earlier Etruscan CBM traditions. This evidence points to selective technological transfer and possible integration into broader military or supply networks, alongside deeper incorporation into the Roman economic and cultural sphere. The association of CBM production with centuriated landscapes, extra-urban sanctuaries, and early Christian sites further underscores the close entanglement of construction practices with political, ritual, and economic structures. The distribution, reuse, and depositional patterns of these materials reveal complex life cycles, reflecting adaptive construction practices, resource management strategies, and continuity of occupation. Thus, by foregrounding CBM as a pivotal archaeological source, this paper demonstrates how ceramic building materials can provide new insights into settlement organization, resourse management, and social transformation, contributing to

alternative interpretations of ancient landscapes.

2419. Provenance, Networks, and Contexts of CBM in Pompeii

Authors: Julian Bauch (German Archaeological Institute)
Format: Oral

Thanks to its exceptional state of preservation following its burial during the eruption of Vesuvius in 79 AD, Pompeii offers a wealth of reference points and a unique opportunity to reconstruct the complete structure of a local building industry and its development within an ancient Italian city. While various studies have already provided results on the production, distribution and use of other building materials, the use of CBM in Pompeii has only been researched to a limited extent. This is where a new project comes in. By combining different research perspectives on this group of objects, it aims to develop and present a comprehensive reconstruction of this specific segment of the Pompeian construction industry from a diachronic perspective. The intention is to identify strategies for organising the supply of building materials and their dynamics, thereby contributing to a deeper understanding of an important aspect of ancient construction. The project correlates insights from the three fields of epigraphy (stamp analysis), archaeological building research (structural use) and archaeometry (provenance) on the origin, production and use of building ceramics in Pompeii for the first time, based on a case study in which the structural applications of building ceramic products in Insula IX 10, newly excavated between 2023 and 2025, will be fully recorded. The paper discusses the methodological basis of the project and presents some preliminary results of the first campaign.

1495. Tile and brick in Roman in architecture: A personal review into recent research directions in the field

Authors: Pirjo Hamari (University of Helsinki | Finnish Heritage Agency)
Format: Oral

Ceramic building materials, abundant in the archaeological record, have become increasingly recognized as a valuable archaeological resource in recent years. Advancements in scientific methods and technologies have enhanced documentation and facilitated the investigation of new research areas in many areas of the ancient and pre-modern world. This paper takes an in in-depth look at the recent research concerning clay brick and tile used in ancient construction, primarily during the Roman period, with a focus on the Eastern part of the Mediterranean. It aims to bring together personal experiences from two decades of research in the field, highlighting the growing realization on the value of this material as a source of information on past societies, as well as contextualise the new methods and recent findings presented in previous EAA sessions on this topic. By doing this, it aims to pave the way for future research on this topic, identifying promising avenues for research, as well as the still numerous gaps in our knowledge. The paper will finish by exploring the potential for a publication on CMB, bringing together the interesting results in this field presented in recent years.

217 CURRENT RESEARCH IN THE AMERICAS: NOVEL APPROACHES TO RESONANT PASTS

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Manuel Arroyo-Kalin (University College London) – Natalia Moragas (Universidad de Barcelona)
Keywords: Archaeology of the Americas, Heritage Studies, Archaeological Science, Americas
Format: Regular session
Affiliation: Community for the Archaeology of the Americas - EAA4Am

SESSION ABSTRACT

Despite the long trajectory of research in the Americas by archaeologists based in European institutions, few spaces dedicated to Americanist archaeology exist in European archaeological meetings. The session 'Current Research in the Americas: Novel Approaches to Resonant Pasts', organised by the Community for the Archaeology of the Americas (EAA4Am), seeks to overcome this invisibility. The sub-theme Novel Approaches explores innovation in current research practice in the Americas. Here we welcome contributions that showcase how interdisciplinarity expands our understanding of the past in the Americas. The sub-theme Resonant Pasts highlights the powerful social dimensions of heritage and archaeological practice. Here we also welcome contributions that explore the relevance of archaeological research for the political agendas of communities engaging locally with archaeological heritage. By bringing together updates on ongoing research projects alongside reflections and insights on current research practice and collaborations, we aim to create a welcoming space for archaeologists interested in the archaeology and heritage of the Americas.

CONTRIBUTION ABSTRACTS

213. Participatory Mapping and Archaeological Survey of Maritime Landscapes on Ilha de Itamaracá

Authors: Scott Allen (Universidade Federal de Pernambuco) – Josué Santos (Prefeitura Municipal da Ilha de Itamaracá)
Format: Oral

Archaeological, historical, and ethnographic research show that Ilha de Itamaracá has long been shaped by dense interactions between built structures – such as fortifications, churches, sugar plantations, and waterfront facilities – and coastal and estuarine practices structured around fishing, navigation, and systems that linked people, places, and resources across the colonial Atlantic. Despite this historical and archaeological density, heritage narratives and management policies on the island remain largely focused on a small number of monumental sites, while extensive portions of the built landscape – particularly those embedded in everyday maritime work and practices – remain poorly documented. This paper presents the initial stage of an ongoing research project that investigates the role of participatory mapping in the study, survey, and management of archaeological sites in maritime and island contexts. The project adopts participatory mapping as a central methodological framework, working collaboratively with fishing and caiçara communities on the Ilha de Itamaracá to identify, spatialize, and interpret built features, circulation routes, landing points, and architectural remains that are meaningful within local territorial knowledge. Participatory mapping is approached not merely as a descriptive, representational technique for illustrating space, but as an analytical and epistemic tool capable of informing survey strategies, refining research questions, and guiding targeted archaeological investigations. By integrating community-produced cartographies with archaeological, historical, and spatial data, the project examines how built maritime landscapes are recognized, studied, and managed.

1243. Thirty Years of Maritime Archaeology on the Tristán de Luna Shipwrecks in Pensacola Bay

Authors: John Bratten (University of West Florida)
Format: Oral

For more than three decades, the University of West Florida has conducted sustained maritime archaeological investigations of the shipwrecks associated with the 1559 Tristán de Luna expedition in Pensacola Bay. These wrecks, tied to Spain's earliest large-scale colonization effort in the northern Gulf of Mexico, represent one of the most important mid-sixteenth-century shipwreck assemblages in North America. Long-term, systematic research has produced a robust archaeological and archaeometric dataset that informs ship construction, colonial logistics, ceramic supply systems, and shipboard life. This paper synthesizes thirty years of field survey, excavation, conservation, and laboratory analysis across multiple wreck sites. Research has integrated remote sensing, hull remains documentation, artifact studies, and materials characterization, including ceramic typology, residue and pitch analysis, and wood identification. The cumulative results demonstrate the interpretive power of multi-decade, institutionally supported maritime research programs and underscore the value of integrating archaeological science with traditional nautical archaeology. Ongoing analyses and new field investigations continue to expand this dataset, offering further opportunities to refine interpretations of early colonial maritime practice in the Gulf region.

2594. Cliff Dwellings of the Canyons of the Ancients National Monument

Authors: Bartosz Foryś – Radosław Palonka (Jagiellonian University in Krakow)
Format: Oral

The Sand Canyon–Castle Rock Community Archaeological Project, conducted by the Jagiellonian University in Kraków, Poland in cooperation with the U.S. Bureau of Land Management, focuses on the investigation of cliff dwelling sites and rock art in Sand Canyon, East Fork of Rock Canyon, and Graveyard Canyon, in the Canyons of the Ancients National Monument, southwestern Colorado, USA. This paper illustrates the structural, typological, architectural, and settlement complexity of these sites, placing them within the context of social changes. It addresses the issue of the implementation of Prudden's Unit in the cliff dwellings of the Mesa Verde region during the late Pueblo III period (ca. 1225-1300 AD) and the interpretations resulting from this approach. It also presents a bidirectional evolutionary pattern in the location of this type of sites, including dwellings situated in rock shelters and against cliff faces, as well as mixed solutions found in the upper and lower parts of canyons. The discussion, based on both quantitative and qualitative research, includes regional comparisons and ethnographic analogies drawn from Pueblo architecture of later periods. The presentation includes data collected through non-invasive and invasive archaeological methods, using modern digitizing techniques, as well as traditional methods of architectural documentation.

15. Cold War Nuclear Heritage in the Cuban Countryside

Authors: Hakan Karlsson (University of Gothenburg, Dept. of Historical Studies)
Format: Oral

In the Cuban countryside the remains of the former Soviet strategic nuclear missile installations from the October Crisis 1962 are slowly decaying, simultaneously as persons living nearby and with firsthand experiences of this historical event are slowly passing away. This paper explores the results from a contemporary archaeology project that has been exploring the October Crisis (1962) and

its material and immaterial remains in Cuba since 2005. The project is a cooperation between Swedish archaeologists and Cuban archaeologists, anthropologists and historians, and it is focused on the material remains at these missile bases, its local reuse, the memories and stories maintained by people in the small farmsteads and villages surrounding them, as well as the heritagization of these Cold War remnants. Until 2010 this material was considered "difficult" and not acknowledged by the Cuban antiquarian management since it promoted negative reminiscences for the Cuban leadership, and consequently, the October Crisis was also under-communicated in the national/revolutionary narrative even though Cuba was the epicenter of the crisis. However, today this material is undergoing a slow heritagization process where it receives new values and meanings within the framework of projects striving to transform some of the former missile bases into places for reflections on the dangers of nuclear weapons/war, and for the promotion of world peace. Perhaps, the encounter with the material and immaterial remnants of this Cold War crisis can allow us to understand and respond to the present dangerous state of our world.

1981. Walking Archaeohydrology to Revive Ancestral Landscapes: Applied Archaeology in the Andes

Authors: Alexander Herrera (Universidad de los Andes)
Format: Oral

Walking and working together to reimagine a future landscape and rebuild relic hydraulic infrastructure offers a path to meaningfully integrate historic and scientific investigations with traditional water management practice and confront increasingly unpredictable climate regimes. Bringing scientists and local farming community members together to meet eye to eye in the field is a privilege predicated on ethical research practice, and on how the meanings and objectives of research dovetail with local aspirations and expectations, or not. This paper showcases the bringing together of archaeological, paleoclimatological, anthropoligcal and historic work on research on restoration of ancient hydraulic infrastructure in the Ancash highlands of Peru, three dams in the Cordillera Negra – Ricococha Chacrascocha and Weetaocha- and two infiltration systems in the Cordillera Blanca -Pariamarca and Keushu. In doing so it aims to highlight the promise and pitfalls of applied archaeology in restoring ancestral landscapes, providing water and performing rituals from the past.

2226. Market Infrastructure and Settlement in the Calakmul Region

Authors: Kathryn Reese-Taylor (University of Calgary) – Felix Kupprat – F. C. Atasta Flores Esquivel (Universidad Nacional Autónoma de México) – Armando Anaya Hernández (Universidad Autónoma de Campeche) – Matthew Longstaffe – Lisa Schmidtke – Kyle Farquharson (University of Calgary) – Mario Mercado Álvarez (Universidad Nacional Autónoma de México) – Shane Montgomery (University of Calgary) – Jordan Kobylt (Tulane University)
Format: Oral

A central question in the archaeology of urbanism is how large, diverse populations were integrated into workable cities through systems of circulation, provisioning, and exchange. Since 2022, the Proyecto Arqueológico Bajo El Laberinto (PABEL) has combined spatial analysis of an extensive lidar dataset with targeted excavations to examine how market infrastructure shaped settlement organization across the Bajo El Laberinto landscape, centered on the city of Calakmul. Results from an intensive archaeological testing program indicate rapid growth beginning in the Early Classic (ca. 200–450 CE) and continuing through the Middle Classic (ca. 450–650 CE). This expansion is characterized by a proliferation of large multi-patio residential groups and the emergence of "nested" architectural compounds that we interpret as market nodes. These probable marketplaces form a distributed network of purpose-built facilities with permanent exchange infrastructure and likely administrative, ritual, and residential annexes. Their placement suggests a structured pattern of movement that connected households across short and medium distances. Excavations in selected market nodes and in multi-patio residential groups from across the settlement zone provide initial evidence for broad access to locally produced "wealth" goods and costly long-distance imports among households that vary substantially in size and internal arrangement. Together, the settlement pattern and excavation results suggest that sustained investment in market infrastructure supported a robust regional economy by linking inhabitants of multi-patio groups to wider systems of distribution and provisioning.

1967. Archaeological Prospection at Teotihuacan. The San Juan River neighborhood project

Authors: Alessandra Pecci (eraaub, iaub, insa-ub, Universitat de Barcelona) – Agustin Oritz – Luis Barba – Jorge Blancas – Fatima Martinez (UNAM) – Genea Girimonte – Natalia Moragas (Universitat de Barcelona)
Format: Oral

In the framework of the San Juan River neighborhood project started in 2017 in collaboration between the UNAM (A. Ortiz, L. Barba) and the University of Barcelona (A. Pecci, N. Moragas), we have carried out archaeological prospection in different areas of the center of Teotihuacan. Here we show the data obtained studying areas located in the protected archaeological zone of Teotihuacan and in areas now buried under modern occupation, providing new insights to the study of the San Juan River Neighborhood and its building characteristics. The inestigates areas are located in the center of Teotihuacan, between the San Juan River, the Sun Pyramid and the Street of the Dead, named by Millon "sectors N2E1 and N2E2". The project is financed by the Spanish Ministerio de Cultura (Ayudas a proyectos arqueológicos en el exterior) and the Fundación Palarq. It is part of the activities of the Laboratorio de Prospección Arqueológica of the UNAM, the ERAAUB (2021 SGR 00696), the Institut de Arqueologia de la Universitat de Barcelona (IAUB) and the INSA-UB, MdM Unit of Excellence 2021, MCIN/AEI/CEX2021-001234-M. We thank the Consejo de Arqueologia of the Secretaria de Cultura in Mexico for the permission to carry out the project.

1793. Authenticity, Form and Technique: Morphometric and Traceological Analysis of Pre-Hispanic Stone Masks from the A. L. Pinart Collection (MQB)

Authors: Anabel Villalonga Gordaliza (Universitat Autònoma de Barcelona)
Format: Oral

In this presentation, we present the results of a geometric morphometric analysis applied to a set of pre-Hispanic stone masks (n = 8) from the Alphonse L. Pinart collection, currently housed in the storage facilities of the Musée du Quai Branly (Paris). Geometric morphometrics has previously been applied to Teotihuacan lithic sculpture (Buxeda Garrigós and Villalonga 2011; Villalonga 2013, 2015), as well as to Teotihuacan masks within a project conducted at the National Museum of Anthropology in Mexico. The Pinart collection includes particularly relevant examples which, although previously studied from typological (Walsh and Rose 2014) and petrographic perspectives (Rose and Walsh 2018), had not yet been subjected to geometric morphometric analysis. In this study, data acquisition was carried out through photogrammetry, allowing for the analysis of morphoproportional patterns and relationships among the masks. In addition, the results of a traceological study conducted on the same objects are presented, aimed at identifying manufacturing tool marks and assessing whether the lapidary techniques employed are consistent with pre-Hispanic production or, alternatively, suggest that some of the masks may represent modern reproductions.

495. Holocene Geoarchaeology of the Serdan-Oriental Basin of Mexico in the context of climate- volcanism interactions and Mesoamerican cultural transitions

Authors: Agesandro Garcia Arriola (Instituto de Geologia, Universidad Nacional Autonoma de Mexico | Postdoctoral Fellow SECIHTI) – Priyadarsi Debajyoti Roy (Instituto de Geología, Universidad Nacional Autonoma de Mexico) – Irma Vargas Martinez (Facultad de Inegnieria, Universidad Nacional Autonoma de Mexico) – Genesis Aguilar Frias (Escuela Nacional de Antropologia e Historia)
Format: Oral

Lacustrine sediments from central and eastern Mexico are important archives of the Holocene paleoenvironmental conditions and the interaction of first human groups. The early-Middle Holocene was a transitional phase between first settlers, who still coexisted with now extinct megafauna, and the first agricultural societies that gave rise to sedentary lifestyles in Mesoamerica. Multi-proxy data of this study generated paleoenvironmental information from surface processes such as erosion, runoff and authigenic precipitation in the Serdán-Oriental Basin located at the eastern margin of the Trans-Mexican Volcanic Belt. Elemental composition in inorganic fraction, oxygen isotopes and charcoal analysis from a radiocarbon-dated sequence collected from Lake Totolcingo provided valuable information in the context of environmental conditions, volcanic activities and anthropogenic perturbations from the first settlers of the region to the Postclassic Mesoamerica. In the phase characterized by first agricultural villages over the early Holocene, the proxy-registers suggested more precipitation and runoff erosion between ~7.8 and 7.4 cal ka BP between two drought periods evidenced by ancient charcoal. The early Holocene volcanic deposits and wetter conditions might have triggered an increase in plant domestication and horticultural village settlements. Stratigraphic variations after ~3.2 cal ka BP and until ~1.2 cal ka BP in δ18O and clastic fractions represented a change in the sedimentary dynamics indicating more erosion in a phase of higher lake water salinity and evaporation, probably due to an anthropic perturbation contemporary to the cultural phases of nearby Mesoamerican city at Cantona. Different phases of Late Holocene volcanic eruption also had geoarchaeological significance; the first one in 20 AD from Las Derrumbadas twin domes was contemporary to an important population increase in Cantona, and the second phase with activities between 1050-1240 AD from the Las Derrumbadas as well as the Volcancillo crater occurred during abandonment of the ancient city.

1532. A new method for obsidian sourcing in the Americas using image-based deep learning

Authors: Mike Lyons (University of Bonn, Department for Anthropology of the Americas | German Archaeological Institute) – Jeannine Langmann (University of Bonn, Department for Anthropology of the Americas) – Markus Reindel (German Archaeological Institute)
Format: Oral

Identifying the geological source of obsidian artifacts provides a valuable means of reconstructing exchange networks, political influence, and regional interaction in the Americas. Currently, the preferred method for source attribution relies on geochemical analysis using X-ray fluorescence (XRF) or neutron activation analysis (NAA), and subsequent comparison with a known reference collection. While highly effective and increasingly accessible with the advent of portable XRF (pXRF), it remains financially and logistically out of reach for many projects. This research presents a new method for sourcing obsidian using convolutional neural networks trained on standard documentation images of obsidian artifacts with a known source. As of yet, the technique has achieved high classification accuracy across several major Mesoamerican and Isthmo-Colombian obsidian sources. This approach offers a scalable and low-cost alternative for preliminary source attribution and screening of entire assemblages. With further development, the technique has the potential to democratize obsidian sourcing in the Americas and expand its application to projects that currently lack access to geochemical methods.

2485. "Happy Peoples Have No History": Integrating Multiple Methodological Approaches to Reconstruct

Sociopolitical Structures in Pre-Columbian Southern Central America

Authors: Markus Reindel (German Archaeological Institute) – Mike Lyons – Adrien Martinet (German Archaeological Institute | University of Bonn, Department for the Anthropology of the Americas)
Format: Oral

When Georg Wilhelm Friedrich Hegel famously stated in the 1820s that "happy peoples have no history", he did not deny their past; rather, he referred to the ways in which peaceful societies, lacking dramatic ruptures, collapses, or monumental political transformations, remain less visible in historical narratives. In the archaeology of the Americas, scholarly attention has traditionally focused on highly stratified societies with monumental architecture, centralised authority, and clearly bounded territories, such as those of Mesoamerica and the Central Andes. By contrast, the more horizontally organised societies of Southern Central America, characterised by flexible boundaries and networks of communities of practice, have received comparatively limited attention. This paper presents results from an interdisciplinary research project in northeast Honduras, a representative region of Southern Central America. Combining terrestrial survey and excavation with remote sensing techniques, including satellite imagery, photogrammetry, LiDAR, and GIS analysis, we reconstruct settlement patterns across a broad landscape. Archaeometric analyses of ceramics, obsidian, and jade further illuminate exchange networks linking communities and facilitating the circulation of objects, materials, and knowledge. Our findings reveal dense networks of small- and medium-sized settlements without clear centralised seats of power. These decentralised sociopolitical configurations appear to have fostered resilience and adaptability to environmental and social change. By foregrounding alternative forms of social organisation, this research contributes to broader discussions on the diversity of political systems in the pre-Columbian Americas and highlights their continuing relevance for understanding sustainable and pluralistic forms of coexistence.

2707. Refitting the Fragments. Applying Typo-Modal Classification to Late Formative (400 BC – AD 300) Ceramic Assemblages in Southern Central America

Authors: Adrien Martinet (German Archaeological Institute)
Format: Oral

The Late Formative period (ca. 400 BC – AD 300) in Mesoamerica and southern Central America witnessed the crystallization of cultural features that would become hallmarks of later Classic period societies (ca. AD 300 – 900): hieroglyphic writing, monumental architecture and sculpture, strong hierarchical systems, and interregional interaction networks. These developments have traditionally been interpreted as Maya or pre-Maya phenomena, leading regions beyond the limits of Mesoamerica, particularly Honduras, Nicaragua, Costa Rica, and Panama, to be regarded as peripheries or dependents. Although this perception has begun to change over the last two decades with the influx of new investigations in this area, much of the legacy data we rely on today, especially with ceramics, remains shaped by earlier assumptions about these regions. Southern Central American ceramic assemblages have largely been classified using site-based type-variety systems, which hinder comparative analyses and unintentionally reinforce cultural differences. Using a recently excavated Late Formative site in northeastern Honduras as a case study, this paper applies a typo-modal classification to ceramic material in order to reintegrate fragmented datasets from Mesoamerica and southern Central America. By focusing on shared morphological and stylistic attributes, this approach highlights similarities obscured by the type-variety system and identifies broader patterns of interaction among communities previously considered as isolated from one another. Rather than marginal recipients, southern Central American communities emerge as well-connected participants in Late Formative interregional interaction networks, actively negotiating the adoption and transformation of material traditions through locally embedded social practices.

2311. New Paths in Dark Waters: archaeological excavation in São Gabriel da Cachoeira, Amazonas State, Brazil

Authors: Manuel Arroyo-Kalin (UCL Institute of Archaeology) – Filippo Stampanoni Bassi (Museu da Amazonia) – Helena Lima (Museu Paraense Emílio Goeldi) – Laura Furquim (Universidade de São Paulo) – Wiktoria Sagan (UCL Institute of Archaeology) – Meliam Gaspar (Universidade de São Paulo) – Iberê Martins (Instituto Federal do Amazonas) – Rosa De Souza – Viviane Moura (Museu da Amazônia)
Format: Oral

Amazonian archaeology has expanded in recent decades, yet sustained investigations remain restricted to long-term research programmes in a limited number of regions. Difficulties of access and logistical constraints elsewhere impede or hinder the continuity of many archaeological efforts. This is evident in the upper Negro River basin, where Eduardo Neves's doctoral dissertation 'Paths in Dark Waters' (1998) reported the only stratigraphic excavations carried out during the twentieth century, and where comparable efforts were largely absent until our project started in 2018. Today, the upper Negro constitutes one of the Amazon's largest autonomous Indigenous territories, underscoring archaeology as a particularly rich domain for engaging in meaningful dialogue with Indigenous historical memory. Home to speakers of several languages of Arawakan, Tukanoan, and Nadawhupan filiation, ethnohistorical records suggests indigenous ancestors inhabited the region at the onset of European colonisation in the eighteenth century; Neves's work, in turn, shows that these histories plausibly extend back into pre-Colonial times. In this presentation, we report on excavations undertaken at São Gabriel da Cachoeira, the main town dominating the upper reaches of the Negro River in the Brazilian state of Amazonas. We emphasise the archaeological processes leading up to and including excavation and analysis; outline stratigraphy, chronology, and preliminary analytical results; and situate our findings within both the region's otherwise sparse archaeological record and broader interpretations of pre-Colonial history in Amazonia. Our results show that the pre-colonial northwest Amazon can no longer be regarded as a nexus region scantily dressed by people in the past. Instead, through intercultural research, we can now begin to assemble a more comprehensive picture of long-term human occupation and landscape management that led to rainforest domestication and human hiche construction through millennial human action.

893. Geoglyphs, productive consumption, and technologies of movement in the Atacama Desert (ca. AD 1000–1535)

Authors: Daniela Valenzuela – Adrián Oyaneder (Departamento de Antropología, Universidad de Tarapacá) – Persis Clarkson (Department of Anthropology, University of Winnipeg) – Marta Crespo-Fernández (INCIPIT - CSIC, Santiago de Compostela)
Format: Oral

Geoglyphs constitute one of the most prominent visual expressions in the pre-Columbian landscapes of the Atacama Desert. We examine the variability in the spatial distribution, formal features, and contextual associations of geoglyphs, drawing on detailed documentation supported by drone-based photogrammetry. While all occur within arid lowland environments, geoglyphs display marked differences in scale, layout, and placement, including monumental figures associated with caravan routes, smaller figures in agricultural and domestic settings, and concentrations integrated into productive and ceremonial spaces. We propose that geoglyphs can be understood as a form of productive consumption embedded within a substantive and relational economy, rather than solely as symbolic or communicative expressions. From this perspective, geoglyphs formed part of the intertwined processes of production, distribution, and consumption that structured social reproduction for late pre-Hispanic societies. Their circulation-oriented placement and recurring association with pathways, nodes of interaction, and camelid imagery suggest that geoglyphs formed part of broader technologies of movement, alongside pack animals, routes, and material infrastructure. Geoglyphs functioned as active components of economic and social life, contributing to the visual structuring of circulation, territoriality, and identity during the Late Intermediate and Inka periods (ca. AD 1000–1535).

755. Production and provenance of Inka pottery in Qullasuyu: petrographic and geochemical evidence from the Arica-Carangas macroregion

Authors: Ester Echenique (Universidad de Tarapacá) – James Davenport (University of Missouri) – Frances Hayashida (University of New Mexico) – Thibault Saintenoy (Consejo Superior de Investigaciones Científicas, Incipit-CISC) – Santoro Calogero (Universidad de Tarapacá) – Joselline Quijada (Pontificia Universidad Católica) – Paloma Arellano (Independent researcher) – Brandi Mcdonald (University of Misourri) – Suzanne Eckert (University of Arizona)
Format: Oral

The production and circulation of Inka ceramics were central to structuring negotiations between the Inka and local societies annexed to Tawantinsuyu, as well as to strategies of state legitimization and control. Archaeological and ethnohistorical evidence indicates that distinctive Inka ceramics—such as urpus (or aríbalos) and shallow plates, often decorated with polychrome designs—were used in the provinces to emphasize the state's role as both a symbolic and material sponsor. Studies of Inka ceramic production show that potters were relocated throughout the empire to provincial administrative centers and production enclaves, including in Qullasuyu, the southeastern sector of Tawantinsuyu. However, the absence of identified state pottery production sites in Qullasuyu, together with limited regional analyses of ceramic technology, has hindered understanding of the origins of Inka vessels circulating in the southern provinces—specifically whether they were produced in centralized workshops, locally produced, imported, or resulted from multiple production strategies. Using ceramic petrographic analysis and neutron activation analysis, this study shows that Inka ceramic production and circulation in one region of Qullasuyu was more complex than previously assumed. The results highlight the compositional diversity of imperial Inka-style ceramics associated with the Arica–Carangas microregion, spanning present-day northern Chile and western Bolivia, revealing that multiple processes of production and distribution operated within this province. This diversity reflects varied production origins, interpreted as the material expression of differentiated circulation and distribution networks of imperial pottery across the southern provinces. Overall, the findings support the absence of a centralized system of pottery production and suggest that vessels circulated through multiple, differentiated networks of interaction.

1388. Community, ceremony and health: Bioarchaeological insights from the Formative period site of Cerro Pacífico, Perú (1800-900 BCE)

Authors: Luis Manuel Gonzalez – Aleksa Alaica (University of British Columbia) – Milton Lujan (Independent researcher)
Format: Oral

Tooth wear is a key indicator of dietary and cultural practices, reflecting both food abrasiveness and non-dietary uses of dentition. In the Andes, extensive tooth wear is often linked to abrasive diets and is typically associated with older age. However, at Cerro Pacífico (1800–900 BCE), a site in the Lima Province of Peru, a significant number of individuals across a wide age range—ranging from 6 months to 50 years—exhibit advanced tooth wear. This challenges the assumption that severe dental wear is solely a

result of aging or pathology. In this study, we analyze 36 human burials to reevaluate the interpretation of tooth wear as a pathological condition. We examine morphological indicators of masticatory and non-masticatory stress, alongside stable isotope data to reconstruct dietary patterns. Our findings suggest that tooth wear in younger individuals was not a sign of disease, but rather a consequence of active participation in food processing and production. This evidence points to a community practice of collective care, where the maintenance of individuals with significant tooth wear enabled their continued contribution to subsistence activities. Rather than viewing care as a response to pathology, we argue that it was a central expression of embodied value and social inclusion. This reframe highlights how care practices were embedded in the social and economic fabric of the community, underscoring the importance of context in interpreting bioarchaeological data.

1683. Yllapa Ushnu as Watershed Management Infrastructure in the Sondondo Basin

Authors: Viviana Siveroni (IoA, UCL) – Teddy Traslaviña-Arias (Geography and Sustainability, University of Tennesse Knoxville)
Format: Oral

Recent scholarship has drawn increasing attention to yllapa (lightning) ushnu, Inca ceremonial platforms situated in high-altitude landscapes (Branch et al. 2014; Ramón 2014). Some studies examine how the location of these features relates to the physical and sacred topography of highland environments, while others emphasise their association with particular ecological zones. Ramón, in particular, proposes a direct relationship between ecological zones, subsistence practices, pantheons, and ritual architecture, interpreting high-altitude ushnu associated with lightning and thunder as cultural expressions of precolonial puna pastoral societies. While this approach places these platforms at the intersection of ritual and everyday life, additional interpretive possibilities remain open. Water rituals in communities of the Sondondo Basin, where yllapa ushnu are documented, together with other regional ethnographies, provide a framework for reconsidering the role of ushnu within broader systems that encompass not only ritual but also economic dimensions. Such systems can be understood as local forms of governance that bring together sectors of society that might otherwise appear disconnected, yet in practice form part of a more complex social whole. Ethnographic evidence suggests that ushnu in the Sondondo Basin were linked in the past to ritualised practices of water management. On this basis, this paper focuses on yllapa ushnu from the Sondondo Basin. We examine the spatial relationships between these platforms, valley physiography, and water resources—including their placement along drainage divides and their relationship to stream hierarchies and headwaters—to assess their probable function as elements of watershed-management infrastructure in the past.

168. Time, ritual, and bayesian reasoning: charting the Andean Kotosh religious tradition

Authors: Christian Mesia (Universidad Privada del Norte)
Format: Oral

We model 170 radiocarbon dates from 16 Late Archaic and Formative sites to build a multi-scalar chronology for the Kotosh Religious Tradition (KRT). Within the KRT we differentiate the highly codified Mito Tradition (MT) from the more variable Kotosh Broad Tradition (KBT), estimating start–end boundaries for each using OxCal with IntCal20/SHCal20 calibration (Mixed curve for highland contexts) and explicit outlier models. The synthesis resolves three episodes of activity. Phase 1, ~3400 BCE (4004–2991 BCE, 95.4%) to ~ 3000 BCE (3280–2680 BCE, 95.4%), marks the onset of the KRT, confined to Huaricanga and expressed in a coastal KBT form—the earliest materialization of the fire-offering canon later standardized inland. Phase 2, ~ 2700 BCE (2800–2565 BCE, 95.4%) to ~ 1200 BCE (1260–1097 BCE, 95.4%), represents the principal expansion and overlap of KBT and MT, when coastal and highland communities co-produced a shared ritual grammar. Phase 3, ~ 800 BCE (1001–544 BCE, 95.4%) to ~ 550 BCE (750–200 BCE, 95.4%), captures a terminal revival of fire-centric architecture at a limited number of sites, expressed mainly in the MT. Modeled intervals between phases have median durations of ~ 295 year (0–590 year, 95.4%) and ~ 407 year (170–620 year, 95.4%), indicating episodic—not continuous—adoption and elaboration of fire-centric architecture. Anchoring Bayesian boundaries to architectural canonicity provides a transparent, replicable framework for reconstructing the tempo and trajectory of early Andean ritual practice.

1463. Ccopan (Andaray): the probable capital of Cuntisuyu, the fourth part of the Inka Empire

Authors: Mariusz Ziółkowski (Centre for Andean Studies, University of Warsaw) – Gonzalo Presbitero Rodriguez (Universidad Católica de Santa Maria de Arequipa) – Jan Kłaput (Centre for Andean Studies, University of Warsaw) – Bartłomiej Ćmielewski (Faculty of Architecture, Wrocław University of Science and Technology) – Jacek Kościuk (Centre for Andean Studies, University of Warsaw)
Format: Oral

The presentation shows the results of the latest fieldwork campaigns (2025 and 2026), as well as previous research carried out in the early 2000s at the Ccopan site (Andaray district, Condesuyos province, Arequipa, Peru), located on the summit of the eponymous hill, between approximately 3200 m and 3300 m.a.s.l. The site covers approximately 20 hectares. The main objective of this multidisciplinary project is verify the hypothesis that the main Inca administrative center of Cuntisuyu, the fourth (and to date, the least known) part of the Inca Empire, was located in Ccopan. This working hypothesis is based on the following premises: 1. The layout and characteristics of the buildings on the site of Ccopan show traces of the remarkable intervention of the imperial administration and specialists (architects and stonemasons) sent from the metropolitan region. One of the strongest arguments supporting this opinion is Tomb 1, a monument built using an exquisite technique with no parallel in the Arequipa area (or ancient Cuntisuyu). 2.

The main square, with at least two kallanka-type constructions on its sides, has an area of more than 2 hectares and is thus the largest of all the plazas of Inca settlements located in the Cuntisuyu. 3. Ccopan is linked to a series of settlements and sites of funerary function. In one of them, La Joya, located about 1 kilometer to the NW, a capacocha-type sacrifice of two children, accompanied by important funerary offerings, has been discovered. We tentatively hypothesize that the erection of Ccopan could have constituted the final stage of the Inca settlement in this part of the Cuntisuyu. One of the premises in support of this thesis is the unfinished character of certain constructions.

2730. From Chimú to Colony: Territorial Impositions, Resistance, and Landscape Transformation in the Lower Chicama Valley

Authors: Víctor López-López (Incipit-CSIC) – Pablo Barruezo-Vaquero (University of Iceland and Oslo) –Felipe Criado-Boado (Incipit-CSIC)
Format: Oral

After the heydays of the Chimú society (Late Intermediate Period) inhabiting the Peruvian north coast, they suffered two territorial impositions in less than a century. The Inca domination came during the Late Horizon, and a new territorial order arose seven decades later: the Spanish colony. Completely different but successive events produced drastic territorial changes. The colonial process left long-lasting impacts. Changes in territorial and power dynamics that started during the Early Colonial Period extended into the 19th century. Socio-economic and environmental configurations were accordingly impacted. Mechanisms of resistance and transformations developed during this time, especially affecting their materiality, spatiality and environmental perceptions. The "reducciones" of the Early Colony (a resettlement of indigenous communities forced by the Spanish early administration of the Americas) generated an unprecedented territorial mobilisation and reorganisation that deconfigured their conceptions and lifeways in quite a short period. All these impacts can be seen by analysing Chicama's Lower Valley landscape. This paper seeks to understand the changes and continuities of the new social and cultural landscape. Remote and field surveys have located different material remains, from known huacas and reducciones to the Qhapaq Ñan (Inca road system) or multiple cult sites. Some remains date back to the Late Horizon, whereas others were built as part of the colonial process, reflecting changes between the 15th and 19th centuries. This paper will highlight such reality by offering a preliminary assessment of this landscape, its territorial configurations and reconfigurations, and the new living conditions faced by Chicama's lower valley people. The assessment combines ethnographical and archaeological sources, with special emphasis on digital analyses to model and hypothesise flows of movement, territorialisation and controlled exploitation.

2604. Late Pueblo III Architecture in Canyons of the Ancients National Monument

Authors: Bartosz Foryś – Radosław Palonka – Bolesław Zych (Jagiellonian University in Krakow)
Format: Poster

Since 2011, the Jagiellonian University in Kraków, Poland, through the Sand Canyon–Castle Rock Community Archaeological Project and in cooperation with the U.S. Bureau of Land Management, has conducted archaeological research within Canyons of the Ancients National Monument in southwestern Colorado, USA. This multifaceted research encompasses a wide range of archaeological sites, including Late Pueblo III (1225–1300 AD) cliff dwellings located in Sand Canyon, the East Fork of Rock Canyon, and Graveyard Canyon. The poster presents the architectural characteristics of these cliff dwellings and discusses them within a broader social and anthropological context. It summarizes the results obtained to date, outlines the current state of research, and highlights the local distinctiveness of these archaeological sites, for example in comparison with nearby Mesa Verde National Park. The visual design of the poster combines traditional hand-drawn architectural documentation (including cross-sections, perspective views, and two- and three-dimensional representations) with digital model visualizations, addressing both the current state of preservation and proposed reconstruction efforts.

218 VOICES, SOUNDS, AND MOVEMENTS OF ENCOUNTER: MEDIATING COMMUNICATION AT SANCTUARIES OF THE ANCIENT MEDITERRANEAN

Theme: 7. Interaction, connectivity and mobility
Organisers: Erica Angliker (University of Sao Paulo) – Angela Bellia (Palermo University) – Fabio Vergara (Federal University of Pelotas)
Keywords: soundscapes, music, dance, sanctuaries, communication
Format: Session with keynote presentation

SESSION ABSTRACT

The sanctuaries of the Ancient Mediterranean brought together local populations with visitors from distant lands. Arenas of encounter and exchange, they allowed people, ideas, and traditions to converge through ritual and experience vibrant, multilingual and multicultural environments full of diverse dialects, sounds, and gestures. This panel explores how auditory and performative practices mediated communication and connection. Rhythm, movement facilitated mutual understanding and collective participation,

creating non-verbal social and emotional dialogue. Focussing on Interaction, Connectivity, and Mobility from the Archaic to the Roman period, it invites scholars in archaeology, sound and dance studies, anthropology, and sensory research to engage in interdisciplinary dialogue and present papers on the following topics: Sound and Communication · How did sound and music operate as shared languages of worship for communities speaking different languages and dialects? · How did dance and sound foster emotional connection and mutual understanding at ritual gatherings? · How did the acoustic properties of sanctuaries shape or enhance these communicative experiences? Dance, Embodiment, and Connectivity · How did dance and collective movement create social cohesion in multilingual or multiethnic contexts? · Can bodily performance facilitate communication by mediating cultural and linguistic differences? · How did processional and choreographed gestures contribute to the circulation of ritual knowledge and the integration of various identities? Mobility of Sounds and Performers · How did itinerant musicians, pilgrims, and ritual specialists help diffuse musical practices? · What does the mobility of instruments, melodies, and performance style reveal about the cultural interconnectedness of sanctuaries? · How did the dance and music of multiple cultures enrich the soundscapes of Panhellenic, regional, and international sanctuaries? Material and Sensory Traces of Interaction · How can archaeoacoustic and sensory approaches help us reconstruct the experience of multilingual interaction through sound?

CONTRIBUTION ABSTRACTS

745. Hearing the Unfamiliar: Multilingual Soundscapes and Initiatory Experience from Selinunte to Samothrace

Authors: Andrew Ward (Fairfield University)
Format: Oral

Sanctuaries of the ancient Mediterranean served as arenas of encounter in which linguistically diverse populations negotiated participation through shared ritual experience. Within these spaces, sound could mediate communication even when semantic comprehension faltered. This paper argues that linguistic estrangement and semantic opacity were not impediments to worship but mechanisms of ritual transformation: by destabilizing ordinary perception, unfamiliar speech helped prepare participants for initiatory activity. This argument unfolds through a comparison of two geographically disparate Greek communities, Selinunte and Samothrace, with particular attention to how multilingual civic environments informed the ritual dynamics of the Sanctuary of Malophoros and the Sanctuary of the Great Gods. Pre-409 BCE Selinunte presents substantial evidence for multiculturalism, including indigenous ceramics in early strata, intermarriage, and onomastic traces of non-Greek individuals in inscriptions and curse tablets. Phoenician ritual vessels from urban sacred contexts further suggest that non-Greek offerings—or even practices—could be accommodated within regulated confirmation of sacred space. Against this backdrop, the suburban Sanctuary of Malophoros, long recognized as a locus of cultural interaction, gains particular interpretive force. Its continued use after the Carthaginian sack, likely by a socially mixed population, coincides with the Getty Hexameters, a Greek sacred song employing Ephesia grammata—aurally Greek yet semantically obscure. The persistence of Greek as ritual language may therefore have privileged acoustic authority over comprehension. Samothrace offers a complementary case. The Sanctuary of the Megaloi Theoi, among the most renowned mystery cults of the ancient Mediterranean, attracted initiates from across the Greek and later Roman worlds. Ancient testimony describing the retention of an ancestral dialect, alongside inscriptions hinting at local linguistic registers, suggests that initiates encountered ritual speech that was not universally intelligible. Paired with the sanctuary's dramatic soundscape—cries, percussion, and choreographed performance—such estrangement likely intensified the liminality central to mystery initiation.

171. Nature's Voice in the Sanctuary: Environmental Soundscapes and Ritual Experience in Ancient Italy

Authors: Angela Bellia (University of Palermo)
Format: Oral

This paper examines the role of acoustics within the sacred spaces of ancient Italy through the paradigm of Experienced Ancient Religious Sound Studies. Moving beyond a strictly organological approach, the research focuses on the relationship between "Aural Architecture" and the natural environment, investigating how the sonorities of the surrounding landscape actively shaped religious experience and ritual communication from the Archaic to the Roman periods. Conducted as part of the VOICING Project (FIS-02749), this investigation posits that site selection and the architectural configuration of sanctuaries were informed not only by visual or political criteria but by a deliberate intent to integrate and enhance natural sonorities, such as water, wind, echo, and biophony. Three representative case studies from the Magna Graecian, Etruscan, and Roman worlds will be discussed. In these contexts, topographical morphology and sacred structures operated in synergy to amplify environmental sound phenomena, transforming them into mediators for a non-verbal connection between the community of worshippers and the divine sphere. The analysis will explore how the "natural soundscape" did not function merely as a backdrop, but as an essential component of a shared ritual language. This interdisciplinary approach—bridging archaeology, applied acoustics, and ecoacoustics—reconsiders sanctuaries as spaces of sensory encounter where the auditory perception of nature acted as a powerful catalyst for religious emotion and social cohesion, facilitating emotional dialogue across linguistic divides.

379. Echoes of the lake: new archaeoacoustic data at the Etruscan ritual site, the Lago degli Idoli, Italy

Authors: Jacqueline Ortoleva (University of Oxford)
Format: Oral

The Lago degli Idoli is an important Etruscan ritual site located in central Italy that was utilised throughout the sixth century BC. Located south of the summit of Mount Falterona and a few hundred metres from the source of the Capo D'Arno River, the site served to geographically connect the Tuscan and Emilia-Romagna Apennines. During the early 19th century, the archaeological context of the Lago degli Idoli was destroyed. As a result, scholars have refrained from considering the site from the perspective of Etruscan ritual and religious cult. This paper utilises sound to investigate the importance of the Lago degli Idoli and its environs. Recent acoustic measurement data collected as a result of the Sounds of Silence project at the University of Oxford. The study reveals information regarding the environmental setting of the lake and assists with elucidating why ritual was potentially conducted at the lake. Ultimately, the Lago degli Idoli emerges as an important ritual site that allowed worshippers to sensorily engage with and manipulate sound as related to ancestral and deity worship. The relationship between the lake and its environs and specific acoustic characteristics, such as echo duration and outdoor sound propagation, are noted. The study demonstrates the value of acoustical fieldwork when considering exterior archaeological contexts and provides the groundwork and recommendations for future exploration of sound propagation in Pre-Roman Italy, and elsewhere in the ancient Mediterranean.

1063. Musical Instruments in the Sacred Groves of Eros and Aphrodite in Southern Italy: Evidence from Fourth-Century BCE Apulian Vases

Authors: Fábio Vergara Cerqueira (Federal University of Pelotas)
Format: Oral

This study examines South Italian outdoor sanctuaries frequented by both Greek and non-Greek communities, where prenuptial rites—particularly initiatory rituals associated with love and marriage—were performed. In fourth-century BCE Apulian vase painting, produced in Tarentum and Iapygian centres such as Ruvo and Canosa, a recurring iconographic scheme can be identified. Through the combination of figures, objects, gestures, and spatial settings, these images articulate visual formulas for the representation of religious practices connected with marriage and its ritual preparation, here defined as prenuptial rites. A frequent compositional pattern shows, on the obverse of the vase, a ritual act consecrating the marital union, and on the reverse, a prenuptial rite preparing the bride or groom, performed in the presence of older women officiating in these cults, as exemplified by the lebetes New York 17.46.2 and Tübingen 28.5440. Hundreds of such scenes depict religious actions closely integrated with the natural environment and strongly associated with the cultic sphere of Aphrodite and Eros. The repeated use of these iconographic formulas presupposes adherence to the beliefs and ritual practices they represent. The interplay of space, gesture, and object constitutes a visual syntax that designates specific moments or variants of prenuptial rites. Although symbolic rather than documentary in intent, the spaces, objects, and gestures depicted belong to lived experience. The consistent emphasis on outdoor settings points both to an iconographic shift and to the valorisation of natural sacred spaces. Spatial markers indicate that these rites were performed in the open air, involving sacra, offerings, and portable ritual furniture. In several images, built elements—such as marble lustral basins, altars, columns, or pillars—identify open-air sanctuaries adapted for ritual use. Among the objects represented, musical instruments are particularly prominent, raising the question of the sounds that accompanied these rituals, which forms the focus of the present analysis.

1439. Sounding Apollo: Music, Movement, and Multilingual Encounter at Delos

Authors: Erica Angliker (University of Sao Paulo)
Format: Oral

The sanctuary of Delos was a central hub in antiquity, bringing together diverse Aegean communities to honor Apollo, while also attracting visitors from mainland Greece and beyond. This paper examines how sound, music, and embodied performance mediated communication and social connection in this cosmopolitan context. Auditory practices functioned as shared languages of worship, enabling interaction among communities speaking different dialects. The island's open landscape shaped collective listening and performance, amplifying the social impact of sound. Drawing on archaeoacoustic and sensory approaches, the study analyses how music, ritual chanting, and bodily movement fostered engagement across linguistic and cultural boundaries. Special attention is given to dance and coordinated collective gestures as mechanisms of social cohesion, illustrating how Delos operated not only as a religious center but also as a rich, multisensory soundscape of encounter. Through this lens, the sanctuary emerges as a site where auditory and bodily practices structured communal identity and interaction.

2599. The Role of "New Music" in the Cultural Interconnectedness of Peloponnesian Panhellenic Sanctuaries

Authors: Sylvain Perrot (CNRS - University of Strasbourg)
Format: Oral

At the end of the 4th century BCE, Argos conquered the small city of Kleonai and took control of the Nemean competitions. By doing so, Argos sought to forge a panhellenic destiny, the musical and theatrical dimension of which is evident in the construction of an imposing theatre at the beginning of the 3rd century BC, thus rivalling the sanctuary of Asklepios at Epidauros and that of Poseidon on the Isthmus. Although it is difficult to reconstruct the chronology of the appearance of musical and theatrical competitions, several texts attest to the holding of such events in the Nemea and Hēraia, ancient Argive festivals to which the Argives

also added artistic competitions. A careful examination of these texts further shows that at the end of the 3rd and beginning of the 2nd centuries BCE, a common repertoire was performed in these different sanctuaries, drawn from the composers of the so-called "New Music", likely thanks to the archival work carried out by the Dionysian tekhnitai. In the Hellenistic period, Argos thus lies at the heart of a network of sanctuaries where musical and theatrical artists circulate, performing the works of Timotheus of Miletos and Philoxenos of Kythera for compositions on kithara, and of Euripides and other playwrights for tragedy. This phenomenon takes on added significance during the imperial period, when a further connection is made with Timotheos's home city, as Themison of Miletos, victor of both the Isthmia and Nemea, boasts of having composed his own music to the verses of Sophokles, Euripides, and Timotheos. The "New Music" therefore continues to provide a common repertoire for these sanctuaries – in other words, a panhellenic repertoire that ensures cultural interconnection between these different ritual soundscapes through the musicians who come to compete and the audiences who come to applaud them.

526. Tintinnabula in sanctuaries : between sound signals and soundmarks, shared tools?

Authors: Arnaud Saura-Ziegelmeyer (Institut catholique de Toulouse, UR CERES)
Format: Oral

After being published as 'miscellaneous' artefacts and small bronze objects, tintinnabula have attracted more specialised studies over the past fifteen years. Whether in site monographs or museum collections, the amount of data available on them allows us to question the place of this object in the sanctuaries and religious rites of the Mediterranean world. Particular attention will be paid to the Roman period, during which bells seem to have reached a peak of standardisation. While an exhaustive study requires a complex and collective approach, particularly given the great versatility of these objects, one may wonder how the latter managed to establish itself in numerous cults and why it could, among other things, be the symbol of an early globalisation. Thus becoming a common feature of soundscapes, as opposed to other percussion instruments presented as identity markers or associated with certain cults. This communication is a progress report on an ongoing global research project.

2755. Audible Violence: Sensory Experience and Punishment in the Stadium-Amphitheatre at Perge

Authors: Aytaç Dönmez (Istanbul University)
Format: Oral

In ancient arenas, sound was not merely an auditory backdrop but a structuring force that directed collective experience and shaped audience perception. This paper examines how communication between performers and spectators was mediated through the acoustic environment of the arena that emerged following the architectural transformation of the stadium at Perge beginning in the later third century AD. Building upon previous architectural analyses, attention is shifted toward the auditory dimension of spectacle and the ways in which acoustic arrangements shaped collective experience are explored. Archaeological evidence derived from the northern and southern animal holding compartments and recently identified execution platforms demonstrates that the arena functioned not only as a visual stage but also as an active acoustic environment. Architectural interventions associated with the restructuring—including elevated podium walls, enclosed performance zones, and controlled animal release mechanisms—are understood to have influenced the transmission, containment, and amplification of sound. Alongside animal roars, horn signals, and crowd reactions, the sharp and rhythmic sounds of violence—potentially associated with whipping scenes and executions such as damnatio ad bestias—may be interpreted as an acoustic manifestation of punishment, through which acts of violence were transformed into collectively experienced auditory events that synchronized spectators and intensified emotional engagement within a shared sensory atmosphere. In contrast to the vertically organized, hypogeum-based arenas typical of Rome, many amphitheatrical structures in Lycia and Pamphylia exhibit a more horizontal spatial configuration shaped through the adaptive reuse of vaulted substructures belonging to theatres and stadiums. Among these, Perge provides exceptionally clear archaeological evidence, suggesting that this spatial organization directly conditioned acoustic experience and may have produced sensory dynamics distinct from the canonical Roman model. The arena at Perge is therefore understood as an engineered acoustic environment in which sound functioned as a medium of emotional alignment and a performative instrument of imperial power.

2666. Sacred Sounds and Religious Communication: The Carnyx in a Gaulic Sanctuary

Authors: Marsha Mccoy (Southern Methodist University, Dallas, TX)
Format: Oral

The Gallic carnyx, the boar's head battle horn, is the most distinctive element of the Gallic warrior, and the Gundestrup cauldron showing entertainers playing carnyces at a banquet has enlarged the picture of the carnyx as a musical instrument performing an important cultural and social role in Gallic life. In 2004 over 500 ritually broken metal objects, including seven carnyces, were discovered in a Gallic religious site dating to the time of Caesar's conquest in Tintignac, France. The carnyces seems to have been constructed so that they could be played not vertically, as for the battlefield, but horizontally, and so in a different position for a religious ritual. This centrally situated Gaulic sanctuary allowed Gauls from the many tribes and dialects that composed the Gaulic peoples to gather as a unified group around a common military, social, cultural, and religious artifact, and hear the sounds of the carnyx as a sacred and religious mediator that all could understand. Using the theories of cultural anthropologists, and drawing on studies of objects in their cultural contexts, this paper analyzes the ritualistic and religious role of the carnyx, and how its use and function transform "the boundaries between 'bodies' and 'objects'", and affect cultural identity and cohesion. The player of

the carnyx is inevitably conjoined with the instrument in his mouth, creating in the player a ritualistic, religious, and aural bond between his person and the carnyx, and, by extension, with the ritual participants in the religious sanctuary and social world in which it is imbedded. As an object of ritual, religious significance as well as social and cultural importance, the carnyx and its sound transform both the player of the carnyx and those around him, creating a liminal, apotropaic space that provides a context for cultural cohesion and social identity.

1725. Anamnesis: Contemporary Ritual, Embodiment, and Archaeological Space

Authors: Apostolia Papadamaki (Founder & Artistic Director Anamnesis – Independent Artist–Researcher)
Format: Oral

This paper presents Anamnesis, a practice-based research project consisting of contemporary, site-specific, participatory performances developed in archaeological sanctuaries across the Hellenic world. It examines how dance, sound, rhythm, and spatial architecture can function as shared, non-verbal languages of communication, enabling collective participation among audiences of different nationalities, ages, cultural backgrounds, and linguistic identities. In Anamnesis performances, the audience is invited into embodied participation through carefully structured sequences. Participants learn simple movements, vocalizations, and songs during the performance, while professional dancers and volunteer performers act as embodied guides, facilitating participation through repetition, rhythm, and shared spatial orientation. Methodologically, Anamnesis draws on the ancient concept of Orchesis, understood as the inseparable unity of movement (kinesis), sacred word (logos), and melody or music (melos). This triadic structure is experienced by performers and audience alike, who move through the archaeological site engaging in ritual procession and collective movement, without fixed seating or frontal theatrical orientation. The archaeological site, its architecture, acoustics and cosmological orientation, actively shapes each performance. The paper explores how orchesis and spatial mobility generate non-verbal dialogue among participants, resonating with ancient modes of communication and interaction at Mediterranean sanctuaries and contributing to interdisciplinary discussions on sound, dance, and connectivity in antiquity.

2292. From Fragments to Ritual Performance: Silent Cinema and the Archaeological Reconstruction of Ancient Soundscapes

Authors: Patrizia Marra (Sapienza University of Rome | University Suor Orsola Benincasa of Naples | National Research Council of Italy, Institute of Heritage Science)
Format: Oral

This paper examines how early Italian silent cinema visually reconstructed the soundscapes, musical practices, and ritual gestures from around the ancient Mediterranean world. It offers a somewhat unpredictable lens through which to explore non-verbal communication in sacred contexts. Although devoid of sound, these films developed a rich visual vocabulary of instruments, dances, and choreographed movements drawn from archaeological artefacts, museum collections and antiquarian catalogues. The study shows how filmmakers reimagined ritual environments – temples, processions, sacrificial scenes – by translating ancient auditory and performative practices into expressive visual forms. The research reserves particular attention to the cinematic reinterpretation of musical instruments, as well as to the staging of collective dances and ritualised movements: these reconstructions reveal how early cinema sought to evoke the multisensory atmosphere of ancient sanctuaries, with their sounds, rhythm, and performances. Silent cinema thus engaged in a process analogous to archaeological reconstruction, in which, starting from material, iconographic, and textual fragments, it attempts to animate past practices - albeit, obviously, through a more imaginative and edulcorated approach - and make them legible to modern audiences. The paper argues that silent cinema both served as a means of visualising and communicating archaeology-informed contexts to past cinema audiences and that its function as a visual aid can be used - and implemented - as a tool capable of enriching the multisensory experience of contemporary museum and exhibition visitors, helping them to visualise better not only ancient soundscapes, but also how it was perceived and communicated though time.

219 FROM DISTANCE TO ATTRACTION: UTILISATION OF ARCHAEOLOGICAL HERITAGE AND PUBLIC INVOLVEMENT

Theme: 3. Museums and cultural heritage in the era of 'permacrisis'
Organisers: Shiting Lin (University of Cambridge) – Chaozhi Zhang (Fudan University)
Keywords: Archaeological heritage, Utilisation, Revitalisation, Authenticity, Public involvement
Format: Regular session

SESSION ABSTRACT

While economic development has encouraged the integration of heritage into contemporary life, it has also prompted concerns, such as over-commercialisation and threats to authenticity in tourism. Nonetheless, research on branding practices referencing Neolithic archaeological heritage in China reveals a more complex picture: in economically disadvantaged areas, such practices have created new opportunities for local participation and engagement with heritage. This invites a rethinking of what "utilisation" means and how it might contribute positively to communities. As diverse forms of heritage use emerge, ranging from study tours

and branding to cultural and creative product development, the interaction between heritage and its stakeholders grows ever intricate. The public, including both local communities and external audiences, now has greater access to archaeological heritage that once seemed "distant" from everyday life, whether through work, consumption, or embodied experience. Building on these observations, this session aims to explore how archaeological heritage is used, revitalised and experienced in contemporary contexts, and what implications this has for public involvement. We invite papers addressing (but not limited to) the following questions: 1) How is archaeological heritage revitalised through contemporary uses? 2) If possible, where should boundaries be drawn to safeguard the authenticity of heritage during its utilisation? 3) In what ways can underrepresented groups be included in archaeological heritage through its utilisation? 4) How does public understanding of heritage change through processes of involvement in heritage utilisation? We welcome both theoretical contributions and case studies from Europe and beyond that critically examine the relationship between heritage utilisation, participation, and meaning-making.

CONTRIBUTION ABSTRACTS

74. Engaging Publics to Integrate Archaeological Heritage into Urban Life: Challenges and Opportunities

Authors: Merve Çalışkan (Izmir Metropolitan Municipality | Independent researcher)
Format: Oral

Preserving archaeological sites while integrating them into contemporary urban life has become a significant topic in urban and cultural heritage studies. The utilization of archaeological sites within urban settlements—most commonly as museums—can enhance a city's cultural infrastructure; however, this approach may also limit the involvement of diverse publics, including local communities, citizens, and disadvantaged groups. Increasing urban life quality and enhancing place attachment of citizens are some ways that may foster the inclusivity of archaeological sites, adding to the sustainable development of the historic cities. Yet, the engagement of diverse publics with these sites and the ways of engagements are to be discussed and discovered. In this framework, this presentation asks how archaeological heritage can be utilized in contemporary cities in ways that foster broader public engagement. The presentation outlines a brief theoretical framework addressing the integration of archaeological heritage with public life and examines both theoretical approaches and practical applications. Drawing on case studies from the United Kingdom and Türkiye by evaluating both traditional sites and community archaeology projects, this study enriches the public archaeology approach in utilizing archaeological heritage. Accordingly, this presentation explores the challenges associated with public participation and highlights the potential of urban archaeological heritage to contribute to sustainable development and to enhance the social value of archaeological sites.

1213. Bridging the Gap: Council of Europe's Strategy 21 as a Blueprint for Activating Archaeological Heritage

Authors: Aleksandra Chabiera (Adam Mickiewicz University in Poznań)
Format: Oral

A survey conducted among over 500 Polish municipalities revealed an alarming gap in integrating archaeological heritage into development documents - namely, Municipal Monuments Care Programs, Development Strategies, and Revitalization Programs. While this heritage is widely present in the diagnostic phases, a closer observation reveals that this presence is in reality based on simple listing of monuments registers entries. Moreover, its presence decreases in goals, priorities, or other implementation-related components of the documents. These findings highlight the systemic "invisibility" of archaeology in local development documents and thus in municipal initiatives. The archaeological community recognizes the great potential of archaeological heritage for local development (entrepreneurship, education, and promotion). But how can we help communities better understand and utilize this heritage in their strategic documents and, ultimately, in their actions? The paper analyzes the survey results against the European Cultural Heritage Strategy for the 21st Century (Strategy 21) principles, developed by the Council of Europe. It recommends a holistic approach based on the Strategy's three components: social (participation), territorial/economic development (sustainable growth), and knowledge/education (research and learning). At its core, Strategy 21 serves as an interdisciplinary blueprint for effective integration of heritage assets into the everyday lives of communities, emphasizing the need for collaboration among diverse stakeholders: local authorities, scientists, museum professionals, entrepreneurs, inhabitants. We propose an implementation matrix for municipalities, drawn from Strategy 21, to enable them to easily assess archaeological assets against their potential and transform them from passive resources into active elements of local development. The matrix, grounded in the Polish case of the gap between recognition and implementation, also serves as a practical presentation of Strategy 21 solutions.

1413. From regulation to co-creation: involving metal detectorists in archaeological heritage utilisation in Estonia

Authors: Katrin Koch Maasing (Tige Tikker OÜ) – Tuuli Kurisoo (Tallinn University)
Format: Oral

Across Europe, hobby metal detecting presents both opportunities and risks for archaeological heritage management, balancing public engagement with concerns over looting and the loss of contextual information. In Estonia, this tension is addressed through a regulatory framework linking legal permission to use search devices with mandatory training. Rather than focusing on detecting techniques, the training centres on local history, archaeological heritage awareness, legal regulations, reporting obligations and methods, basic principles of the recovery and initial handling of archaeological finds, and field-based decision-making, including recognising when professional archaeologists should be involved. While feedback from participants has consistently been positive, there is increasing demand for systematic follow-up engagement opportunities, information exchange, and long-term cooperation. Included in this presentation is a case study from an ongoing research project exploring how hobby detectorists can become more deeply involved as active stakeholders in heritage utilisation, moving beyond compliance-based participation. Within this project, two participatory initiatives were developed. Detectorists contributed to selecting archaeological themes and speakers for a dedicated information day, enabling them to influence knowledge exchange according to their interests. In addition, a co-creation workshop based on design-thinking methods provided a structured space for participants to articulate concerns, reflect on their practices, and collaboratively develop responses to shared challenges. Combining mandatory training with participatory engagement aims to support responsible practices and strengthen cooperation between hobby detectorists and heritage professionals, while fostering a stronger sense of responsibility toward archaeological heritage. By providing access not only to material remains but also to dialogue, decision-making, and meaning-making processes, these approaches help transform heritage from a distant, regulated resource into a shared domain of informed and responsible participation.

1886. Stage or Classroom? Engaging children with prehistory through museum study tours in China

Authors: Shiting Lin (University of Cambridge)
Format: Oral

The temporal distance between prehistory and the contemporary world, together with the abstract nature of prehistoric artefacts, poses significant challenges for museums seeking to involve the public, particularly children, in understanding prehistoric life. Conventional exhibition formats, which often lack interactive and participatory elements, may further limit young audiences' engagement and learning. In recent years, the rapid development of study tour in China has brought students beyond the classroom and created new opportunities for museums to enhance their educational roles. Taking the Banpo Museum in China, the country's first museum dedicated to a prehistoric archaeological site, as case study, this paper examines how a prehistoric site museum has revitalized its interpretive strategies through study-tour programmes to engage child visitors. The analysis explores the museum's efforts to balance the presentation of archaeological authenticity with increasing demands for immersive and entertaining experiences. These practices reflect broader tension faced by museums in negotiating between scholarly heritage narratives and public engagement. This research provides a more nuanced understanding of the interplay between public involvement strategies and heritage presentations. It highlights how contemporary educational practices can facilitate the dissemination of prehistoric knowledge to the young audiences and contribute to museums' public education.

2786. Public engagement and Archaeology in schools

Authors: Caroline Daphne Pathy-Barker (Idependent researcher)
Format: Oral

Outline of the various projects – looking at engagement projects and archaeology in schools since 1995 and what the future holds. The projects have always been designed to increase international awareness of cultural heritage protection, excavation projects, archaeology and history management initially between the connections of Japan and Europe. Making available resources for teaching students with resources and online gateways. Looking at a number of key projects involving students within SEMH schools, YAC (Young Archaeological Groups), and community projects funded by local councils in England. The public benefit is at the heart of all my work within Archaeology. It is important to foster an appreciation of the past; make it meaningful to people's lives and ensure it is accessible to everyone - now and forever. Understanding the wide range of services and activities including commercial clients, project partners, community groups, educational providers and curious individuals. Our Community Engagement and Social Value team has a wealth of experience and passion to help bring archaeological discoveries in order to promote the interest and care for the heritage of our past.

2787. Research on Tourist Experience Preferences of Archaeological Heritage from the Perspective of Semiotics Theory

Authors: Jiangmin Li – Jiahui Zhang – Zhen Zhu (China University of Geosciences)
Format: Oral

From the perspective of cultural symbols, this study explores the tourism experience preferences of visitors to large heritage sites, taking the Shijiahe Site as the research case and constructing a two-phase integrated research framework. Initially, relying on archaeological excavation reports, academic documents and monographs as fundamental data sources, systematic data annotation is implemented to build the Shijiahe cultural identification system under the guidance of semiotic theories. This process deconstructs cultural elements into the "object-symbol-interpretant" logical chain, and further correlates cultural relics themselves with material identifiers as well as functional and spiritual identifiers, forming a hierarchical cultural identification system for the Shijiahe Site. On this basis, drawing on the Strategic Experiential Modules theory, five categories of tourism experience preference elements are manually extracted from cultural relic symbols, and a Kano questionnaire is designed and distributed to collect first-hand visitor data. Subsequently, quantitative analyses including Kano attribute analysis, mixed-class analysis and Better-Worse coefficient

analysis are conducted to measure and classify visitors' experience preferences into four dimensions. Finally, targeted optimization strategies for the tourism experience of large heritage sites are formulated according to the classification results. This study integrates semiotic theory with consumer preference analysis, and constructs a scientific research path from cultural symbol deconstruction to experience preference measurement, thereby providing a novel theoretical framework and practical methodological support for the cultural interpretation, experience optimization and sustainable development of large heritage sites.

1481. The Evolution of Adapting Lithuanian Hillforts for Public Access: From De Facto Protection to Virtual Interpretation

Authors: Jurgita Zabielienė (Department of Cultural Heritage under the Ministry of Culture)
Format: Oral

Today, the number of hillforts in Lithuania has exceeded 1,000, yet only about 150 of them have been maintained and adapted for visitors. The history of protecting these sites reflects the long path of maturity in the state's heritage preservation. It was only in the 1920s that the importance of their preservation began to be raised through the efforts of individuals and public organizations. From the 1960s, a more comprehensive approach to the adaptation of hillforts was adopted – an effort that remains relevant today. National and international documents emphasize the preservation of heritage in situ (on-site) and strictly limit physically invasive, hypothetical reconstructions. In the case of hillforts, this concerns lost wooden structures, as all buildings and fortifications were made of wood. This presentation raises the question: how can the lost architecture of hillforts be presented without compromising their authenticity? The answer is sought through the specific example of the management and adaptation of the Apuolė hillfort (Northwestern Lithuania). Identified in 1887, the hillfort was previously overgrown with trees and little known to the public. Interest in the site was stimulated by research conducted in 1931–1932 and the extensive dissemination of its findings. Subsequently, the hillfort was maintained to save it from decay and prepare it for visitors. To engage visitors with this site, a 3D virtual reconstruction of the castle was created in 2025. Today, the successful presentation of hillforts to the public can only be ensured by presenting research material through modern forms while maintaining maximum respect for authenticity. Such a strategy allows for the reconciliation of legal protection requirements with modern society's need to experience history "live," while simultaneously preserving hillforts as untouchable historical documents for future generations.

235. Archaeology within the digital cultures

Authors: Celia Orsini (Archaeology for Wellbeing)
Format: Oral

The growing visibility of archaeological content within digital cultures raises critical questions for public archaeology concerning authority, mediation, and responsibility in platformed environments. This paper examines Archaeology for Wellbeing as a methodological practice operating on social media, rather than as an impact-driven intervention. Social media function simultaneously as spaces of encounter—enabling participation, affiliation, and co-creation—and as sites of epistemic instability, where archaeological narratives compete with influencer cultures, pseudo-archaeological claims, and decontextualised wellbeing discourses. The paper focuses on challenges of interpretive drift, loss of contextual control, and the algorithmic amplification of affect over evidence. While wellbeing-oriented archaeology often foregrounds care and accessibility, its circulation within platform economies exposes structural tensions between professional accountability and communicative logics that privilege simplification, emotional resonance, and rapid consumption. The paper argues that archaeology must extend its public-facing capacity in these environments without surrendering context, evidence, or interpretive responsibility. In doing so, it positions social media not merely as tools for dissemination, but as contested methodological spaces in which archaeological knowledge, care, and authority are actively negotiated.

2296. National Identity Longitudinally Reinforced through Museum Tourism

Authors: Chaozhi Zhang – Xi Zhang (Fudan University)
Format: Oral

Employing Interaction Ritual Chains theory, this study examines how museum tourism integrates individual emotions into collective national identity and enables post-visit internalization, framing archaeological heritage not as static remains but as an affective and participatory resource activated through public engagement. Interviews with 45 visitors and longitudinal tracking of 20 participants reveal that four ritual elements—mutual focus, emotional entrainment, boundaries, and shared practice—coalesce diffuse affect into collective national identity markers: emotional energy, group solidarity, sacred symbols, and moral outrage. Post-ritual, this energy translates into sustained behavioral tendencies, shared symbols solidify into cognitive schemas, and moral belonging deepens emotional attachment, extending public involvement beyond the museum into everyday heritage-related practices and narratives. We identify an "individual–collective–individual" reinforcement loop, demonstrating that museum tourism systematically shapes visitors' cognition, emotion, and behavior, thereby collectively consolidating and individually internalizing national identity. This offers a processual explanation for museum tourism's role in revitalising archaeological heritage through public participation in identity politics.

2086. From Distant Artefacts to Marketable Crafts: Majiayao Heritage Utilisation from Contemporary Imitation Pottery in Northwest China

Authors: Xueyang Cheng (University of Chinese Academy of Social Sciences)
Format: Poster

In Dongxiang and Lintao counties of the Tao River Valley in Gansu Province, local artisans who produce imitation pottery serve as key agents transforming the prehistoric archaeological heritage of the Majiayao culture from a "distant academic object" into a tangible, experiential, and transmissible contemporary practice. These artisans primarily replicate vessel forms and decorative motifs from museum collections, with limited engagement in reconstructing traditional production techniques. This stands in contrast to imitation pottery workshops in Henan Province, which intentionally incorporate elements of prehistoric pottery-making processes. These practices are not merely acts of heritage revitalisation; they also represent, to a certain extent, commercialised production. The imitation pottery is sold as tourist souvenirs, integrated into educational travel itineraries, marketed as craft commodities with a positioning similar to that of museum souvenirs, and even collected by enthusiasts. This study focuses on the human dimensions of heritage utilisation, highlighting how local potters—who are community members at heritage sites—derive both economic livelihoods and cultural identity from these practices, positioning themselves as "living transmitters of Majiayao heritage", even as the authenticity of this transmitted knowledge remains contested. Beyond the local community, when visitors purchase imitation pottery or participate in hands-on workshops, their understanding of Majiayao culture transcends textbook descriptions. This process of "consumption" and "embodied experience" reshapes public perceptions and emotional connections to prehistoric heritage. By critically analysing these dynamics, this paper contributes to discussions on how heritage is revitalised, negotiated, and made meaningful in contemporary contexts, addressing core questions of authenticity, community empowerment, and public engagement.

220 ACROSS SEAS AND THEORIES: AEGEAN INTERCONNECTIONS WITH ANATOLIA, CYPRUS, THE LEVANT, AND EGYPT IN THE SECOND MILLENNIUM BCE

Theme: 8. Beyond the Middle Sea: rethinking the Mediterranean in motion
Organisers: Uros Matic (University of Graz) – Filip Frankovic (University of Heidelberg) – Louis Dautais (Université catholique de Louvain)
Keywords: Aegean, Anatolia, Cyprus, Levant, Egypt, interconnections
Format: Regular session

SESSION ABSTRACT

Interconnections in the second millennium BCE have been a central focus of Aegean archaeology since the late 19th century, at the dawn of what became known as Minoan and Mycenaean archaeology. Early studies often relied on diffusionist and migrationist models, but subsequent research has explored interactions between the Aegean and the wider Eastern Mediterranean through artistic exchange, trade, gift-giving, travel, and diplomacy (including interregional marriages). Scholars have applied a variety of theoretical frameworks, from world-systems theory to peer polity interaction models. Advances in dating methods have sparked debates over chronology, prompting archaeologists to reconsider the synchronization of events and adjust interpretations accordingly. Recent archaeological discoveries in the Aegean, Anatolia, Cyprus, the Levant, and Egypt, however, offer new data that have rarely been fully integrated into established theoretical frameworks. Third Science Revolution has triggered new research focused on stable isotope analyses and ancient DNA in attempt to explore mobility and biological kinship beyond the Aegean. This session seeks to bridge these gaps, both between the Aegean and other Eastern Mediterranean regions, and between longstanding models and newly available data. We welcome papers that provide fresh perspectives on familiar material or offer alternative interpretations grounded in new evidence. We encourage contributors to critically navigate between different seas, bottom-up approaches as well as old and new theoretical and methodological models.

CONTRIBUTION ABSTRACTS

1755. Minoans Who? Decentering the "Big Two" to Reclaim Regional Agency in the Central and Northern Aegean Middle Bronze Age

Authors: Peter Pavuk (Institute of Classical Archaeology, Charles University, Prague) – Christopher Hale (Institute of Archaeology and Ethnology, Polish Academy of Sciences, Warsaw)
Format: Oral

Much has been made of links between western Anatolia and the Greek mainland at different stages of the Bronze Age. However, scholarship has often been grounded in culture-historical approaches with its diffusionist or migratory models, which foster a unidirectional conception of connectivity. Moreover, due to biases in the history of archaeological research in these regions, scholarship has gravitated towards the distribution and influence of so-called "Minoan" or "Mycenaean" material culture, which has rendered

other communities in the region, their agencies, and any independent networks, severely underrepresented in models of connectivity for different periods. Even new studies have tended to carry these biases forward because samples can often only be sourced from datasets built under these paradigms. Neither connected to Cretan networks (with a few exceptions), nor contemporary with 'Mycenaean' Greece, the central and northern Aegean (incorporating central Greece, northern Greece, western Anatolia, and their associated islands) during the Middle Bronze Age (MBA, ca. 2200 – 1600 BCE) has often been neglected, with some exceptions. Important work at the transition from the Early Bronze Age has highlighted the movement of technologies like the potter's wheel or the expanded log-boat and/or the sail. Moreover, near the end of the period, very similar pottery types in some (possibly local) classes have been noted along coastal western Anatolia, central Greece, and northern Greece, implying complex connectivity. However, none of these observations have ever been tested through analytical techniques, and little evidence has been presented till now for connectivity between these regions in the intervening centuries. With the benefit of new results from large-scale analytical examinations of pottery provenance, and the initiation of two new major projects targeting the region to address lacunae, new datasets are being built which will help clarify regional networks with important implications for inter-regional models of connectivity.

1239. Tracing the Regional Provenance of Late Helladic IIA Ceramic Imports in Crete and Egypt: A Typo-Stylistic Approach

Authors: Louis Dautais (Ghent University) – Jeremy Rutter (Dartmouth College)
Format: Oral

It has long been assumed that most, if not all, Mycenaean ceramic vessels discovered in the eastern Mediterranean—especially in Egypt—were produced in the Argolid under the political influence of Mycenae. This view is largely based on a limited—and still insufficient—number of neutron activation analyses (NAA) of LH IIIA2–B vessels from these regions, which attribute their production to the Mycenae area (MYBE workshops). But is this identification of their production locales valid for a period more than a century earlier? This paper presents a precise, contextual, illustrated, and updated dual catalogue of LH IIA ceramic imports in Crete and Egypt, comprising 47 and 20 items, respectively. After examining their quantity and geographical distribution, we turn to their archaeological contexts, typologies, and functions, and then discuss the similarities and divergences between the Mycenaean imports from the two regions. Above all, this paper explores their provenances. Employing Furumark's typologies and Mountjoy's seminal works on regionalism, we identify the closest morphological and decorative parallels from the Mycenaean world to propose possible production zones for these imports and a map of hypothetical regional provenances. Although the LH IIA ceramic imports in Crete and Egypt can be attributed to a wide range of regions in Mainland Greece, we argue that the existing evidence suggests that most vessels were products of workshops in the southern Peloponnese, particularly in coastal locations of Laconia, Messenia, and Triphylia/Elis. This paper contributes to current scholarly trends advocating a reassessment of the links between Crete and the Peloponnese at the beginning of the Late Bronze Age. More broadly, by highlighting the previously underestimated role of the southern Peloponnese, this paper once again raises the thorny issue of Peloponnesian communities' direct or indirect involvement in eastern Mediterranean affairs in the earlier fifteenth century BCE.

1069. Egyptian, Syrian, or Aegean? Entangled Iconographies of the Eastern Mediterranean in the Second Millennium BCE

Authors: Veronika Verešová (Institute of Oriental Studies, Slovak Academy of Sciences)
Format: Oral

It is widely acknowledged that the iconography of the Aegean Bronze Age was, in many respects, inspired by Egypt and the ancient Near East. Similarities between these regions and specific iconographic motifs have long been employed to interpret Aegean imagery, religion, and social structures—particularly in light of the limited availability of written sources. Such comparisons have often relied on the assumption that motifs were transferred together with their original meanings. The same interpretative framework has frequently been applied to the adoption of Egyptian and Near Eastern imagery in Syria. Closer analysis of individual motifs across these cultural regions and within different historical contexts, however, demonstrates that the processes of adoption, adaptation, and use were neither linear nor uniform. Whether in the glyptic traditions of Syria, Anatolia, and the Levant, or in the Aegean world, we observe selective appropriation, conscious rejection, and creative transformation of visual motifs. These processes point to complex dynamics of cultural entanglement rather than simple models of diffusion or influence. This paper explores the extent to which such transformations were shaped by the agency of individuals, the agency of images themselves, religious concepts, and strategies of elite self-representation. Through selected case studies focusing on divine figures, fantastic beings, and their hybrid combinations, and by tracing their "biographies" across regions and media, the paper aims to identify the factors that likely governed their use and reinterpretation. In doing so, it seeks to shed light on what these entangled iconographies reveal about their producers, users, and audiences in the Eastern Mediterranean of the second millennium BCE.

820. 'Asiatic' Aegeans in Egyptian tombs: The interconnectivity of the Aegean and Levant, through the Egyptian record (ca.1479-1352 BCE)

Authors: Christian Lindesay (University of Wales, Trinity Saint David)
Format: Oral

The zenith of the Egypto-Aegean relationship, between the reigns of Hatshepsut to Amenhotep III (ca.1479-1352 BCE (Shaw 2001)) is marked by a paroxysm in textual references to kftjw - geographically understood to be Crete (Vercoutter 1956; cf. Dautias 2026, for definition Knossian-Crete) - and painted representations of Aegean peoples on Theban tomb walls. The latter can be categorised as follows; A.) Aegean in appearance, and labelled as coming from Crete and the Islands in the midst of the great green (Rekhmire TT100) B.) Aegean in appearance, and labelled as coming from the islands in the midst of the great green and/or northern Asia (phw.w stt) (Useramun TT131; Puymere TT39), C.) who are 'Aegean' in appearance but are without surviving text (Senenmut TT71) D.) labelled as coming from Crete but appear 'Asiatic' (Menkheperreseneb TT 86; Kenamun TT 93; Amenemhab TT85; Anen TT120). Vercoutter described these as the result of artisanal incompetence and stated that, after the reign of Amenhotep II, "…on ne trouve pratiquement plus de représentations originales de personnages ou d'objets égéens" (1956: 367). These representations have opened many debates: Their historicity (Panagiotopoulos 2001; cf. Matic 2012, 2014); the transferences and chronological synchronism of sociopolitical developments, and cultural emphasises by way of clothing (particularly TT100) (Rehak 1996, 1998; Matic 2012, 2014; Matic and Franković 2017), hairstyles (Matic and Franković 2022) and cultural geography via 'hybridised' figures (Vercoutter 1956; Wachsmann 1987; Pinch-Brock 2000; Banyai 2022). Aligned with Banyai, on an established Aegean presence in the Levant since the Middle Bronze Age (2022: 5-8), and Vercoutter, that Thutmose III's Asiatic campaigns brought Aegean-Levantine enterprises into sharper focus in Egypt (1956: 424-426), while simultaneously rejecting his notion of artisanal incompetence, we aim to clarify that the paintings of 'Asiatic' representatives of kftjw reflect Egyptians awareness of the kftjw-Phw.w stt relationship, within contemporary texts.

2570. Traveling magic: Mediterranean exchange of childbirth protection and legitimacy

Authors: Emma Bentley (University of Edinburgh) – Sarah Cox (San Jose State University)
Format: Oral

Considering the many technologies circulating in the Eastern Mediterranean during the second millennium BCE, the mechanisms by which ideas were selectively received and translated remain poorly understood. This paper asks what is moving when cultures share imagery of deities; are we seeing perceived equivalence in divine roles, shared ritual or bodily experience? Early scholarship assumed direct image diffusion from the pregnant-bodied hippopotamus-crocodile Egyptian goddess Taweret into the Minoan Genius. On Crete, the Genius gains leonine-limbs and is depicted bearing libation jugs and animals, but is stripped of Taweret's explicit female sexual attributes and, seemingly, her childbirth protection role. Whilst this gender re-allocation suggests conceptual transformation, the iconography may be more robustly linked to the underlying concepts being shared. Images of the Minoan Genius begin in the late Protopalatial, contemporary with the appearance of Minoan Beset, a female version of Egyptian leonine god Bes. At this time in Egypt, early precursors of Taweret (Ipy/Reru) and Bes (Aha) are shown aggressively wielding weapons and subduing serpents on apotropaic material protecting mothers and newborns. This is paralleled in the Levant by the aggressive goddess Lamashtu, whose imagery embodies the trauma and anxieties of child-bearing, and ultimately the newborn's legitimacy. Our study looks at how these deities' roles and imagery are linked, and how they may be involved in the translation of Taweret into the Minoan Genius, transmitted through Egyptian and Levantine networks. We use Network Theory to de-emphasise directionality between social variables (links) and shared 'origins' (nodes) to visualise where iconographical reconfiguration might take place. We suggest that the Cretan image of the Minoan Genius and Beset may articulate concepts of childbirth anxiety and legitimacy, indicating the use of magico-religious iconography in active negotiations of bodily experience and identity.

1376. Surfing the Entangled Mediterranean Web: If Water is the Network, Bronze is the Surfboard

Authors: Louise Hitchcock (Retired | Independent Researcher)
Format: Oral

This session distinguishes the diffusionist schemes aligned with Sir Arthur Evans, excavator of Knossos, from later mechanistic schemes of peer polity interaction and world systems theory. The theoretical pendulum, thus swings from tracing every innovation to an originary form to the processualist extreme of isolationist progress. Contemporary scholarship has refined our understanding of improved technologies in maritime travel, metallurgical activity, artistic production, textile manufacture, and new institutions in religion, heterarchical and deep state bureaucracies in Crete, and juridical texts for maintaining order in the east. Accordingly, we require more complex approaches for understanding the emergence, rise, and decline of the various (non-)state systems in the Aegean and its partners in an entangled and polycentric era, that included military entrepreneurship. Although I take the view that the Bronze Age Aegean was driven by the quest for copper and tin, intensified maritime trade generated numerous changes in Minoan Crete and Mycenaean Greece. These changes were technological, economic, social and diplomatic. For example, a byproduct of the metals trade was the Minoan acquisition of the deep hulled ship with mast from the Near East, competition for status motivated by increased desires for a new cultural aesthetic used by elites to advertise their status to their retinues, the acquisition of spices and other paraphernalia for provisioning of diacritical feasts as seen at Pylos, inspiring additional technological advances accompanying increased cultural interactions. These activities were accompanied by accelerated flows of peoples including the temporary gifting of skilled workers to paint Aegean style frescoes abroad, manual laborers from Italy appearing in the Mycenaean world, and the movement of Minoan women spreading new weaving skills as they married into Theran families. It will be concluded that these interactions stimulated the development of infrastructures that survived the Bronze Age collapse, making the succeeding Iron Age possible.

514. Tanaya: A Discussion of Evidence or of Premise?

Authors: Olga Chatys (University of Warsaw)
Format: Oral

The Egyptian toponym Tanaya is attested in New Kingdom sources spanning the reigns of Thutmose III to Ramesses II, appearing in records of foreign tribute and in topographical lists. Three principal geographical locations have been proposed for it — mainland Greece, Rhodes, and Adana in Cilicia — and the debate among them has a long and shifting history. Positions have reversed, the same evidence has been read in various ways, and the topographical lists in particular have proven amenable to sharply opposing interpretations. This presentation revisits all known attestations of Tanaya and traces these turning points in the discourse, asking why the evidence has so consistently resisted consensus. The case is also instructive methodologically: it illustrates how readily ambiguous evidence can be bent to serve a predetermined conclusion, and how difficult it becomes to revisit a question once a dominant identification has taken hold. Ultimately, the presentation raises the question of whether the persistent difficulty in locating Tanaya on a map reflects a problem not of evidence, but of premise.

99. Ancient Egyptian toponym Mnws-Kingdom of Pylos?

Authors: Uros Matic (University of Graz)
Format: Oral

Ancient Egyptian toponym Mnws has been variously interpreted and localized in different places of the eastern Mediterranean (Mallus in Cilicia, Crete, Amanus mountain in southeastern Turkey i.e., Manuzija in Kizzuwatna). It is attested for the first time in ancient Egyptian sources during the reign of Amenhotep II. Despite the association with Keftiu (Crete), islands of the great green (Aegean or eastern Mediterranean) and the Aegean iconographic features of the bound prisoner from Mnws (Kenamun-TT 93), there is still no substantial evidence for its localization in the Aegean. The Egyptian sources indicate that it is north-west of Crete. Bearing this in mind, this paper suggests that Egyptian toponym Mnws derives from Linear B me-za-na, ancient Greek Messenia, through metathesis of the radicals. This interpretation fits the archaeological and historical context well since during the reigns of Thutmose III and Amenhotep II Messenia was the region in which one of the most powerful Mycenean kingdoms was located-the kingdom of Pylos.

457. Was Henti, Queen of Hittite Great King Suppiluliuma I, an Achaean Princess Named (χ)ʳΕνδηίς or (χ)ʳΗτις-(χ)ʷΗτεια?

Authors: Konstantinos Giannakos (EDABγT)
Format: Oral

The Hittite Text CTH 214.12.A, a Prayer of an anonymus King of the Land of Ḫatti, identified with King Muršili II -most likely- or Muwattalli II or Urhi-Teshub, records: §2' (rev. 3–6) "because (s)he [became hostile] to my mother, […] he dispatched him/her to the Land of Aḫḫiyawa". Suppiluliuma's first wife, Henti, was the mother of Suppiluliuma's five sons, including Muršili, but she was subsequently supplanted by a new chief-wife (Babylonian princess Malnigal), who assumed the name Tawananna as a personal name. The abrupt disappearance of the earlier Queen (Henti) from Hittite records has led to the suggestion that Suppiluliuma removed her from the scene to make way for his new wife, by banishing Henti to Aḫḫiyawa. The exile of a former Great Queen to a foreign Country is justified, if that Country is her homeland. Therefore, Suppiluliuma (1350-1322BC) returned Henti to Aḫḫiyawa, most likely to her father's House; besides, another queen's return/exile to her homeland is recorded in archives. Was Henti princess of an Aḫḫiyawan Dynasty and did she become -before-1350BC- Queen at Ḫattuša after a diplomatic marriage? If this is valid, then (Oracle Report, CTH 570.1, §24':ii:57'–64') the "invitation and transfer of the foreign gods of Aḫḫiyawa to Ḫatti, for the Hittite King, 'the Hittite Gods' agent and representative on earth'," is justified: half-Achaean Muršili, Henti's son, invited the gods of his mother's homeland to pray to them and be healed by them. This leads us to search the Linear B texts for a word phonetically related to Henti; indeed, a name w d y = e-ti-wa was read in the archives of Knossos (ca.1400-1300(+)BC). This word was pronounced "(h)e-(n)ti(s)", attributed the name(s) (χ)ʲΕνδηίς [=(h)Endeis] [or (χ)ʲΗτις-(χ)ʲΗτεια = (h)e-(n)t(e)i(s)] and -obviously- the Hittite scribes transliterated it as Henti.

167. Seas Apart? Differences and Similarities in the Use of Kraters in the Second Millennium BCE Aegean and West Anatolia

Authors: Laetitia Phialon (University of Fribourg) – Filip Frankovic (University of Heidelberg)
Format: Poster

Feasting practices and their associated material culture played a central role in the creation, affirmation, and negotiation of social identities in the Late Bronze Age (c. 1600–1100 BCE; hereafter LBA) Aegean and West Anatolia. These practices constituted commensal activities involving the consumption of wine and highly ritualised social events through which relations of power were established and reproduced. Ceramic kraters represent the most recognisable vessel type associated with such practices. Although kraters are commonly attested in both settlement and funerary contexts across the two regions, systematic studies remain relatively limited for

the Aegean and are almost non-existent for West Anatolia. This poster examines similarities and differences in the use of ceramic kraters in funerary contexts across successive phases of the LBA on both sides of the Aegean. It argues that kraters played a dynamic role in multiple spheres of social life from the beginning of the LBA onwards. Furthermore, it suggests that the intensification of interregional interaction from the 14th century BCE resulted not simply in the transmission of objects or practices, but in the reinterpretation of established traditions and the emergence of new funerary expressions in the East Aegean–West Anatolian region. By moving beyond simplified narratives that attribute change primarily to population movement or external influence, this study foregrounds local responses to interregional connectivity and highlights how such engagements actively shaped social, cultural, and political realities during the Late Bronze Age.

223 REEXAMINING PREHISTORIC SOCIAL STRATIFICATION IN SETTLEMENT CONTEXTS THROUGH INTERDISCIPLINARY AND NON-TRADITIONAL APPROACHES

Theme: 1. Widening perspectives in material culture studies
Organisers: Edi Grabar (University of Cyprus) – Jaris Darwin (Leiden University)
Keywords: Settlements, Material Culture, Social Structures, Prehistoric Archaeology, Global Archaeology, Interdisciplinary Methods
Format: Regular session

SESSION ABSTRACT

In recent decades, contemporary social archaeology has increasingly embraced non-traditional, theoretically informed, contextual, and holistic approaches, alongside an expanding suite of interdisciplinary analytical tools. Our proposed session aligns with this broader movement by acknowledging and building upon these established advances. However, it seeks to extend current research in two keyways. Firstly, while many existing studies apply innovative methods to individual sites or categories of material, this session emphasizes the need for comparative, cross-contextual synthesis within settlements. By bringing together evidence from diverse spatial zones (public, residential, productive, ritual, and funerary), we aim to highlight how social differentiation is expressed across the whole settlement composition rather than in isolated contexts. Secondly, although reflexivity is now more common in social archaeology, there remains a tendency to rely, implicitly or explicitly, on traditional hierarchy indicators or long-standing typological assumptions. This session explicitly encourages contributions that interrogate inherited interpretive frameworks, identify persistent biases, and propose alternative readings grounded in multi-scalar contextualization. By positioning itself at the intersection of methodological innovation, theoretical critique, and contextual integration, this session aims to stimulate a renewed dialogue on how prehistoric social stratification can be understood more rigorously and creatively. It complements existing research and ongoing archaeological debates while pushing for broader comparative thinking and deeper methodological reflexivity. Furthermore, we emphasized intra-spatial analyses in our session proposal, even though this could be expanded to include an inter-spatial perspective, examining the settlement in relation to its surrounding landscape, comparing it with the surrounding area, topography, other settlements, etc. Alongside the intra-spatial analyses of settlements, it might be interesting to add a "glocal" perspective that shows how external influences or broader patterns were assimilated into the settlements. In this way, intra-spatial analyses could help reveal these "glocal" impacts.

CONTRIBUTION ABSTRACTS

693. Compositional Grammar and Visual Hierarchies in Uruk Seals

Authors: Tolga Kıyak (Hacettepe University)
Format: Oral

Seal impressions from the Uruk Period are an important group of materials for understanding early administrative practices and visual communication. Glyptic literature has generally focused on motif repertoire and stylistic differences, but the positioning of figures on the scene and the hierarchical relationships between them have not been systematically examined. This study treats the seal surface as a measurable "compositional grammar" field and analyzes the scenes based on the level of importance of the motifs (primary/secondary/filler) and their spatial position (center, upper-lower-lateral zones, periphery, entire surface). A motif-based dataset was created by compiling 654 seals and 1,786 iconographic elements from a broad geographical framework stretching from the Levant to the Iranian Plateau, and Correspondence Analysis was applied to compare periodical and regional variations. The findings show that although geometric motifs are frequently seen in compositions, they mostly serve a secondary or filling function, while rare anthropomorphic figures tend to be placed at the center of the scene. Four design logics defined as "Multi Figurative," "Single Figurative," "Divided Geometric," and "Repetitive Geometric" reveal that a common iconographic repertoire is processed in different ways. This analysis approaches Uruk seals not as a single-centered stylistic narrative, but as a multi-centered communication system in which a shared visual grammar is processed with varying intensities in different geographical centers.

2454. Crete in a Transitional Period: Interaction, Identity, and the Emergence of Social Complexity in

Pre-Palatial Seal Use

Authors: Ane Dybkjaer (Independent researcher)
Format: Oral

Recent scholarship has demonstrated that social complexity in Bronze Age Crete emerged prior to the construction of the first palaces (EM II–MM IA). Among the material indicators of this transformation are seals, which have often been interpreted primarily as markers of administrative control or elite authority. This paper instead explores how seal production and use structured interactions between communities and contributed to the gradual formation of social complexity. Drawing primarily on funerary contexts from central Crete, this study combines similarity network analysis with Least Cost Path modelling to reconstruct patterns of interaction, mobility, and shared iconographic traditions among pre- and early proto-palatial sites. The distribution of motifs and production styles reveals multiple interacting seal production centres embedded within regional networks of exchange and emblematic affiliation. Seals functioned simultaneously as markers of group identity and as means through which emerging elites articulated and consolidated influence. Rather than viewing complexity as the product of centralized authority alone, the evidence suggests that sustained inter-site interaction, shared symbolic expressions, and competitive display practices facilitated increasingly structured social organization. By integrating spatial modelling with contextual funerary analysis, this paper highlights how relational networks and material group-representation contributed to the emergence of social complexity in transitional Minoan Crete.

2110. Topography, Environment, and Settlement Variability in Prehistoric Pile-Dwelling Sites of Albania: A Comparative Interdisciplinary Approach

Authors: Adrian Anastasi (National Institute of Archaeology - Academy of Sciences of Albania) – Krist Anastasi (Laboratory HiSoMA, University Lumière Lyon 2)
Format: Oral

Recently, archaeological and interdisciplinary research conducted in the three lakes of southeastern Albania, (Ohrid, Prespa and Maliq), has renewed the interpretative framework of prehistoric pile-dwelling sites, providing new evidence for a reevaluation of settlement forms and the social structures associated with them. This contribution proposes a comparative analysis of six pile-dwelling sites, LIN 1, LIN 3, Udënisht, Prespa 1, Dunavec, and Maliq, approached as a complex and diversified settlement system that has not previously been considered as an integrated whole. The main objective is to re-examine the residential typology of these sites and the opportunities and constraints imposed by specific topographic, geomorphological, and hydrological conditions, integrating archaeological data with spatial analysis, paleoenvironmental reconstructions, and models of climatic variability. While sites such as LIN 1, LIN 3, Udënisht, and Maliq display a settlement configuration developing directly from the shoreline, a typology generally regarded as "classical" for pile-dwelling settlements, new evidence points to different scenarios in other contexts. Based on recent geomorphological and spatial analyses, Dunavec appears to represent a settlement established on a lacustrine island, while Prespa 1 reflects a pattern of progressive topographic relocation closely linked to fluctuations in lake levels. By comparing shared factors and structural differences, this contribution discusses how settlement choices reflect not only environmental adaptations but also distinct social, economic, and organizational strategies. In this sense, intra-spatial analysis of the sites, integrated within a "glocal" perspective, allows exploration of how local environmental dynamics and large-scale processes contributed to the formation of settlement models and pre-religious forms of social organization in Balkan prehistory.

1903. Rethinking the settlement organisation of the Middle Copper Age Great Hungarian Plain through the Hunyadihalom culture's sites

Authors: Zsuzsa Hegedus (Hungarian National Museum Public Collection Centre Hungarian National Museum)
Format: Oral

The Copper Age of the Great Hungarian Plain was marked by profound changes in social organisation and settlement patterns. Neolithic tell settlements were replaced by smaller-scale sites associated with increasingly mobile communities, which became integrated into extensive exchange networks circulating copper objects across Central Europe. Deeply rooted in local traditions and shaped by eastern and southern influences, the Middle Copper Age Hunyadihalom culture (4000–3700 BC) shows a particular settlement structure. A certain duality appears at first glance: numerous small sites consisting of only a few pits often interpreted as short-lived hamlets coexisted with the large and complex, palisade-surrounded settlement of Tiszalúc–Sarkadpuszta, likely used for several generations. This contrast might suggest a hierarchical system with a central settlement and a network of smaller, peripheral sites – closer examination, however, challenges this interpretation and suggests a far more complex picture. This research explores the diversity through detailed, site-level analysis of multiple Hunyadihalom settlements. Rather than applying rigid typologies or hierarchical models, the study approaches settlements as components of a complex system, defined by their roles, perceived functions, and interconnections. The methodological approach integrates pottery analyses, lithic and faunal studies, radiocarbon dating, and the spatial study of the settlements' structure. This enables a nuanced interpretation of individual sites, which then can be contextualised relative to one another. From hunters' camps to hamlets focusing on animal husbandry, the results reveal a highly dynamic and multifaceted settlement system in which morphologically similar sites had fundamentally different functions. This diversification appears to have been primarily driven by social relations and subsistence strategies, rather than by increasing centralisation or rigid hierarchies. The settlements thus formed interconnected "micro-worlds" within a broader system shaped by human decision-making, sociocultural frameworks, and environmental constraints.

833. Spatial Distribution of Bronze Age Settlements in Southeastern Iran

Authors: Setareh Ebrahimiabareghi (University of Bern)
Format: Oral

This presentation examines early urban and proto-urban settlements in southeastern Iran during the Bronze Age. Despite challenging climatic conditions, the region supported early complex societies whose settlement patterns were closely tied to rivers, deltas, and alluvial fans. Using published archaeological data integrated with satellite imagery and Geographic Information Systems (GIS), with a regional comparative approach, this study analyzes settlement distribution in key areas such as Shahdad, the Bampur Valley, and the Sistan Plain. The results show that settlements were concentrated in small ecological niches near reliable water sources, including the Helmand and Bampur rivers and the Halil Rud. Water availability strongly influenced settlement location, hierarchy, and continuity, while hydrological instability contributed to settlement decline in the early second millennium BCE. This research highlights the central role of water and geomorphology in shaping early urbanism in southeastern Iran and contributes to broader discussions of human–environment interaction in arid regions of the ancient Iranian Plateau.

843. Let's value plants! Plant commodification and emerging social complexity in Northern Mesopotamia

Authors: Karolina Joka (Centre for Modern Interdisciplinary Technologies, NCU Toruń)
Format: Oral

This presentation focuses on the important yet largely overlooked role of plant commodification—both annuals and perennials—as a major catalyst in the growth and diversification of social complexity. It draws on archaeobotanical, archaeological, and spatial data from two sites in Iraqi Kurdistan: the Late Ubaid settlement of Gurga Chiya and the Early Bronze Age site of Kani Shaie. The central concept of this study is the commodification of plant resources (both annual and perennial), and the ways in which this process emerged, developed, and gained significance within past economic systems. Here, commodification is defined as the process through which value is assigned to resources. This process is closely linked to investment agriculture, a form of land use that requires long-term labor input and an acceptance of delayed returns between planting and harvest, and the cash crops—plant species that do not directly contribute to subsistence but either for craftmanship or trade. The process of commodification is also closely tied to food surpluses, an economic shift that emerged with the development of agricultural societies. These surpluses led to the rise of non-farming specialists and the development of professions like metallurgy, textile production, administration, and trade. The commodification of plant resources intensified during the transition from the Late Neolithic to the Early Bronze Age, marking a shift from small-scale crop production aimed at local subsistence toward the cultivation of surplus-oriented and exchange-driven crops. The analysis of materials from Gurga Chiya and Kani Shaie allows for the reconstruction of the diachronic trajectory of plant commodification and situates this process within its broader social and economic contexts, both at the level of individual settlements and within the wider regional framework.

875. Architecture, Space, and Social Organisation in the Roman Period Settlement of Migūčionys, Southeastern Baltic

Authors: Ieva Vengale (Lithuanian Institute of History)
Format: Oral

In recent years, the expansion of large-scale archaeological excavations in Lithuania has significantly increased the available evidence not only for settlement finds, but also for buildings as a key component of settlement organisation. Although individual building remains were known from earlier research, their interpretation was often uncertain and they rarely became the subject of systematic analysis. Large-scale excavations at settlement sites such as Migūčionys, Skudeniai, and Bakšiai have made it possible to move beyond individually identified structures toward an integrated analysis of buildings and settlement organisation. This presentation focuses on a systematic analysis of the Roman Period settlement at Migūčionys. The site is unique due to the large number of identified building remains—approximately 30 structures—including several longhouse-type buildings that have not previously been clearly recognised in the Lithuanian archaeological record. The analysis draws on variation in building size, form, and spatial layout, evidence for reconstruction and repair, the distribution of finds, and other contextually relevant settlement data. An intra-spatial approach is employed to examine relationships between buildings within the settlement and their role in the overall settlement structure, while an inter-spatial perspective places the Migūčionys evidence within a broader environmental context and allows comparison with other Roman Period settlements in the southeastern Baltic region. This approach enables discussion of potential indicators of social differentiation, activity organisation, and differences in building status within the settlement, as well as consideration of architectural traditions in a broader regional and international context. The Migūčionys case highlights the value of extensive settlement-scale datasets for addressing social questions, showing how buildings—often poorly preserved or absent from the archaeological record—can serve as an important source for interpreting social organisation.

763. Land, Power, and Volcanism: LiDAR-Based Settlement Patterns of the Kingdom of Chalchuapa, El

Salvador

Authors: Carlos Flores Manzano (Yale University)
Format: Oral

This talk presents new insights into the settlement patterns of the Kingdom of Chalchuapa through the application of high-resolution LiDAR (Light Detection and Ranging) data. By penetrating dense vegetation and revealing subtle topographic features, LiDAR allows for a systematic reconstruction of Chalchuapa's landscape through the modern El Salvador Territory. The analysis identifies previously undocumented architectural features, which were affected by the eruption of Ilopango Volcano eruption (circa 431-539 CE). Spatial patterning suggests a hierarchically structured settlement system articulated through clusters of domestic architecture linked to ceremonial and administrative centers, reflecting strategies of political integration and territorial control. Rather than an isolated ceremonial center, Chalchuapa emerges as a complex, integrated kingdom, connected within regional networks of interaction across western El Salvador and southeastern Mesoamerica. By combining LiDAR analysis with existing archaeological data, this study contributes to broader debates on low-density urbanism, landscape governance, and early state formation in Mesoamerica. The results demonstrate how remote sensing technologies, groundtruthing and excavation can transform our understanding of ancient political landscapes and challenge traditional narratives based solely on surface visibility and excavation.

224 EDGES OF EMPIRE: CONTINUITY, CHANGE, AND LANDSCAPE IN LATE ANTIQUITY

Theme: 7. Interaction, connectivity and mobility
Organisers: Andreia Arezes (CITCEM - Centro de Investigação Transdisciplinar "Cultura, Espaço e Memória" | Faculdade de Letras, Universidade do Porto) – Tomás Ruiz (IEM - Instituto de Estudos Medievais | Nova/FCSH - Universidade Nova de Lisboa) – José Quaresma (CHAM - Centre for Humanities | NOVA/FCSH - Universidade Nova de Lisboa) – Teresa Ponte (CEAACP - Universidade de Coimbra) – Victoria Ruiz (Instituto Universitario de Investigación en Arqueología y Patrimonio Histórico | Universidad de Alicante)
Keywords: Late Antiquity, Landscapes, Material culture, Continuity, Transformation, Connectivity
Format: Regular session

SESSION ABSTRACT

In Late Antiquity, the edges of the Roman Empire became dynamic zones of interaction and transformation. Across Europe and the Mediterranean, territories once defined by imperial structures turned into areas where inherited traditions met emerging political and cultural identities. Urban and rural landscapes evolved unevenly—through contraction, adaptation, or reinvention—creating a mosaic of experiences that defy any simplistic notion of decline. Archaeological and environmental research over the last decades has reshaped how we understand these frontier and peripheral regions. Integrating spatial analysis, bioarchaeological data, and digital modelling enables a deeper reading of the interplay between human agency, ecological dynamics, and political reconfiguration. These approaches demonstrate that the so-called "margins" often functioned as centres of innovation, where resilience, connectivity, and local initiative redefined the relationships between people and landscape. The recent improvement of societal analysis and dating strategies became possible through the refinement of typologies (mainly ceramics) and excavation methodologies. The studies of fine wares, amphorae, and coarse wares, both in local/regional frameworks, but also in the long-distance commercial networks, have demonstrated a much more complex reality than suspected by the archaeologists of the early 20th century. This session invites contributions that explore how Late Antique communities engaged with changing political, social, technological, and environmental conditions. We particularly welcome studies addressing settlement patterns, resource management, territorial organisation, material culture transformation, and theoretical or methodological reflections on how archaeological evidence can illuminate diverse pathways of continuity and change across the Late Antique world. By combining archaeological, environmental, and historical perspectives, the session aims to foster a comparative and interdisciplinary dialogue on how the edges of Empire contributed to shaping the social and cultural landscapes of Late Antiquity. Ultimately, it encourages discussion on the multiple scales and rhythms of transformation that defined this complex and creative period.

CONTRIBUTION ABSTRACTS

2451. Multi-proxy insights into (dis-)continuity at the north-western periphery of the Late Roman World

Authors: Claudia Gerling (University of Basel) – Margaux Depaermentier (University of Vilnius) – Cornelia Alder (University of Basel) – Irka Hajdas (ETH Zurich) – Joscha Gretzinger – Zuzana Hofmanová – Johannes Krause (MPI Leipzig) – Peter-Andrew Schwarz (University of Basel)
Format: Oral

The Late Antique period in Basel (NW Switzerland), located at the north-western periphery of the former Roman Empire, is marked by complex political, cultural, and economic entanglements. This study investigates continuity and discontinuity in mobility patterns, subsistence strategies, and communication networks in the Basel area, a region that shifted from a Late Antique Roman frontier zone to a melting pot of Early Medieval interaction spheres. Drawing on an integrative, multi-proxy approach, we analysed burials dating from the 4th to the 8th centuries CE using AMS radiocarbon dating, archaeological, anthropological, isotopic and genetic analyses, combined with high-resolution environmental and climatic modelling. The study results challenge large-scale population income from the 4th/5th centuries onwards and point to predominantly regional mobility embedded within far-reaching communication and exchange networks. The study also highlights the crucial role of bioarchaeological approaches in revealing unexpected dimensions of social dynamics in Late Antique Basilia and early medieval Bazela.

1056. An Atlantic coarse ware: E ware

Authors: Ian Doyle (The Heritage Council of Ireland)
Format: Oral

This paper looks at E ware or Class E which has been described as one of the 'céramiques communes' from the Bordeaux area of western France. This is an unremarkable but distinctive range of jars, beakers, bowls, lids and jugs which were traded to northern Spain, Ireland and western Britain during the sixth to seventh centuries AD. Its current known distribution will be set out as well as its association with Mediterranean amphorae and finewares. From excavations in Bordeaux it now appears that the dating of E ware in western Britain and Ireland of c. AD 550-700 may be a narrow range within a broader time frame of production in the Bordeaux area. Despite recent progress on this subject there still remain outstanding questions about why this class of ceramics was traded extensively and almost exclusively from Bordeaux to Ireland and western Britain, and questions also include how was it used and what did it represent outside of the Gallo-Roman world?

639. Narbonne and Arles. Two harbour systems on the frindges of Mediterranean states (5th - 7th c. AD)

Authors: Lyubomir Malinov (Nantes Université/UMR 6566 CReAAH-LARA)
Format: Oral

From the beginning of the fifth century, the major Gallic harbour systems of Narbona/Narbo Martius (Narbonne) and Arelate (Arles) once again occupied – much as they had in Republican times – a peripheral position within an essentially Mediterranean Roman Empire. Having lost overall control of continental Gaul, the Western Roman state nevertheless remained strongly structured around connectivity between North Africa, Spain, Gaul, and Italy. The successor kingdoms of the Visigoths and Ostrogoths partially redefined this geography, yet the fundamentally liminal position of the two major ports of southern Gaul and their surrounding provinces remained largely unchanged. At the same time, ceramic evidence and written sources strongly suggest the continued activity of Arles and Narbonne as key nexuses of maritime commerce. On the basis of a recent extensive topographical survey of settlement patterns, together with a synthesis of interdisciplinary scholarship, this paper aims to outline several hypotheses for interpreting the topographical evolution of these two major harbour systems in the context of political and economic change. We argue that, although operating on a different scale than during the Early Empire, harbour activity in both case studies remained one of the principal drivers of urban and coastal settlement dynamics. In this perspective, the loss of political unity with the continental interior is better understood as a basis for quantitative and qualitative transformations in commercial activity rather than as a trigger of decline.

1932. Livestock expansion, transhumance and landscape change in the Eastern Pyrenees during Late Antiquity: shaping high mountain cultural landscapes

Authors: Josep Maria Palet – Valentina Pescini – Arnau Carbonell Puigventós – Lídia Colominas – Jesús Martínez Fernández (Institut Català d'Arqueologia Clàssica ICAC)
Format: Oral

Since 2005, an integrated archaeological and environmental research programme has been carried out in Ter and Segre High Mountain Valleys (Eastern Pyrenees) where livestock husbandry and transhumance have shaped the landscape for millennia. The project aims to understand both the origins and chronology of seasonal transhumance and to clarify the role of livestock management in the creation of high mountain cultural landscapes. The research integrates archaeological survey, test pits and extensive excavations, radiocarbon dating, and a wide range of bioarchaeological analyses (including anthracology, palynology, and archaeozoology). Numerous pastoral structures—such as enclosures, huts, milking installations, and related features—have been identified and dated from the Middle Neolithic through to modern and contemporary periods. Cross referencing archaeological evidence with bioarchaeological data has made it possible to reconstruct fuelwood use and the selection of specific tree taxa. Alpine and subalpine vegetation communities (dominated by mountain pine, birch, and willow) characterized the Neolithic period, whereas an increase in juniper has been recorded during Roman times, Late Antiquity, and the early Middle Ages. Roman times, particularly from the 3rd-4rd centuries AD and especially during Late Antiquity, show clear evidence of a major expansion in livestock farming. A further expansion took place from the early Middle Ages (9th–10th centuries), marked by the reuse of Roman period structures and the construction of new, more specialized facilities (notably orris for cheese production). Livestock management practices—including fire driven forest clearance, grazing pressure, and systematic forest exploitation—played a decisive role in lowering the timberline, particularly throughout Late Antiquity, the medieval period, and the post medieval centuries.

1916. Burial contexts in the borderlands of Late Antique Gallaecia: architectures, materials, and identities in a changing landscape

Authors: Andreia Arezes (CITCEM | Faculty of Arts and Humanities, University of Porto)
Format: Oral

The north-west of the Iberian Peninsula, part of the Roman Empire, and fully integrated in its Atlantic trade networks, retained several specificities and remained on the sidelines of the profound penetration of Roman culture and worldview, in contrast with other Hispanic regions. It was only in the 4th century AD that Gallaecia established itself as a province, with Bracara Augusta as its capital and a metropolitan episcopal see. During the following century, as the Empire underwent administrative fragmentation and shifting political and economic conditions, other agents gradually gained prominence. In fact, in the 5th century, Bracara Augusta became the core of a new entity, the Suevic kingdom of Gallaecia, based on the power of 'barbarian' elites of Eastern origin that, at some levels, tried to emulate Roman canons. In contrast, ecclesiastical hierarchies strove to conform communities' beliefs, counteract heterodox practices, mitigate the spread of heresies, and, especially from the 6th century onwards, establish a network of territorial organisation. However, communities found ways to resist and escape some of the constraints imposed from the top down. The plurality of economic and settlement strategies indicates the possibility of offering variable responses to different contexts, some of which reveal persistences, while others indicate ruptures with previous models. The diversity of solutions spreads to the mortuary spaces mapped in the incipiently known territory of Gallaecia. Based on two case studies, this presentation aims to reflect on the factors that may have determined the creation of both burial areas, on the variability in the architectural options revealed by the tombs, and on the choice of artefacts they included. Similarly, it will address the potential and limits of the archaeological record for understanding the strategies used to construct the identities of the buried individuals and the meanings of the items that compose the mortuary scenario.

2631. Imitations in coarse ware of African cooking ware prototypes at Olisipo in late-antiquity (4th-6th centuries AD)

Authors: Martim Lopes (University Rovira i Virgili | CHAM - Centro de Humanidades)
Format: Oral

This presentation aims to present recent developments in the research of imitations of African cooking wares prototypes at Olisipo and its territory, taking for this crono-stratigraphical data from the excavations of the sectors "Armazéns Sommer" and "Rua da Prata 88-114". African cooking wares are a frequent presence in Lusitanian contexts since the 2nd century and until the 4th century AD. The studies have mainly focused its attention on the African products, frequently being silent in relation to coarse ware that mimic the typological characteristics of the African originals. Some advancements were made in a recent synthesis of the commerce of African cooking ware commerce at Olisipo, yet the importance of this new evidences allow for a new interpretation and analysis of this type of coarse ware. Based on the contexts of Rua da Prata 88-114 and Armazéns Sommer, from which we have a long diachrony that spans from circa 350 AD until 500+ AD, with some hundreds of fragments of ceramic and low residuality, we aim to present and discuss the importance and meaning of the types that are imitated, with emphasis on a form that appears to evolve directly from the type Hayes 23B.

330. Coarse ware evolution between the 5th and the 8th centuries in southwestern Hispania

Authors: José Carlos Quaresma (CHAM - Centre for Humanities | Universidade Nova de Lisboa - NOVA/FCSH) – Teresa Ponte (Universidade de Coimbra. CEAACP)
Format: Oral

The next step within the research undertaken in Lusitania should be the recognition of contexts dated to chronologies posterior to c. AD 575, in order to extend the analysis of the ceramological evolution into the central and Late Wisigothic period of the Atlantic façade of Hispania. In what direction does coarse ware evolve, concerning not only slow wheel/hand-made vessels, but also oxidising/reduced firings. So far, the technological percentages related to coarse ware from Lisbon's consumption match those from Madrid. The middle of the 6th century is a turning point with the consolidated beginning of the hand-made pottery, while light surfaces remain very important. Casseroles and ollae were balanced in the first half of the century, but now, casseroles are scarce, demonstrating the possible end at this phase, while mortars have finished their life around AD 525. This paper intends to discuss the transition from Graeco-Roman morphologies and functionalities into the Early-Medieval facies, in the present-day southern Portuguese territory, using a stratigraphic, statistical and archaeometric approach.

1334. Change and Continuity: Key Concepts in Settlement Models of Southwestern Lusitania in Late Antiquity and the Emirate Period

Authors: Teresa Nunes Da Ponte (CEAACP, Universidade de Coimbra) – José Quaresma (CHAM - Centre for Humanities Universidade Nova de Lisboa)
Format: Oral

This work aims to be a reflection on the different settlement patterns detected in rural and urban areas during the period between the 5th-6th centuries and the 8th/9th centuries, using specific case studies and the study of artefacts obtained through the use of intrusive methodologies - excavation, contextually and stratigraphically inserted remains, and data obtained through non-intrusive methodologies: site prospecting using georeferencing of remains, focusing on south-western Lusitania, more specifically the current coastal and inland regions of Alentejo. Chronologies and typologies will be tested, as well as their evolution in the context of changing societies, as will their dynamics and models of occupation.The settlement patterns appear to be highly condicioned by factors sucht appear to be conditioned by factors such as the abundance of water and the existence of nearby ancient settlements sources of building materials and in which we can also consider the conservation of field organization structures or agricultural parcels.

2465. To be on the edge: the Kvarner region in the Late Antique and Early Byzantine Periods

Authors: Andrej Janeš (Croatian Conservation Institute) – Marija Marić (University of Novi Sad, Faculty of Philosophy)
Format: Oral

During the Late Antique period, the northern sector of the eastern Adriatic littoral (Bay of Kvarner) became a highly militarized zone, primarily due to the fragmentation of centralized imperial authority. Concurrent with the reinforcement of defensive installations along the principal routes toward Italy, urban centers underwent additional fortification, both coastal settlements such as Tarsatica and insular towns including Curictum and Apsorus. The escalation of instability in the Pannonian provinces, precipitated by internecine conflicts and Germanic tribal incursions, resulted in the increased strategic significance of insular communities, as evidenced by the construction of substantial early Christian architectural complexes correlating with demographic influx. Following the formal disintegration of the empire, the Kvarner region became a liminal zone between Ostrogothic and Byzantine spheres of influence. This period witnessed the emergence of semi-autarkic settlements, predominantly on the islands, clustered around arable land and major urban nuclei. During the 6th century CE, consequent to the Byzantine triumph in the Gothic War, the region underwent systematic refortification, thereby becoming a frontier zone of the Eastern Roman Empire. Material culture assemblages, particularly ceramic and glass production, demonstrate active commercial networks with eastern Mediterranean and North African regions. The region exhibits intensive construction activity during the sixth century CE, which, based on indirect textual evidence such, has been attributed to Emperor Justinian I and his policy of imperial consolidation. Nevertheless, this area had already experienced fortification construction in earlier periods of the Roman Empire, primarily driven by the need for defense against external threats and for maintaining control. Local production demonstrates strong ties to manufacturing centers in proximate Ravenna, the seat of the Byzantine Exarchate, indicating economic and political integration with the Eastern Roman Empire. This study will demonstrate the economic, political, and identity-based continuity of communities in the Kvarner region on the eve of the Middle Ages.

1308. Rituals of Legitimization: Hun-Period Structured Deposits in the Late Antique Landscape of Pannonia

Authors: Krisztina Marczel (Eötvös Loránd University | Hungarian National Museum)
Format: Oral

From the late 4th century onward, Pannonia emerged as one of the most dynamic frontier regions of the late Roman world. Situated along the principal migration routes activated by the arrival of the Huns in Europe, the province functioned both as a place of refuge and as a strategic hub. From the beginning of the 5th century onward, the region underwent profound transformations. These changes were not limited to the movement and mixing of population groups; rather, they reflect a period of major social reorganization, during which earlier structures disintegrated and new elites emerged, establishing new social and power relations. Among the most significant archaeological phenomena of this period—the early Migration Period and the Hun period—are structured deposits. The effects of the aforementioned processes are also evident in depositional practices. The composition of the assemblages changed at this time, and the focus shifted from the safeguarding of valuables toward the performance of new ritual acts. Although this mainly involved the adoption of customs with steppe roots, reflecting the origin of the newly arrived groups, the performers of these new rituals did not ignore the late antique landscape. On the contrary, in several cases these assemblages were deliberately buried in the immediate vicinity of still standing late Roman structures, such as forts, settlements or communication routes. In my research, I focus on these deposits to examine how they relate to the surrounding landscape and to late Roman infrastructure, and what conclusions can be drawn from these relationships regarding ritual practice, cultural and social change.

1580. Public Lighting Infrastructure at Nysa ad Maeandrum in Late Antiquity: Social Function and Destruction along the Colonnaded Street

Authors: Tanju Dönmez (Mediterranean Civilizations Research Institute, Akdeniz University) – Serdar Öztaner (Ankara University, Faculty of Language Hıstory and Geography)
Format: Oral

Late Antiquity was a period of profound transformation for the cities of Western Anatolia, marked by earthquakes, fires, possible Sasanian invasions, and later Arab raids that reshaped urban space and infrastructure. Among the systems most affected by these disruptions was public lighting, a key element of urban life that ensured security, enabled nocturnal activity, and reinforced social organization in late Roman cities. This paper examines the public lighting infrastructure of Nysa ad Maeandrum through the oil

lamps and associated suspension elements uncovered during excavations along the city's Colonnaded Street (Plateia), the main urban axis of the city. The study focuses particularly on the Eastern Spaces (ES-3) at the intersection of Street 1 and Street 4West, where a remarkable concentration of Late Antique lamps, bronze suspension rings, and in situ fixing points was documented. typological and stratigraphic analyses indicate that these lighting devices remained in use until the final phases of Late Antiquity. By contextualizing the lamp assemblage within its architectural setting, this contribution explores the social function of street lighting as part of a coordinated public infrastructure rather than isolated domestic practices. The condition, distribution, and depositional context of the finds are further evaluated in relation to the seventh-century destruction layers identified along the Colonnaded Street. Comparative evidence from cities such as Ephesos, Aphrodisias, Sardis, and Laodikeia is used to situate Nysa within broader regional patterns of urban lighting and infrastructural decline. The paper argues that public lighting systems in Nysa not only reflect Late Antique urban resilience but also provide a sensitive archaeological indicator for understanding the processes of urban contraction and collapse in Western Anatolia during the early seventh century CE.

560. Neighborhood Nucleus and Material Reservoir. Fate and Transformation of a Roman Bath and its Surrounding Area in Late Antique Miletus

Authors: Fabian Sliwka – Nadia Cahenzli (University of Hamburg)
Format: Oral

Increased flexibility in the function of spaces is a widespread phenomenon in Late Antiquity all across the Mediterranean. In an architectural and functional sense, it includes dynamic processes of transformation, re-use, and adaptation. The city of Miletus in modern Turkey is a fruitful site for analyzing such processes both on a small scale, centering on individual building complexes, and on an urban level. Thanks to its long and rich settlement history, the city offers multiple known case studies for ancient building structures being incorporated into the transformed urban scape of the Late Antique city. During a current project investigating neighborhoods in Miletus ("Geiton") in Miletus, light has been shed on a new example of Late Antique transformation and re-use processes. In summer 2025, our research centered on a monumental bathing complex that was built in the 2nd century AD. The building underwent multiple renovations until it went out of use in the 3rd or 4th century, probably due to the collapse of its roof. Subsequently, the ruins of the bath served as an architectural base for a Late Antique house. Herein, existing architectural components and building materials from the interior architecture were re-used, while the structure and assemblage were adapted to its new function. Given the aim of our current research project, this contribution first seeks to outline the transformation process that occurred in the bathing complex and its surrounding neighborhood towards Late Antiquity, especially highlighting the aspects of re-use and transformation. On a broader scale, we would like to discuss the role of ancient ruins as building spaces and material reservoirs in Late Antique urban communities such as Miletus.

1338. Transformed Landscape with a New Rule: The Construction and Continuity of Identity in Byzantine Cappadocia (Asia Minor)

Authors: Ezgi Yaşar – Ali Büyükkarakaya (Hacettepe University, Department of Anthropology) – Nilüfer Peker (Nevşehir Hacı Bayram Veli University, Department of Archaeology)
Format: Oral

One of the most important aspects of the Late Antique period is undoubtedly the Byzantine Empire and the development of Christian institutional structures across a significant portion of Southwest Asia under its rule. In this context, Cappadocia (Central Anatolia), with its geographical structure providing an environment conducive to monastic life, was an important region for Christianity during the Late Antique and Byzantine periods. Particularly with imperial investments made in the Late Antique period, the region became a major center for monastic life, seclusion, and monasticism, and played a significant role in shaping Christian theology and social identity. Recent surveys conducted in the region and excavations carried out over the past five years have led to the discovery of the ancient city of Mokissos, mentioned in historical texts. Mokissos, with its widely dispersed building complexes, civil architectural features, and religious structure characteristics, is not only the best-preserved and largest city in the Cappadocia region that has been identified to date, but also the only known Late Antique metropolis. Since 2023, excavations have uncovered nearly 100 graves inside and around the main church, as well as in other churches and sacred areas adjacent to it, most of which have been excavated. These initial findings from the sacred spaces and associated graves uncovered in this newly discovered ancient city are examined comprehensively in this study. The presentation aims to discuss how social identity was constructed and maintained on the periphery of the Empire based on an integrated evaluation of historical, archaeological, and bioarchaeological data.

1622. Ringfort logics in early medieval Ireland

Authors: Jonathan Murray-Gillott (School of Arts, English and Languages, Queen's University Belfast)
Format: Oral

The early medieval Irish ringfort, a settlement form with a construction period largely between the 7th and 10th centuries AD, is one of Europe's most numerous upstanding archaeological monument types, with anywhere between 40,000 and 60,000 spread throughout the island. Attempts to understand the logics of ringfort settlement have largely focused on how far we can use the 7th and 8th century Irish law tracts to explicate their social resonance. Alternatively, scholars have argued that the material complexity of the settlement record is not easily related to the idealised law tracts, but without attempting to demonstrate what might be involved in these dominant settlement processes. The formal evocation that is explicit in the architecture of the early Irish ringfort – an evocation that is integral to the dynamics of early Irish landscapes in a way that appears less widespread in the rest of early medieval western Europe – provides one route into investigating the strategies involved in the production of early Irish social formations. By reconsidering the long-recognised logics of hierarchy produced through degrees of vallation on ringforts, this paper will examine the intersection of different kinds of stratification, particularly through spatial relations and recent hints of chronological nuance in the emergence of the ringfort type. Through this it becomes clear that the production of ringforts of differing degrees of vallation is only effective as a differentiating social technique in various localities by virtue of their being aspects of a common, universalising settlement form. Foregrounding these basic material statements regarding hierarchy, and using degrees of vallation as a means of considering the qualitative and quantitative dynamics of labour, for which they are a proxy, opens up further possibilities for investigating the integration and confusion of different processes of social hierarchy as they operated in early medieval Ireland at different scales.

225 LIFELINES AND FRONTIERS: FORTIFICATIONS IN RIVER LANDSCAPES

Theme: 7. Interaction, connectivity and mobility
Organisers: Timo Ibsen (Leibniz-Zentrum für Archäologie) – Audronė Bliujienė – Gintautas Zabiela (Klaipėda University, Institute of Baltic Region History and Archaeology) – Ladislav Rytíř (University of Hradec Králové Department of Archaeology)
Keywords: fortifications, river landscapes, interaction, communication, mobility
Format: Regular session

SESSION ABSTRACT

Europe is crisscrossed by a dense network of large rivers and countless smaller tributaries, forming lifelines that have shaped human settlement, mobility, and communication since prehistoric times. Rivers functioned as arteries of exchange and transport, connecting distant regions and facilitating cultural interaction — yet at the same time, they also served as natural boundaries, obstacles, and strategic frontiers. Given this dual role, it is hardly surprising that numerous fortified sites and hillforts were deliberately positioned to exploit the strategic potential of river landscapes. From elevated promontories overlooking river crossings to enclosures controlling fords, harbours, or trade routes, fortifications along waterways reveal much about how past communities understood and harnessed their fluvial surroundings for defence, control, and communication. Fortified sites along rivers were often not isolated strongholds but elements of broader, sometimes contemporaneous systems of communication and defence. Their spatial relationships, visibility, and chronological overlap suggest coordinated patterns of settlement and interaction that transcend local contexts. This session seeks to explore how rivers shaped the placement, structure, and function of fortified sites from Prehistoric to Modern times across Europe. We invite papers that: (1) examine fortifications situated along rivers and their tributaries; (2) compare their spatial, functional, and chronological relationships with waterways; (3) examine their roles in systems of defence, communication, and mobility; and (4) present case studies or broader comparative approaches to understanding the interplay between water, landscape, and fortification. Through comparative and interdisciplinary perspectives, the session seeks to reassess fortifications in river landscapes as integral nodes within Europe's long-term networks of interaction, communication, and mobility.

CONTRIBUTION ABSTRACTS

2379. The Role of Rivers in the Location of Iron Age Hill Forts in Estonia

Authors: Heiki Valk (University of Tartu)
Format: Oral

Most Iron Age strongholds in continental Estonia were situated along rivers, their tributaries, or smaller creeks flowing into them during the 1st millennium AD. Although these minor waterways may appear unsuitable for transportation from a modern perspective, they were sufficiently navigable for small boats. During winter, when frozen, rivers and creeks functioned as winter roads. A close association with waterways is particularly characteristic of hill forts in northern and eastern Estonia—regions that constituted the hinterlands of the Viking Age Austrvegr and its important southern branch, the waterway connecting the Gulf of Finland with Pskov via the Narva River and Lake Peipus. However, proximity to a river or stream had already been a prerequisite for the establishment of hill forts prior to the Viking Age. Access to a water route was important even for hill forts that did not directly control major communication corridors but were located at the headwaters of smaller creeks. The location of hill forts along waterways indicates their role as local centres within extensive trading and communication networks, particularly during the Viking Age, when they functioned as sites of small-scale, grassroots-level exchange. In this context, it is noteworthy that beaver bone pendants—apparently associated with the beaver fur trade—have been found at riverside hill forts in Estonia. Following the end of the Viking Age, many small riverine hill forts in the forested regions of eastern Estonia were abandoned, having lost their primary economic foundation: participation in long-distance fur trade networks.

2652. Medieval Castles in the Network of Rivers of Estonia

Authors: Villu Kadakas (Tallinn University)
Format: Oral

Unlike most of the European countries, Estonia lacks large navigable rivers; only three rivers were passable even for small sailing vessels. Nevertheless, inland waterways functioned effectively through Lake Peipus, one of Europe's largest lakes. Situated on the eastern border, it enabled waterborne connections to the Principality of Pskov, a Hanseatic trade destination often overshadowed by Novgorod. Two waterways led to Pskov. One ran through South-Estonia via the Rivers of Pärnu and Emajõgi, also Lake Võrtsjärv, and gave rise to the castles and Hanseatic towns of New-Pärnu, Viljandi and Tartu. The other waterway started from the Gulf of Finland and ran along the River Narva which flows out of Lake Peipus, situated on the historical border and gave rise for the castle and City of Narva. Among these on can find a castle protecting the sea harbour in the estuary, castles protecting reloading sites near rapids or crossings with a landroad, also some small castles built as peculiar outposts to protect the waterway in the frontier areas. However, no continuous boat traffic was possible because of rapids and narrow tributaries, in some parts roads had to be used even at high water levels. Although most of the rivers of Estonia were not navigable for sailing boats, often even for small rowing boats, the northern climate enabled extensive winter transport. Frozen rivers and lakes formed smooth ice roads, reloading was not necessary and much quicker speeds could be reached than with boats. Even if the land lacked snow, the rivers were frozen. Possibly even greater cargo volumes were carried on the ice than water. Even minor tributaries, too narrow or shallow for the boats, became usable, possibly explaining why nearly all medieval inland castles were located near tributaries of the larger rivers, facilitating efficient winter transport to sea harbours.

1490. Is a Hillfort an Essential Component of an Archaeological Complex?

Authors: Gintautas Zabiela (Institute of Baltic Region History and Archaeology, Klaipėda University)
Format: Oral

The Baltic lands are characterized by a high density of hillforts. In some cases, these sites, together with nearby archaeological features, form archaeological complexes. One such complex is located at Seredžius in Central Lithuania, on the right bank of the Nemunas (Memel) River. Due to limited data regarding the hillforts within such complexes, the interrelationships between their individual components remain unclear. Establishing whether the constituent parts were contemporaneous is therefore crucial, as this would allow links between the hillfort and its surroundings to be identified. This issue is examined through the Seredžius archaeological complex. The Seredžius archaeological complex consists of settlement sites, burial grounds, and a hillfort used during the same or similar periods in prehistory. The hillfort has been known since the eighteenth century and, in the fourteenth century, served as an important Lithuanian castle in the struggles against the Teutonic Order. Within a 2 km radius of the hillfort, four Iron Age burial grounds have been identified and investigated between 1936 and 2017. Their chronology has been established with century-level precision, spanning periods from the Iron Age to the Middle Ages. In 2025, drilling of the rampart enabled the collection of samples to determine the hillfort's chronology using radiocarbon dating. The available data allow a chronological analysis of the links between the hillfort and its surroundings. The results indicate that fortifications were not a constituent part of this archaeological complex during all periods. Discrepancies in the construction of fortifications have also been recorded in other extensively researched archaeological complexes containing hillforts, as well as within the hillforts themselves. Explaining this phenomenon requires further detailed investigation of the entire complex.

1017. Fortified Settlements and Inter-Basin Connectivity in Northeastern Lithuania (1000 BC–200 AD)

Authors: Vytenis Podenas (Lithuanian Institute of History)
Format: Oral

Fortified sites in river landscapes are commonly interpreted as promontory strongholds controlling waterways and crossings. In contrast, northeastern Lithuania presents a distinctive inland variant of the fortified settlement phenomenon, concentrated not directly on major rivers but within a small zone where the drainage basins of the Daugava, Lielupe, and Šventoji–Neris–Nemunas systems converge. This paper explores how such locations functioned as connective nodes between river networks rather than as riverine promontory forts. The paper draws on recent excavations (2016–2021) at three hillforts — Antilgė, Garniai 1, and Mineikiškės — representing securely dated Late Bronze Age and Early Roman Period fortified settlements. Integrated analyses of topography, stratigraphy, structures, material culture, radiocarbon dates, and bioarchaeological datasets demonstrate that these sites were permanently inhabited enclosures combining domestic space, craft production, and complex defensive systems. All three settlements are situated on inland kames, offering naturally defensible positions between major river corridors. Evidence for dwellings, storage and refuse pits, multi-phase fortifications, bronze casting, and household-based agrarian economies indicates that these were not temporary refuges but stable community centres. Zooarchaeological, archaeobotanical, and organic residue data point to subsistence based primarily on animal husbandry and cereal cultivation, complemented by limited fishing and gathering. Metallurgical remains and imported stylistic traits link these communities to wider Eastern Baltic and Scandinavian exchange networks. Rather than controlling single waterways, the fortified settlements of northeastern Lithuania structured overland connectivity across watersheds, mediating interaction between major river systems. This case study highlights an alternative relationship between fortification and fluvial landscapes, refining broader models of how prehistoric communities integrated defence, mobility, and communication within river-dominated regions.

723. Hillfort Development and Environmental Change in the Neris River Valley: The Case of Kernavė, Lithuania

Authors: Rokas Vengalis (Lithuanian Institute of History) – Piotr Kittel (University of Lodz) – Gintautas Vėlius (Vilnius University)
Format: Oral

The Neris, Lithuania's second largest river, was an important axis of the settlement system throughout prehistory. This is evidenced by the dense settlement of various periods in its wide terraced valleys. The Neris retained its special significance also at the dawn of historical times – this is where the earliest urban centers of Lithuania, Kernavė and Vilnius, were established. This presentation discusses the case study of Kernavė. The Kernavė fortification system reflects the entire period of hillfort existence in Lithuania from 800/400 cal BC to 1400 cal AD. Archaeological research on Kernavė hillforts shows a change in their function – fortified settlement, fortified household, military fortifications and a ducal castle. The function of the Kernavė fortifications is integral to the settlement that developed around them. It has also been extensively excavated, and it is possible to say approximately where and when people lived there. However, the natural environment is no less important to this understanding, as it strongly influenced both the structure of the settlement and the need for fortifications. Research into the palaeoenvironment of Kernavė has only begun in recent years. Even preliminary studies have shown that the natural conditions in prehistory were completely different from those of today. Geoarchaeological studies show that a large part of the valley was occupied by a lake, which gradually turned into peat. Lacustrine sediments indicate that the valley was occasionally flooded by rising river waters, and from the 13th century onwards, more intense geodynamic processes began at the foot of the hillforts – colluvial fans began to accumulate in the valley, indicating increased erosion processes on the slopes of the hillforts. Thus, geoarchaeological and paleoecological studies allow us to better understand the function of the fortifications, their development, and their relationship with the settlement.

987. Resolving the Emergence and Development of Hillforts in Lithuania at the Confluence of the Nemunas, Šešupė, and Jūra Rivers

Authors: Timo Ibsen (Leibniz-Zentrum für Archäologie - LEIZA) – Audronė Bliujienė – Gintautas Zabiela (Klaipėda University, Institute of Baltic Region History and Archaeology)
Format: Oral

Rivers have structured human settlement by acting both as natural borders and as communication corridors linking distant regions. Their ambivalent role, as connective routes and potential conflict zones, created conditions in which fortified sites became essential for controlling movement, securing territories, and asserting social or political dominance. The confluence of the Nemunas, Šešupė, and Jūra rivers in south-western Lithuania represents such a strategically significant landscape, whose archaeological record is marked by an unusually dense concentration of hillforts. At this river confluence along the present-day Lithuanian–Russian border, more than 25 hillforts are known, 18 of which are still preserved. Their close spacing, often only 5–10 km apart, underscores the importance of this micro-region as a critical crossroads for north–south and east–west traffic and communication. In particular, the Nemunas corridor connected the Baltic Sea and the Curonian Lagoon with inland river systems reaching as far as the Pripyat and Dnipro basins, making the area a key passageway during several archaeological periods. Despite the region's apparent strategic relevance, systematic research on these hillforts remains limited. Only a small number have been revisited since their initial documentation during the German research period, and a few new sites have been identified in recent decades. Chronological data exist for some hillforts; however, only four provide substantial typological material, and just three have been radiocarbon dated so far. This highlights gaps in understanding the emergence, development, and temporal dynamics of the Nemunas defensive network. This paper presents a project that aims to clarify the chronology and development of selected hillforts in the aforementioned micro-region using minimally invasive methods, especially coring of ramparts followed by radiocarbon dating. The project investigates the chronological and spatial relationships between hillforts and surrounding archaeological sites, ultimately enabling a reconstruction of settlement patterns and socio-political organisation in the region.

2703. Hillforts and river landscapes: GIS-based insights from the Latvian Daugava Valley

Authors: Anna Maria Garstka (Doctoral School of Humanities, University of Łódź) – Piotr Kittel (Faculty of Geographical Sciences, University of Łódź) – Małgorzata Luc (Institute of Geography and Spatial Management, Jagiellonian University in Kraków) – Jacek Szmańda (Institute of Geography and Spatial Organization, PAS, Toruń) – Jens Schneeweiß (Leibniz-Zentrum für Archäologie, Schleswig) – Timo Ibsen (Leibniz-Zentrum für Archäologie, Schleswig) – Artur Ginter – Jerzy Sikora (Faculty of Philosophy and History, University of Łódź)
Format: Oral

The area of present-day Latvia includes approximately 482 hillforts dated to different chronological periods. Many of these sites are located along rivers, where natural defensive conditions were combined with good access to routes of movement, communication, and exchange. These factors contributed to the long-term use of numerous hillforts, both by the same communities and by successive groups, as well as to the reuse of earlier abandoned fortifications. Since the twentieth century, hillforts in Latvia have been the subject of continuous archaeological research. Special attention has been given to sites situated along the Latvian section

of the Daugava River. During the construction of hydroelectric power plants in the 1960s, several hillforts were flooded. In recent decades, the development of non-invasive and low-impact methods has opened new perspectives for the study of these sites. LiDAR data, combined with archaeological field surveys and geological coring, make it possible to document the present-day morphology of hillforts, identify stratigraphic sequences, and explore long-term environmental and climatic changes. These datasets also provide a basis for spatial analyses that help clarify the relationship between hillforts and their surrounding landscapes. The Latvian stretch of the Daugava River and the hillforts located along it are currently being investigated within the INHILLDAUGAR project. The project aims to compile an atlas of archaeological sites and topographic features connected with the Daugava communication route. This work is carried out through a combination of non-invasive and minimally invasive archaeological research and paleoenvironmental analyses. The paper builds on these activities by using Geographic Information Systems (GIS) to reconstruct the landscape of the lower Daugava River section. A series of spatial analyses—including viewshed, slope, and aspect analyses—are applied to Iron Age hillforts.

2269. "They go to the watery meadows." The ring-fort in Spycimierz and the early medieval fortifications of Central Poland

Authors: Jerzy Sikora (Institute of Archaeology University of Lodz) – Piotr Kittel (Departament of Geology and Geomorphology University of Lodz) – Jacek Szmańda (Institute of Geography and Spatial Organisation Polish Academy of Sciences)
Format: Oral

The ring-fort in Spycimierz is located in central Poland, at the bottom of the Warta River valley. This valley was the main transport route of the Piast State, which was established in the 10th century. Recent dendrochronological analyses have revealed that the earliest defensive structure here was built from wood cut in 1038 AD, during the crisis of the first Piast monarchy. While the political circumstances surrounding its construction remain unclear, written sources confirm that it constituted an important element of the state administration system from the second half of the 11th century onwards. This is evidenced by successive renovations and extensions to the structure that took place during the 11th, 12th and 13th centuries. These were not only due to the need to maintain the fortifications, but also due to the fortress's specific location at the bottom of a river valley, partly on a sequence of layered sediments recording successive episodes of flooding. We were able to record traces of flooding laso during the fortress's existence. Unlike other ring-forts from this period in the region, which were usually built on slightly elevated terrain in river valleys to ensure flood safety, this location required particular determination to maintain the functionality of the fortification and can only be justified by the exceptional needs of the Piast monarchy's political organisation.

714. The Oder river as the strategic axis of Silesia: evolution of medieval fortifications in a fluvial landscape

Authors: Maria Legut-Pintal (Wrocław University of Science and Technology)
Format: Oral

The Oder River, one of Central Europe's primary waterways, served as the historical backbone of Silesia - a region of vital strategic importance at the crossroads of Poland, Bohemia, and Germany. This study analyzes the landscape of fortifications within the historical borders of Silesia, from the Early Middle Ages to the Early Modern period. It treats the river and its tributaries as a dual system: both a formidable natural barrier and a vital communication artery. To reconstruct the evolution of these defensive structures, an interdisciplinary approach was employed. The analysis of written sources and archaeological data was integrated with Geographic Information Systems. This spatial analysis allowed for a precise understanding of the relationship between site placement and the strategic command over a dynamic riverine environment. A central focus of the research is the impact of environmental factors on military architecture. The study examines how fluvial dynamics - including periodic flooding driven by soil erosion in piedmont areas - determined the location, durability, and structural adaptations of fortifications. A key element is the interaction between hydrology and the landscape, specifically regarding the control of fords and the protection of trade routes. The research documents the continuity and development of the defensive structures from early medieval Slavic strongholds to fortified chartered towns and sophisticated modern bastioned fortresses. The findings redefine the Oder system not merely as a defensive line, but as a dynamic nodal network. It demonstrates that the region's defensive architecture was inseparably linked to environmental challenges, creating a unique system where water was a central element of both military and economic strategy.

679. The Elbe River and Its Role in the War of the Bavarian Succession (1778–1779)

Authors: Petr Hejhal – Pavel Drnovský (Univerzita Hradec Králové)
Format: Oral

During the War of the Bavarian Succession, a system of field fortifications known as the Lacy Line was built in the border area between the Kingdom of Prussia and the Austrian Empire (now the Czech Republic) (Peters 1902; Hejhal and Hornik 2017; Drnovský, Hejhal and Rytíř 2019; Hejhal, Drnovský and Holas 2024). This fortified line measured approximately 90 kilometers and consisted of at least 160 fortifications. The Elbe River played an important role in the construction of these fortifications, as its course defined the location of most of them. Important points in the fortified line were places where roads crossed the river. This raises the question of whether these locations—bridges or fords—were fortified in a significant way and, if so, what form these fortifications took. Using the example of Lacy's Line, this paper examines how a major watercourse influenced military operations in the eighteenth century.

Ultimately, the fortifications linked to the Elbe River played a key role in determining the outcome of the conflict.

151. The Late Byzantine Fortifications of Tiberias: The Lakeside Extension of the City Wall

Authors: Emmanuel Nantet (University of Haifa)
Format: Oral

The city wall of Tiberias constitutes one of the most significant architectural achievements of the Byzantine period in the city. The fortification, however, enclosed the settlement on only three sides, leaving the lakeshore unprotected and necessitating the construction of an extension in the form of a jetty that prolonged the line of the wall into the lake. Archaeological excavations carried out at the extremity of this fortification have provided a rare opportunity to document this lakeside extension, conceived as a defensive response to Sasanian and early Muslim threats. The investigation combined stratigraphic excavation, architectural analysis, and the systematic recording of construction materials and techniques in a highly dynamic context, alternately submerged by the lake or exposed, requiring constant methodological adaptation. Excavation of the jetty revealed a construction technique based on the use of hydraulic mortar poured into wooden formworks. Substantial remains of these formworks were uncovered during the 2025 excavation season, allowing for a detailed reconstruction of the building process. Recorded for the first time for the Byzantine period, this evidence offers direct archaeological documentation of a specialized method for underwater construction, expanding knowledge of well-known techniques employed in early Imperial maritime harbour works.

2222. A Fortress on the Edge of a Tidal Creek: The Borgsumburg Fortress on the North Frisian Island of Föhr

Authors: Kirsten Hüser (Lower Saxony Institute for Historical Coastal Research)
Format: Oral

The Borgsumburg, with its 8-metre-high circular earthen rampart, still rises prominently above the surrounding moraine and marsh landscape. With a diameter of almost 100 m, the inner area now stands about 4 m higher than the exterior due to substantial accumulation. Since 2021, a project conducted by the Lower Saxony Institute for Historical Coastal Research in Wilhelmshaven, Germany, has investigated the rampart and its surrounding landscape. Of particular significance is the location of the fortification at the edge of a network of navigable tidal creeks meandering through the marshes, which ensured waterborne connections to the maritime trade routes of the North Sea coast. The investigations have produced numerous new findings regarding the chronology, significance, and function of the stronghold in the North German Wadden Sea. The preservation conditions are exceptional: textiles, eggshells, feathers, and fish bones have been recovered. While the first phase dates to around AD 900, the final phase of the fortress, around AD 980, reveals a dense, strictly organised settlement of rampart-oriented sod houses, suggesting a connection to the fortresses of Trelleborg and Kovirke, built at the same time by Harald Bluetooth. The refurbishment of an already existing circular rampart in a maritime area populated by Frisians and Danes appears to have been favoured over the construction of a new one in order to enforce and protect the south-western border of the Danish realm during a period of significant social transformation.

792. Rediscovered in the fields – the lowland castle of Sottrum

Authors: Sebastian Messal (Lower Saxony State Office for the Preservation of Historical Monuments)
Format: Oral

Near Sottrum, immediately west of the river Nette, an aerial photograph taken in 2021 revealed the complete layout of a high medieval castle site. This site was previously unknown to the Lower Saxony monument preservation authorities, but not to local historians. As early as 1887, school inspector F. Günther identified the site as Woldenbruch Castle, which was founded around 1200 by the historical Count Lüdiger II of Wöltingerode-Wohldenberg. What is astonishing in this context is the proximity of the lowland castle to the hilltop castle on nearby Wohldenberg, which was built in 1150 and was also founded by the Counts of Wöltingerode-Wohldenberg. The aerial photograph reveals numerous details of the site, such as the extensive rampart and moat, as well as several buildings leaning against the wall. In the inner courtyard of the oval complex, further building structures can be assumed to lie beneath the rubble. In the southwest of the site, a separate donjon with rampart and moat is recognizable. On the outside, there is a rectangular structure attached to the ring wall, the function of which is not yet clear. Since 2021, the State authorities has been conducting initial surveys at the site, primarily using metal detectors and geomagnetic surveys. The numerous and, in some cases, high-quality metal finds from the High and Late Middle Ages in particular attest to the importance of the complex; the first coins actually also indicate that the site was in use around the year 1200. The lecture will present the initial archaeological and historical results of the project on the Sottrum castle and also shed light on the relationship between the Sottrum lowland castle and the contemporary Wohldenberg castle.

485. Waterscapes, Movement, and Spatial Practice: Epigraphic and Toponymic Markers in Roman Istria and Liburnia

Authors: Peter Štoka (Central Library Koper, Local History and Book Heritage Department)
Format: Oral

This paper contributes to landscape archaeology and practice-based approaches to human–environment relations by examining how waterscapes structured movement, orientation, and place-making in the northern Adriatic. Focusing on Roman Istria and Liburnia, it treats epigraphic monuments and persistent place-names not primarily as textual or "religious" data, but as durable material interventions embedded within hydrologically differentiated landscapes. The study integrates a small, provenance-controlled corpus of votive inscriptions with toponymic distribution and hydrological context to investigate socio-ecological transitions across contrasting water regimes. It distinguishes between fluvial waterscapes with continuous, visually legible surface flow and karst waterscapes where water is intermittent, subterranean, and frequently apprehended indirectly. Across three case studies—(1) a route-associated altar to Seixomnia Leucitica near Karojba, (2) clustered dedications to Sentona in eastern Istria and Liburnia, and (3) the long-term persistence of river- and spring-linked toponyms—the spatial signal is consistent: inscriptions and toponyms align with movement corridors and hydrological transition zones (springs, wells, resurgences, karst margins, and route junctions) rather than with civic centres or areas of continuously accessible water. This pattern is interpreted as evidence of anthropogenic engagement with water at points where access, predictability, and navigation were constrained—places where practical knowledge of water and routes had to be stabilised through repeated encounter and durable marking. By foregrounding hydrology as an active structuring force in spatial practice, the paper offers a transferable framework for reading small epigraphic and toponymic datasets as indicators of waterscape-based interaction, relevant to broader Eurasian discussions of water management, water ecosystems, and long-term socio-ecological change.

1936. The Border Fortifications of the Kyivan Rus' in the 11th–12th Centuries on the Ros' River, Central Ukraine

Authors: Jens Schneeweiss (Leibniz-Zentrum für Archäologie LEIZA | Cluster of Excellence ROOTS) – Viacheslav Baranov – Artem Borisov – Olga Manigda – Vsevolod Ivakin (National Academy of Sciences of Ukraine, Institute of Archaeology)
Format: Oral

This paper focuses on the fortifications of the Kyivan Rus' along the Porossia frontier in central Ukraine. These defensive works form a river-oriented belt of over 60 fortifications, supplemented by the elongated so-called "snake ramparts" (Zmiyivy Valy), whose exact function remains not fully understood. Together, they represented a strategic response to the threat posed by nomadic steppe peoples. The paper examines how these structures related to water and land routes, fords, and nearby settlements. Results of previous investigations reveal the complexity and diversity of Rus' society shortly after Christianisation and emphasise the multi-ethnic mobility that shaped frontier defence. Central research questions include the military organisation and operational function of the Porossia fortifications, their chronology, the role of fords, communication and warning systems, and the spatial logic underlying stronghold location. The methodological approach combines minimally invasive investigations, laboratory analyses, and LiDAR-assisted landscape reconstruction and spatial analysis. The border fortifications of one of Eastern Europe's major river frontiers influenced mobility, frontier regulation, and the emergence of centralised defence networks within the Kyivan Rus'.

2608. The Long-Term Reuse of Belligerent Landscapes at the Bilhorod-Kyivskyi Hillfort along the Irpin River

Authors: Oleksandra Ivanova (National University of Kyiv-Mohyla Academy) – Ivan Zotsenko (Institute of Archaeology of the NASU)
Format: Oral

The surroundings of Kyiv are marked by a dense concentration of fortified sites from different periods, constructed for various defensive purposes. While some of these fortifications were intended to protect the city directly, their placement was consistently shaped by the surrounding landscape. Topography and river valleys played a key role in determining where settlements and defensive structures were established and how they functioned over time. One such example of a belligerent landscape is the hillfort of the medieval city of Bilhorod-Kyivskyi (modern Bilohorodka, Kyiv region). The site is located on elevated terrain above the Irpin River valley, a right-bank tributary of the Dnipro, and historically controlled the western approaches to Kyiv. Following Russia's full-scale invasion of Ukraine in 2022, the hillfort once again acquired strategic importance. Modern defensive trenches were excavated at the same location, as the elevated position allowed control over the river crossing, bridge, and road across the Irpin River. This repeated use of the site for defensive purposes reveals the persistence of belligerent landscapes shaped by similar strategic objectives across different historical periods. Rescue excavations conducted after the withdrawal of military units showed that the modern trench had been cut directly into the defensive structures of the medieval hillfort. Within the remains of the contemporary trench, elements of Kyivan Rus fortifications were documented, including sections of an earlier defensive ditch, a dwelling structure, and a stove, as well as remains of a nineteenth-century building. The physical overlap of medieval and modern fortifications within a single defensive line demonstrates how fortified sites along rivers continue to function from the medieval period to the present.

1160. Zemplín - Stronghold on the Bodrog River (Slovakia)

Authors: Martin Pristáš (Pamiatkový úrad SR) – Tibor Lieskovský (STU BA)
Format: Poster

Zemplín is a former Celtic oppidum and, from the eleventh century onward, one of the centres of castle administration in the medieval

Kingdom of Hungary. It is located in southeastern Slovakia on an important trade and military route linking the Danube region with the Carpathian Mountains and extending toward present-day eastern Poland, western Ukraine, and the Baltic region. Today, the site survives as a clearly visible feature of the historical landscape in the form of a massive elliptical rampart, reaching up to 20 m in height in places. This structure represents several phases of wood-and-earth fortification, probably dating from the Late Bronze Age to the thirteenth century. Its strategic position on a slight elevation at a historic ford across the Bodrog River, at the foot of the Zemplín Mountains, enabled near-continuous settlement from the Neolithic period to the present day. The river both protected the fortified settlement and provided resources and transport connections. The Zemplín stronghold and its surroundings are therefore protected archaeological sites of European importance and form an integral part of the cultural heritage of the Slovak Republic.

1354. The Slovak Gate on the River Hron: Corridor to the Resources of the Western Carpathians

Authors: Martin Mino – Peter Bisták – Petra Kmeťová (Monument Board of Slovak Republic) – Peter Paudits – Martina Moravcová (State Geological Institute of Dionýz Štúr) – Tibor Lieskovsky (Slovak University of Technology in Bratislava, Faculty of Civil Engineering) – Martin Kvietok (Slovak Academy of Sciences, Institute of Archaeology)
Format: Poster

The River Hron rises in the heart of the Western Carpathians and flows to its confluence with the Danube, tracing a corridor rich in key prehistoric and medieval raw materials. Its natural course suggests that it may have functioned as a prehistoric artery transporting metals into the Carpathian Basin. Most hillforts in the region—particularly in the middle Hron—are situated along the river, in some areas forming dense clusters where ancient routes intersect. Even the military camp where the roman emperor Marcus Aurelius has written his Meditations amid Marcomannic wars is according to his words located "apud Granua" – the river Hron. The most prominent archaeological site lies upstream from the presumed location of this camp, at the point where the river exits a canyon incised into the volcanic zone of the Carpathians and enters the open lowlands of the Carpathian Basin—the so-called Slovak Gate. This strategic position is protected by an elaborate fortification system gradually developed since the Chalcolithic. Although parts of these fortifications have long been known, the full extent and context of the system have only recently been revealed through high-resolution airborne laser scanning (ALS). The broader role of the site in long-distance trade along the river remains under investigation. However, recent analyses indicate the import of quartzite for the construction of sections of the ramparts. At least some traded commodities may have been transported by river, as suggested by the earliest written references to the locality. While the river functioned as a communication route, it also posed a barrier. Integrated analysis of ALS data and fluvial geomorphology has helped to identify potential solutions to this obstacle. The poster presents the results of combined archaeological and geological survey, supported by ALS analysis, of the Slovak Gate hillfort system on the River Hron.

227 KNOWLEDGE TRANSFER IN CRAFTS IN THE ANCIENT MEDITERRANEAN: PRACTICE, THEORY, AND CONTEXTS

Theme: 7. Interaction, connectivity and mobility
Organisers: Jean Vanden Broeck-Parant (UCLouvain) – Ann Brysbaert (Katholieke Universiteit Leuven) – Alexis Gorgues (Université Bordeaux Montaigne | CNRS UMR 5607 Ausonius) – Helle Hochscheid (University College Roosevelt | Utrecht University)
Keywords: knowledge/skill networks, craft cognition, Ancient Mediterranean, chaîne opératoire, knowledge/skill transfer
Format: Discussion session

SESSION ABSTRACT

This session looks at the practical and theoretical aspects of knowledge transfer in crafts in the Ancient Mediterranean (2nd-1st millenia BCE), considered at various scales of analysis, from cross-cultural exchanges to apprenticeship within communities and families. The social, political, and economic contexts are addressed as factors both enabling and constraining human agency, in order to shed light on the processes by which forms, skills and techniques can be adopted and adapted by new users. Approaches such as labour costs or social network analysis help model raw data, allowing to conceptualize knowledge transfer at the stages of production, distribution, and consumption, or at any stages of the chaîne opératoire. In doing so, salient aspects of knowledge transfer can be highlighted for a specific class of material culture, as well as practices common to different types of production. This is achieved by considering a wide variety of crafts such as sculpture, ceramics, architecture, metalwork, textile and fiber art, etc. Overall, knowledge transfer is regarded as a fundamental aspect of human lives (past and present), both shaped by and shaping social interactions and structures. We welcome contributions dealing with the following themes, to the exclusion of funerary contexts: • Theoretical approaches to studying the transfer of knowledge across crafts • Spatial, temporal and socio-economic contexts of knowledge transfer • Cognitive, behavioural and cultural aspects underlying such processes • Methodological tools and concepts to identify, collect, refine and interpret relevant data in the archaeological record We particularly encourage papers with innovative approaches to these questions and/or addressing types of crafts and contexts that have traditionally been less studied under these lenses. Through the discussions, we aim to identify current and future lines of research that can reinforce the dialogue between crafts, periods and regions of the Mediterranean within the field of knowledge transfer studies.

CONTRIBUTION ABSTRACTS

40. Analysing Movement and Touch in Knowledge Transfer

Authors: Willeke Wendrich (Polytechnic University Turin | University of California)
Format: Oral

Knowledge transfer is central to understanding both the tangible and intangible aspects of ancient practices of making. Knowing how to speak and understand (language); how to make (crafts, cuisine); how to be (social values, religion) and what to do (rituals, behaviour) are invisible and yet perhaps not entirely intangible. An important communal aspect is learning how to move and touch. A teacher who tries to convey an action, might say "Let me show you", while in fact what (s)he says is "Let me make you feel what it should feel like". It requires the transfer of body knowledge, which inseparably integrates physical and mental activities, experience, memory, dexterity, skill, endurance and social values. Recording movement and touch is the starting point of understanding body knowledge, the integrated body-mind experience that is transferred in ancient, as well as modern apprenticeship. By analysing video recordings of skilled and un-skilled present-day makers it has proven to be possible to relate the level of skill with the end product, not by considering "badly made" objects as being the work of an apprentice, but by recording micro-variables in the present-day products that can also be recognized in ancient materials. Part of the current research project is to use VR techniques, haptic suits and eye-tracking visors to record the process of skilled makers for elements of movement and touch that cannot be analysed through video and audio alone. Through video it is possible to record the moments and intensity of work-eye contact, while VR headsets have greatly refined this with eye-tracking. Video allows for gauging working rhythm, while a high-end haptic suit records the (dis)similarity of repetitive movements, amount of pressure, shifting of body weight, and coordination of the entire body.

1664. Practice, execution, implementation - what we can learn from handling textiles and clay, based (mostly) on evidence from the Aegean

Authors: Agata Ulanowska – Monika Kaczmarek (Faculty of Archaeology, University of Warsaw) – Magdalena Przymorska-Sztuczka (Archaeological Museum in Biskupin) – Kinga Winnicka – Katarzyna Żebrowska (Faculty of Archaeology, University of Warsaw)
Format: Oral

Textile imprints on clay provide new important evidence for textiles and textile consumption in settlement contexts, particularly in the earliest periods with the most limited textile finds, and in all regions where environmental conditions inhibit the survival of organic materials. My long-time studies of textile imprints are currently being expanded through two research projects: "TEXTile digitisAtIon tooLs and mEthodS for cultural heritage" [TEXTaiLES], and "Exploring Textile Imprints on Clay from the 3rd and the 2nd Millennia BCE" [ExplorTIC]. In both projects, textile imprints on clay are understood as important testimonies of the versatile handling of textiles in everyday life, including the combined, cross-craft use of both textiles and clay. In this paper, we aim to discuss a range of skills required to handle both materials effectively, illustrated by examples that extend beyond the Bronze Age Aegean. We focus on how to evaluate the level of craft skills reflected in simple products, such as threads and cords; how to describe their physical properties, including mechanical strength; and how to assess whether and to what degree, practical knowledge of both crafts – textile and pottery manufacture – was essential in the cross-craft use of technically and functionally different products. The presented observations are supported by a series of archaeological experiments conducted in collaboration with the Biskupin Archaeological Museum in Poland and the Fraunhofer-Institut für Techno- und Wirtschaftsmathematik ITWM in Germany.

2686. Peopling the Past: Crafting Textile Communities of Practice in the Late Bronze Age Aegean

Authors: Jennifer Marks (Johns Hopkins University)
Format: Oral

Not only are the physical remains of textiles from the Aegean Bronze Age invisible in the archaeological record, but so too are the women who crafted these textiles. While studies have focused largely on textile tool typology and textile iconography, very little research has focused on the women behind the craft. Shelmerdine and Bennet (2010: 308) rightfully point out, "Though we know some of the work they did, we have no clear idea of where they spent their lives, under what conditions, and what else they did when not carrying out tasks for palatial authorities." Therefore, in order to better make visible the lives of these women, their craft, and the textiles they produced, my research interrogates the non-palatial domestic (household) textile craft activities that were integral to the social and economic underpinnings and interactions of Minoan/Mycenaean Late Bronze Age communities that inhabited Crete, mainland Greece, the Aegean islands, and western Anatolia. Who were these female textile workers? How was the textile chaîne opératoire carried out in these communities and what can be interpreted from the spatial and temporal data based on material culture and textual (Linear B) evidence? How did mobility influence their craft? Preliminary investigation of textile craft activities within this framework reveals that spatial and temporal analyses are key to identifying continuity and change amongst communities of practice. It is here, over time, in these very spaces and places of production, that knowledge (memory work) and skill transfer networks (apprenticeships and cross-cultural interaction) survived and thrived. Therefore, my aim is to reconstruct a narrative that sheds light on the lived experiences of textile craftswomen, specifically the microscale contexts that occurred in the course of day-to-day textile production activities within and between communities of practice.

2797. Networks of practice: knowledge transfer and the diffusion of innovations in ancient Greek monumental construction (4th century BCE)

Authors: Jean Vanden Broeck-Parant (Université catholique de Louvain)
Format: Oral

While the study of ancient Greek architecture relies largely on the assumption that architectural features (be they formal, technical, or both) can be indicative of communities of practice as well as of dynamic processes such as architects' and craftsmen's mobility and interaction, the actual contexts and practicalities of knowledge transfer in the field of monumental construction have been somewhat of a blind spot. This paper argues that the combined study of technical and formal features of architectural remains, on the one hand, and epigraphic sources, on the other, can shed light on specific contexts in which knowledge transfer may have happened. Large building programs in sanctuaries of the 4th century BCE, by hiring contractors from various regions, set the stage for knowledge transfer, while the system of allotment of work contracts itself made it possible to happen on the construction site. Such transfers, it is argued, were probably not planned and rather were the result of the "ad hoc collective work" (Turnbull 1993) that must have characterized most building programmes in ancient times, where communication happened not only verbally, but also through 'knowledge in action' or 'tacit knowing'. In this sense, it is also argued that the knowledge transfers, while elicited by the system of contracts, must have been most efficient when operating outside of their remit, and more specifically at the interface between distinct, yet adjacent work allotments that required to be articulated to one another. The necessary collaboration between different actors (contractors, architects, building commissioners, etc.), as well as between craftsmen belonging to different (but sometimes overlapping) communities of practice must have participated in the construction and constant reshaping of multi-layered 'networks of practice'. These social networks in turn created the channels for knowledge transfers, with 'cliques' of 'early adopters' and 'weak ties' facilitating and accelerating them.

228 NORDIC CONFLICT ARCHAEOLOGY: PLURAL PASTS, INDIGENOUS PERSPECTIVES, AND HERITAGE GOVERNANCE

Theme: 1. Widening perspectives in material culture studies
Organisers: Britt Baillie (Aarhus University) – Oula Seitsonen (University of Oulu) – Torgrim Guttormsen (NIKU)
Keywords: Conflict, War, Nordics, Indigenous, Climate Change, Securitization
Format: Regular session

SESSION ABSTRACT

Over the past two decades, conflict archaeology has developed into a professionally recognised and socially engaged sub-discipline within European archaeology. In the Nordic region, however, the material traces of twentieth- and twenty-first-century conflicts have struggled to garner archaeological attention. Although these conflicts may appear thoroughly documented, archival records are often fragmentary, have been deliberately destroyed, or were penned by proponents of narrow institutional or national perspectives. Archaeology can expose forgotten or silenced histories, offering pluralised understandings of conflict and its aftermath. Yet this potential unfolds amid significant challenges: precarious funding, institutional marginalisation, tensions between research and heritage management, and growing demands to reconcile critical inquiry with community sensitivities and political agendas. Shifting demographic patterns and the renewed visibility of marginalised Indigenous concerns further complicate this landscape, urging archaeologists to engage with decolonising heritage discourses that foreground Sámi, Inuit, and Greenlandic rights, Indigenous sovereignty, collaborative knowledge production, and inclusive stewardship whilst furthering the recognition of Indigenous epistemologies in shaping narratives of northern conflict legacies. At the same time, shifting geopolitical interests in the Nordic region are transforming heritage politics, as debates over sovereignty, resource extraction, climate change, and environmental security increasingly intersect with archaeological research and the management of military and colonial sites. These dynamics reveal how Nordic heritage has become a stage on which competing narratives of identity, belonging, and territorial control are negotiated. This session invites contributions that explore how Nordic conflict archaeology can confront the entanglements of climate change, renewed militarisation, and social polarisation to revitalise and reorient contemporary archaeological practice in the region and beyond.

CONTRIBUTION ABSTRACTS

383. Bordered Memories: The Geographies of Soviet WWII Soldier Memorials from the Cold War to the Present

Authors: Torgrim Guttormsen (Norwegian institute for Cultural Heritage Research)
Format: Oral

This presentation examines the changing memory politics of Soviet soldier memorials erected after the Second World War, with emphasis on their contested meanings across shifting political landscapes from 1945 to today. While these monuments were originally established as expressions of gratitude for the Red Army's role in liberating parts of Eastern and Northern Europe, their

significance has never been static. Through the Cold War, they became spatial markers of ideological alignments, instruments of symbolic diplomacy, and sites where local to geopolitical narratives intersected. In the post 1991 era—especially following renewed tensions between Russia and Europe—their meanings have been renegotiated, often becoming focal points for debates over occupation, liberation, sovereignty, and historical responsibility. The Liberation Monument in Kirkenes, located only a few kilometers from the Russian border in Northeastern Norway, provides a compelling case study for exploring these dynamics. As the northernmost Soviet liberation memorial in Western Europe, it embodies the complexities of Norwegian–Russian historical entanglements, the unique wartime experiences of Finnmark, and the region's long-standing cross-border connections. The monument's postwar commemorative traditions, its Cold War diplomatic functions, and more recent controversies related to Russia's foreign policy all reveal how borderland memory cultures are shaped by, and respond to, broader geopolitical shifts. Drawing on archival sources, monument biographies, and fieldwork in the border region, the presentation traces how the Kirkenes monument has been alternately celebrated, instrumentalized, marginalized, and reinterpreted over eight decades. By situating the Kirkenes case within a wider European map of Soviet WWII memorials, the paper highlights how these sites serve as barometers of political change and how border geographies in particular condition the resilience, vulnerability, and transformation of wartime commemorative landscapes. The talk contributes to broader discussions on transnational memory, contested heritage, and the role of monuments in mediating historical narratives during periods of geopolitical tension.

2212. Nordic Conflict Archaeology – A Norwegian Perspective

Authors: Marek Jasinski (NTNU Norwegian University of Science and Technology | Falstad Center for Human Rights)
Format: Oral

In his seminal 1994 volume, Eric Hobsbawm characterized the period 1914–1991 as the "Age of Extremes", a century defined by two world wars, the atrocities of the Holocaust, numerous other genocides, recurrent civil conflicts, and the eventual collapse of European Communism. Regrettably, the Age of Extremes did not conclude in 1991. In its immediate aftermath, the Yugoslav Wars erupted, marked by systematic violence and mass killings, and the contemporary world continues to be profoundly affected by persistent armed conflicts. The two most consequential European conflicts of the 20th century—World War I and World War II—have exerted, and continue to exert, a substantial influence on the formation and negotiation of Norwegian national identity. Norway's involvement in WWI remains comparatively underexplored and demands considerable scholarly reinvestment. By contrast, archaeological research relating to WWII is relatively more developed. Given that collective experiences of warfare frequently shape communal identity narratives, the Second World War occupies a central position within Norway's collective memory and its hegemonic national discourse. Scholars have even argued that the memory of WWII functions as a contemporary national founding myth, foregrounding values such as resistance, solidarity, and egalitarianism across the Norwegian population. Despite this, the cultural landscapes and material vestiges of the war have historically received limited scholarly attention. This situation improved significantly during the second decade of the 21st century, when several Norwegian institutions initiated archaeological investigations focusing on the German occupation (1940–1945) and the immediate post-liberation period. These projects increasingly include research on the Sámi population and their interactions with German occupying forces, thereby contributing to a more comprehensive and inclusive historical understanding. This paper examines the current state of research and emerging perspectives within the field of conflict archaeology in Norway, with particular emphasis on the First and Second World Wars.

2788. Forgetting, memorializing and re-remembering the mass graves of Soviet soldiers and prisoners-of-war in the Arctic front

Authors: Oula Seitsonen (University of Oulu)
Format: Oral

Mass graves and war memorials are always material reminders of human aggression and deaths at the hands of others. At the same time, they can have myriad other political and cultural meanings and interpretations attached to them. For instance, the choice of sites to be commemorated or ignored fluctuates over time and is influenced by numerous factors, such as nationalism, world politics, communal memories, and changing perspectives on heritage. (War) memorials can be seen as visual representations of the dark legacies of difficult pasts and of the grim consequences of (super)modernity. Military graves and installations left in other countries can be perceived as an orphan heritage with ownership and origin separated from their spatiality, and the significance of these can be potentially ignored or questioned by the local population. This paper focuses on the transnational, orphaned material legacy of the mass graves of Soviet soldiers' and prisoners-of-war who fought and died on the Second World War Arctic Front in northern Finland. These have been through the postwar decades varyingly ignored, rediscovered, and re-remembered. I explore both the Russian and Finnish efforts to memorize and mark these graves, which were officially forgotten and silenced for decades, throughout the Cold War, but perhaps surprisingly often remembered and maintained by the local rural population.

2303. The Road Ahead. Absence, displacement and the Afterlives of a Refugee Camp in a Nordic Conflict Landscape

Authors: Julie De Vos (Museum Skanderborg)
Format: Oral

This paper examines archaeological investigations in Skanderborg Dyrehave, Denmark, where former installations of the Luftwaffe's Danish headquarters were repurposed as closed refugee camps after the end of the German occupation in 1945. During the final months of the war, approximately 250,000 German civilian refugees — predominantly women and children — arrived in Denmark and were confined to former military sites. Despite this scale, both archival records and the archaeological record are marked by striking absences. Written sources privilege military and administrative perspectives, while material remains that can be directly attributed to refugee lives are scarce, fragmented, or unrecognised. Rather than treating this absence as a methodological failure, the paper approaches it as a historically produced condition shaped by practices of containment, regulation, and post-war forgetting. Archaeological investigation thus confronts not only what is present in the ground, but what has been systematically removed, neglected, or rendered illegible. Through an analysis of reused structures, ambiguous material traces, and industrial by-products within a managed forest landscape, the paper explores how militarised infrastructures continued to structure civilian displacement without leaving clear material signatures of care, domesticity, or everyday life. This challenges conventional expectations of evidence in conflict archaeology and raises questions about whose experiences become archaeologically visible. Situating the case within debates in Nordic conflict archaeology, the paper argues that engaging critically with absence enables a reorientation of the field toward the long afterlives of conflict, displacement, and marginalisation. In a contemporary context of renewed militarisation and polarised refugee debates, such an approach underscores archaeology's potential to confront uncomfortable histories and contribute to more humane understandings of conflict landscapes.

2789. Wrecks under Troubled Waters: Ethics, Alliances, and Archaeological Loss in Danish Maritime Contexts

Authors: Britt Baillie (Aarhus University) – Christan Heiberg Rosenberg Thomsen (Moesgaard Museum)
Format: Oral

This paper examines the heritage tensions that arise when allied nations pursue fundamentally different priorities in the recovery of human remains from wrecks. Focusing on a current case in Danish waters, the United States has sought recovery operations primarily on emotive and commemorative grounds—particularly the moral imperative to repatriate fallen servicemen. Danish heritage authorities however are legally obliged to protect listen archaeological contexts, and previously unknown contexts uncovered when such operations may cause irreversibly damage. These divergent approaches expose competing ethical frameworks within maritime archaeology: one privileging humanitarian recovery and patriotic national memory, the other prioritising contextual integrity, long-term research potential, and the management of underwater cultural heritage as a non-renewable resource. The paper situates these heritage debates within the broader geopolitical relationship between Denmark and the United States, longstanding allies whose cooperation has historically facilitated pragmatic solutions to heritage management challenges. However, this relationship has come under new strain in the context of the Trump administration's confrontational stance on Greenland, complicating diplomatic negotiations around cultural heritage, sovereignty, and jurisdiction. By analysing recovery practices, legal frameworks, and complicated stakeholder networks, this paper argues that maritime human remains become powerful symbols through which broader political tensions are negotiated. The study highlights how archaeology does not operate in isolation from geopolitics, and calls for more nuanced, collaborative frameworks that balance commemorative imperatives with the preservation of archaeological knowledge in politically sensitive contexts.

2793. Too Recent to be Heritage? Archaeology and the Material Legacy of the Cold War in Sweden

Authors: Adam Andersson (University of Gothenburg)
Format: Oral

In Sweden, the material legacy of the Cold War remains widespread yet only unevenly recognised as archaeological heritage. Thousands of civil defence shelters and defensive installations were constructed during the mid-twentieth century as part of Sweden's preparedness system, embedded within apartment buildings, urban infrastructures, and defensive landscapes surrounding major cities. Despite their scale and continued presence, many remain legally unprotected and are rarely treated as archaeological sites, occupying an ambiguous position between contemporary infrastructure and future heritage. Drawing on Modern Conflict archaeological investigations of Cold War shelters integrated within Swedish residential architecture alongside the documentation of bunker and aerial defence remnants at Änggårdsbergen in Gothenburg, this presentation examines how archaeologists might engage with material that represents an emerging historical period. These sites demonstrate how Sweden's Cold War preparedness strategy permeated both everyday urban life and surrounding defensive landscapes, reflecting broader policies of neutrality and civil defence planning. Recent geopolitical developments, including Sweden's accession to NATO, have renewed interest in these infrastructures and reframed them as material reminders of shifting security narratives. The presentation, therefore, addresses the heritage-management challenges of sites that lack legal protection and are often perceived as insufficiently historical. It argues that archaeologists must spread awareness of Cold War materialities before they disappear through redevelopment, neglect, or continued assumptions that they do not yet constitute heritage.

229 RECONSTRUCTING THE HERM-LANDSCAPES OF THE GRECO-ROMAN WORLD: MATERIALITY, REGIONALITY, CONTINUITY AND TRANSFORMATION FROM ARCHAIC GREECE TO IMPERIAL ROME

Theme: 1. Widening perspectives in material culture studies
Organisers: Regina Hanslmayr (University of Zurich) – Caterina Schorer (Universites of Heidelberg and Zurich)
Keywords: herm (herms), Greco-Roman world, ancient sculpture, typology, iconography, continuity and transformation
Format: Regular session

SESSION ABSTRACT

Herms rank among the most persistent and versatile artefact types of the Greco-Roman world. Originating in archaic Greece as pillar-shaped monuments crowned with an anthropomorphic head of Hermes, they quickly became a widely used and firmly established feature of the archaic and classical environment. Their inherently adaptable form supported continued use and reinterpretation, resulting in a rich variety of iconographic, typological, and formal possibilities, ranging from shoulder-herms to full body-herms, inscribed herms, and portrait herms. This diversity reflects shifting aesthetic, social, and religious concepts across time and space. Yet, despite these transformations, herms retained a distinctly traditional character throughout the Hellenistic and Roman periods, preserving archaic associations even as their design, material, and functions changed. How this image form, unlike any other sculpture type developed in Archaic Greece, prevailed in the ancient visual and textual cultures over the following eight centuries, is a question that consequently requires examination. This session is dedicated to reconstructing the herm-landscapes of the ancient Mediterranean. It draws on the material evidence of herms from the ancient Greek and Roman world as its primary basis of analysis. Focusing on their typologies, iconography, inscriptions, and regional variations, we aim to identify both continuity and innovation in their production, placement, and meaning. How did different communities adapt the herm form to local social and religious frameworks? Which settings — public, domestic, funerary, or sacred — favoured specific types? By integrating archaeological, epigraphic, and art-historical perspectives, this session invites contributions that shed new light on the distribution, function, and reception of herms across the Mediterranean world—from Greece to Italy, Asia Minor, and North Africa. Interdisciplinary and comparative approaches are especially welcome. Bringing together diverse scholars and regional case studies, the session aspires to build a comprehensive, contextualised understanding of herms in the ancient Greek and Roman world.

CONTRIBUTION ABSTRACTS

325. The 'hermscape' of the Archaic Acropolis of Athens: material autopsy, formats and contexts of display

Authors: Pelayo Huerta Segovia (Universidad Autónoma de Madrid)
Format: Oral

This paper builds on my recent research on Attic and Athenian herms. Its primary aim is to partially reconstruct the herm landscape — here termed 'hermscape' — of the Archaic Acropolis of Athens through an integrated analysis of material evidence and spatial contexts. The first part of the contribution offers a detailed material autopsy, description, and identification of fragmentary Archaic herms (heads, shafts, and phalloi) preserved in the Acropolis Museum, the Epigraphical Museum, and the National Archaeological Museum of Athens, supplemented by the presentation of unpublished material housed in the storerooms of the Acropolis Museum. The reconstruction of the original dimensions of each piece, combined with a discussion of iconographic evidence of herms in Attic vase painting, allows for the definition of different typologies and possible display formats of herms in the sanctuary during the Archaic period. The second part focuses on identifying areas of the Acropolis where the herms may have been set up, with particular emphasis on their modalities of display. This investigation draws not only on the documented provenance of individual fragments, but especially on archaeological and topographical studies on the Acropolis regarding specific contexts, as well as relevant literary sources. In particular, focus is devoted to Pausanias' testimony on the wooden herm in the Temple of Athena Polias, as well as to his references to other statues of Hermes along the topography of the sanctuary (Paus. 1. 22.8; 1. 24.3; 1. 27.1), which have been overlooked in modern historiography. Pausanias' account (second century AD) provides evidence for the continuity and primordial significance of this distinctly Athenian image within the space of the Acropolis into Roman times that needs reconsideration.

544. Kouroi, Korai, Horoi and Hermai – On Directed Perception and Oriented Movement with Inscribed Archaic and Classical Works of Stone

Authors: Caterina Schorer (University of Zurich | University of Heidelberg)
Format: Oral

The first stone herms we know come from the Region of Attica in Ancient Greece and date to the early 6th century BCE, with the herm of Sounion being the first of its kind. From the second half of the 6th century, these hybrid sculptures – combining a shaft with cubic arm attachments with a figurative head and genitals – start carrying inscriptions on their abstract shaft body. This paper will return to the origins of the inscribed herm, focusing regionally on finds from Attica, Euboea, and Boeotia. Following an introduction to the possible types of inscribed herms during the Archaic and Classical Periods, – waymarker, dedication, and liminal monument oscillating between dedication and honorific pillar – the paper will move to a more specific analysis of chosen case studies. Here, it will examine how herms were inscribed: where texts were positioned, whether their placement was planned or spontaneous, and with what specific aesthetic qualities they were executed. The questions of how the experience of viewing the sculpture and reading the text was shaped by the intertwinement of figurative, abstract and inscriptional features and, whether the inscriptions themselves enable us to reconstruct options of movement will be addressed in this section. To situate these findings in a broader material and medial context, a comparison with other inscribed works of stone typical for the period – Kouroi, Korai, Horoi – will conclude the paper, investigating in what ways the herm as carrier of inscription was materially, medially, and kinaesthetically distinct, or, if it was at all: could one not inscribe the body of a kouros like a body of a herm? Concluding remarks will discuss the specific medial qualities of the herm, with an outlook on how modes of inscribing herms prevailed or changed into the Hellenistic and Roman Imperial Era.

172. Reconstructing the Herm-Landscape of Delos

Authors: Regina Hanslmayr (University of Zurich)
Format: Oral

On the island of Delos, an exceptionally large number of herms has been preserved. Most of them date to the Hellenistic period, a phase during which the island benefited economically from its central position in the Aegean Sea and its duty-free harbors. These conditions provide an ideal framework for a case study examining transformations of the Archaic and Classical herm in the Hellenistic period, both from an art-historical perspective (iconographic and typological) and in terms of meaning and function. The paper will address the following questions: Do we still encounter herms following the Archaic and Classical types of the bearded shoulder-herms of Hermes guarding crossroads and entrances at Delos? Which mythological figures, besides Hermes, were adapted into herm form, and what was their purpose? Did herms continue to retain a religious significance in the Hellenistic period, and in which locations were they set up? What role did herms with youthful heads play in the furnishing of the gymnasium and the palaestra, as well as other structures associated with athletics and ephebic training? This paper presents observations of the ongoing study of the herms at Delos that address the questions outlined above. On this basis, a sketch of the rich and complex herm landscape of Delos will be proposed.

1365. The Alleged Portrait of Ptolemy III in the Archaeological Museum of Sparta and the Herms of Beardless Hermes in Gymnasia

Authors: Natalia Kazakidi (Academy of Athens)
Format: Oral

The paper examines a marble head preserved with its neck, now housed in the Archaeological Museum of Sparta (inv. no. 5366). Slightly smaller than life-size, the sculpture is generally dated to the 3rd century BCE. Since its publication by Rumpf in 1963, the head has been interpreted as a royal portrait, identified as either Ptolemy III Euergetes or Ptolemy V. This attribution was based primarily on the assumption that a band encircling the head represented a diadem and that two protrusions at the temples should be understood as horns. This interpretation has remained largely unchallenged in subsequent scholarship. A close re-examination of the sculpture, however, reveals that the protrusions are more convincingly identified as wings rather than horns. When considered alongside the strictly frontal orientation of the head and other formal and stylistic features, this observation argues against an identification as a royal portrait. Instead, the evidence strongly supports the interpretation of the sculpture as a depiction of Hermes in the form of a herm. It is highly plausible that the herm originally belonged to an Hellenistic gymnasium, a context in which herms of Hermes commonly functioned as markers of space, protection, and athletic ideals. Within this framework, the paper situates the Spartan head within the broader corpus of herm pillars of Hermes Enagonios and discusses their iconography, function, and significance in Hellenistic gymnasia.

929. Roman Herms in Hispania: an overview and state of the art

Authors: Julio Ruiz (National University of Distance Education, UNED)
Format: Oral

The territory of the former Roman provinces of Hispania, encompassing the Iberian Peninsula and the Balearic Islands, has yielded a substantial number of Roman herms belonging to different typological groups. On the one hand, there are portrait herms, consisting of herm pillars, generally with smooth surfaces and provided with inscriptions, although four examples depicting clothed female figures are also preserved. In none of these cases has the head survived. The find contexts indicate that they were preferentially displayed in domestic settings, usually placed on either side of the entrance to the tablinum, and represented the owners of the house. Herms depicting divinities are also attested, generally of life-size or over life-size dimensions, and were used as balustrade finials. A similar function can be assumed for the double herms, of which a limited but significant number of examples has been recovered. Other specimens correspond to the so-called Hüfthermen, which in Hispania predominantly represent Herakles wrapped in the lion skin (leonté). However, the majority of the herms recovered in Hispania belong to miniature types of small format, mainly representing Dionysos/Bacchus or members of his thiasos. These examples, most of which display a flat back, most probably served as ornamental attachments on table legs in the form of herm pillars, a function confirmed in some cases by monolithic execution together with the supporting pillar. This paper provides an overview and a state-of-the-art assessment of current research on Roman herms from Hispania.

1585. Pompeian herms depicting Bacchus

Authors: Ilkka Kuivalainen (University of Helsinki)
Format: Oral

Pompeian herms are one of the largest collections in the Mediterranean area, and one of the largest among Pompeian sculpture. The herms depicting Bacchus, i.e. Roman Liber, are versatile, as most of them contain masculine features, but some are androgynous or even feminine. There are double herms and herms containing another figure, shoulder herms and hip herms, but sometimes only heads are preserved. The diversity of the god's character is clearly visible: the most common type being the bearded Bacchus, whose character is based on the archaic Greek Dionysus. Old source material, such as 19th-century excavation reports, often refers to the Indian Bacchus. The double herms were a group in which Bacchus could be portrayed both as a bearded and a beardless young man. This practice may have been based on the idea of continuity, of incarnation, in which the young follow the old. The young Bacchus could also be depicted with horns, e.g. in the house of Marcus Lucretius (IX 3, 5.24). As the figure of the young Bacchus was often androgynous, the figure has also been interpreted as Ariadne or Libera. In Pompeii, Bacchus portrayed as a child was more common in wall paintings than in herms, whose rare child motifs also include a table leg with Silenus carrying the young Bacchus (VI 15,7-8). Herms used as table legs were a common feature, although ordinary freestanding herms were of course more common. Many of them were found in gardens and were smaller than life-size. They were certainly also a relatively inexpensive way to acquire sculptures to decorate Pompeian domus. The shafts of the herms do not often depict genitals. In Pompeii the possible religious significance of these herms needs clarification.

1275. Figuring herms in Roman landscape painting

Authors: Stephanie Wyler (Université Paris Cité | UMR 8210 Anhima)
Format: Oral

Herms are frequently displayed in "sacro-idyllic landscapes" paintings adorning late-Republican and Imperial Roman houses and tombs. Their number allows us to establish a varied typology, with differences in scale that reveal an interest either in the anonymous form of the hermaic pillar or, on the contrary, in specific identifying details conceived as attributes. Their study raises the question of the relationship between painted images and their actual referents, whose status oscillates between decorative sculptures and markers of space (a bridge, the entrance of a sanctuary), and that of their contextual insertion into partially or totally anthropized natural environments, which explains a visual discourse on their nature. I will analyze some compositions in which the herms complement visual systems formed with other statues, questioning their semantic status of markers at the crossroad between different ontological spaces. This issue intersects with the question of ambiguity concerning the identification of the god meant to be embodied by the incomplete form of the herm. It is particularly striking on scenes that depict characters adorning and worshipping herms, which then appear as mirrors of these ordinary people whose daily life they share.

1367. On the Missing Herm from the Pons Fabricius

Authors: Robert Wagman – Andrew Nichols (University of Florida) – William Bruce (University of Kansas)
Format: Poster

One of the most cherished monuments of Rome, the Republican-era Pons Fabricius owes much of its visual charm to the two quadrifrontal herms set along its parapets. As argued by Louise Holland (1961), these sculptures formed part of an original group of four that once stood outside the bridge's entrance, probably supporting the enclosure of a small open-air precinct. Of the two remaining herms from this ensemble, one is preserved in the Museo Nazionale Romano, while the other is generally identified with the herm incorporated into the monument to the poet Gioacchino Belli in Trastevere. Carved from the same Luna marble as the other herms, the latter stands out within a monument otherwise constructed entirely of travertine. Other details, from the weathered features of the heads to the architectural cuttings on the shaft, are likewise closely comparable to those of the bridge herms. These similarities have prompted both early and more recent archaeologists (Holland 1961; Conticello de Spagnolis 1993) to regard the herm on the Belli monument as an ancient original reused within a new setting, in keeping with a time-honored practice attested by countless examples in Rome alone. The repurposing of antiquities in later architectural and sculptural contexts undoubtedly lends itself to fascinating object biographies; as we demonstrate in our presentation, however, in this case the narrative rests on mistaken grounds. A closer examination of the Belli herm shows that it is not a Roman original but a well-crafted copy by the monument's sculptor, Michele Tripisciano (1860-1913), who sought to enliven his portrait of Rome's most beloved poet with a whimsical touch of antiquarian realism. By offering a new analysis of the herm's toolwork, our presentation introduces a little-recognized variant within the traditional plotline of spolia histories, namely the deliberate fabrication of copies designed to simulate reused antiquities.

230 PLANT FIBRES AND PERISHABLE MATERIALS: APPROACHES, METHODS, AND RESEARCH

Theme: 1. Widening perspectives in material culture studies
Organisers: Nysa Loudon (University of Glasgow) – Camila Alday (University of Cambridge) – Margarita Gleba (University of Padova)
Speakers: Alain Bourmaud (Université de Bretagne Sud) – Nofar Shamir (Ben-Gurion University of the Negev) – Jenni Suomela (University of Helsinki) – Sheahan Bestel (University of Glasgow)
Keywords: plant fibres, textile analysis, basketry, perishable materials, material studies
Format: Workshop

SESSION ABSTRACT

The aim of this workshop is to share current research, methodologies, and knowledge, and to promote interdisciplinary discussion focused on the use and technology of plant fibres and related perishable materials. The importance, function, and broader roles of plant-based fibres and plant materials in the daily lives of past peoples are only beginning to be fully appreciated. However, due to their poor preservation under most archaeological conditions, these materials require highly specialised analytical and interpretive approaches. This workshop will provide a platform for archaeologists, archaeobotanists, textile researchers, conservators, and experimental practitioners to exchange perspectives and discuss recent advances in the identification, analysis, and interpretation of perishable materials. By fostering dialogue across disciplinary boundaries, the session aims to build stronger connections within the EAA community and encourage collaboration between members of the ComTex EAA Community and the emerging International Work Group for Palaeoethnobotany (IWGP) Research Group for Fibres and Perishable Materials. Workshop Themes: Experimental Programmes: Exploring how experimental archaeology contributes to our understanding of fibre technologies, production processes, and material properties. Preservation, Collections, and the Degradation of Organic Materials: Examining challenges and opportunities in the study and conservation of fragile fibre artefacts, including museum curation, storage conditions, and taphonomy. Microscopy and Identification Methods: Showcasing cutting-edge techniques and analytical tools for identifying and characterising plant and fibre materials, from microscopy to biochemical and imaging methods. Beyond Analysis – Ethnographic, Practitioner, and Indigenous Knowledge: Highlighting the value of ethnographic studies and traditional knowledge in interpreting the cultural and technological significance of perishable materials.

231 REGULATING ARCHAEOBOTANY IN EUROPE: PRACTICES, CHALLENGES AND PERSPECTIVES

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Mila Andonova-Katsarski (Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences | University of Sofia "St. Kliment Ohridski") – Djurdja Obradovic (Institute of Archaeology, Belgrade) – Tjasa Tolar (ZRC SAZU, Institute of Archaeology, Ljubljana)
Keywords: Archaeobotany, Europe, Regulation
Format: Regular session

SESSION ABSTRACT

A wide range of environmental archaeological subdisciplines are actively employed in both research-oriented and development-led archaeological investigations across Europe, among which archaeobotany represents a particularly prominent field. The discipline exhibits considerable heterogeneity in its regional development: in certain countries, archaeobotanical research possesses a long-established tradition, whereas in others it remains relatively marginal, sometimes regarded as an exotic or insufficiently informative line of inquiry. These contrasting conditions both limit the scientific knowledge and contribute to difficulties in recognising archaeobotanical materials as components of tangible cultural heritage. Such challenges often arise from the liminal nature of the material itself—sediment-based archaeobotanical samples may fall under geological jurisdiction, while preserved plant remains are frequently treated as biological specimens. Consequently, the entire operational sequence—from field sampling, through sample processing, to laboratory analysis—frequently encounters inconsistent, overlapping, or entirely absent regulatory frameworks. In this context, our session aims to bring together both archaeobotanists based in the eastern and western European countries and those conducting research within the region, with the objective of fostering a discussion on how archaeobotanical materials might be more effectively recognised and regulated. We invite contributions that address best practices and methodological frameworks, as well as papers that present specific challenges encountered in the management, regulation and structuring of research in line with the regulations in place or needed, and interpretation of archaeobotanical materials within different national contexts across Europe. We intend to address, though not be limited to, the following themes: strategies of sampling and sample processing; approaches to on-site and laboratory research; the role of archaeobotanical input in decision-making during archaeological fieldwork; and the presentation and curation of archaeobotanical materials within museum contexts.

882. From Personal Archives to Open Data: Integrating Archaeobotanical Research Datasets at the National Level

Authors: Bine Kramberger – Edisa Lozić – Tjaša Tolar (ZRC SAZU, Institute of Archaeology)
Format: Oral

Archaeobotanical research produces large quantities of primary data that are essential for understanding past environments, subsistence strategies, and the everyday life of past societies, yet a substantial part of these results remains unpublished and difficult to access. This includes data from plant macroremain analyses such as seeds, fruits, charcoal, and wood, which are often archived outside formal publication channels due to ongoing archaeological interpretation, small or non-representative sample sizes, or methodological limitations of earlier studies. Although such datasets may not always meet current publication standards, they nonetheless represent an important scientific resource. In Slovenia, for example, archaeobotanical results accumulated over more than twenty years are currently preserved in personal digital archives and in printed form within the Archive of the Institute of Archaeology at ZRC SAZU. This situation clearly illustrates the need for systematic digitisation, long-term preservation, and structured data management within a broader archaeological framework. The long-term objective of this initiative is to digitise these datasets and provide controlled access by integrating archaeobotanical data into the national archaeological database ARKAS. ARKAS is already well advanced as a comprehensive information system for archaeological sites and heritage in Slovenia and offers an appropriate infrastructure for incorporating natural-scientific research results alongside archaeological documentation. The paper will demonstrate how archaeobotanical data can be embedded within a unified national e-database and address questions of data standardisation, authorship protection, and accessibility. Such integration significantly enhances the potential for comparative studies of plant remains, regional and supra-regional analyses of species distribution, and interdisciplinary research. Many research institutions in the region south of the Alps face similar challenges regarding the long-term storage and accessibility of bioarchaeological data. The ARKAS model therefore offers a transferable framework for coordinated data management and future regional and international collaboration.

917. BARB: Balkan ARchaeoBotany group

Authors: Maja Andric – Tjaša Tolar (ZRC SAZU, Institute of Archaeology) – Barb Barb (Balkan ARchaeoBotany group)
Format: Oral

Balkan ARchaeoBotany group (BARB) is a voluntary non-profit collective initiative founded in October 2025 with the aim of furthering the research on past human-plant interactions in the mainland Balkans. Its mission is not to conduct research as such, but to support and accelerate research progress by creating a platform for collaboration of scholars working in different parts of the region, strengthening existing and developing new personal and institutional connections, and inspire or facilitate new collaborations. BARB members possess a range of expertise; we are archaeobotanists (dealing with carpological remains), anthracologists, palynologists, phytolith and starch specialists, micromorphologists, ecologists and plant isotope researchers. While the array of skills available is very wide, the distribution of expertise is rather uneven across the region and the scholars often struggle not only to stay on track with their own work but also to harness the potential of archaeobotanical archives outside their specialism (and, along the way, meet expectations of the archaeologists and their projects). Therefore, BARB is also concerned with encouraging exchange of expertise and knowledge, especially among younger scholars from the region, and is fortunate that many of them are indeed among its members. One of BARB's chief priorities is conversations about (standardisation of) methods and protocols, and the ways of making them compatible and suitable for data integration and data mining across the region. After briefly introducing BARB, its aims and actions, this paper describes the group's work on formulating practical field and laboratory advice to be recommended and applied region-wide while accounting for the highly varied levels and conditions of research in different parts of the region.

932. Archaeobotanical research in Serbia: ups, downs and emerging perspectives

Authors: Djurdja Obradovic (Institute of Archaeology, Belgrade) – Ana Smuk (Independent researcher) – Amalia Čupić Sabanov (University of Belgrade | German Archaeological Institute, Berlin) – Dragana Filipović (University of Algarve | University of Bucharest)
Format: Oral

This paper reviews past and current developments in archaeobotanical research in Serbia and outlines its future prospects. First analyses were conducted in the early 1970s, within international projects investigating early farming in the Balkans. The research was conducted primarily by foreign specialists and, while some participated in field campaigns, most analyses were carried out in their home laboratories, where the plant material has been curated ever since. Although this early work generated much-needed information on Neolithic agriculture, its contribution to the development of the discipline in the region was limited. A notable step in building local capacity was the training provided by Helmut Kroll to two local scholars. Disrupted during the 1990s, the research was revived and broadened in the 2000s thanks to the local scholars who, despite the lack of training locally, found a way to specialise – by combining degree courses abroad, self-teaching, and mutual and external collegial support. The knowledge has been substantially enlarged but major obstacles to becoming an officially recognised, regulated and systematically applied scientific practice in the region remain: absence of institutionalised archaeobotanical training; limited infrastructure; non-standardised,

disparate methodologies; absence of formal, state-stipulated regulation to collect and process archaeobotanical samples and thus lack of dedicated funding; absence of recognition of archaeobotanical remains as bioarchaeological heritage. Local archaeobotanists have worked to address these issues by, for instance, querying museums for 'forgotten' samples or collections and liaising with archaeologists to secure sampling and processing. Formal upgrade (by administrative bodies) of archaeobotanical research and materials to the level equal to other forms of evidence is not on the horizon, so an awareness of the existence and importance of plant materials is limited, particularly among decision-makers and lay audience. To counter this, local archaeobotanists have engaged in presenting and promoting this bioheritage through public outreach.

2462. The spread of agriculture to the Northern Black Sea: Summarizing the state of research

Authors: Marta Andriiovych (School of Archaeology, University of Oxford | Laboratory of prehistoric archaeology and anthropology, University of Geneva)
Format: Oral

The most prominent feature of the Neolithic period is the development of a new type of lifestyle through the domestication of the main grain crops and animals. But apparently, the definition of the Neolithic period became quite wide, and in some cases, the first characteristic of the period was associated with the development of stone processing technologies and pottery making, as it took place in the research institutions in the post-Soviet Union territory. This approach makes the transition period from the Mesolithic to the Neolithic less apparent. Despite the limited evidence of macro archaeobotanical remains, we are going to present the spread of agriculture to the Northern Black Sea according to the available data obtained over the last several decades. The goal is to collect statistical data from the archaeological research in the region, together with the C14 database, geospatial analyses, and distribution maps to summarize the latest concepts. In this talk, we discuss the development of agriculture at so-called Neolithic cultures such as Bug-Dniester, Azov-Dnieper, and Donetsk cultures, versus the Linear Band pottery culture and Eneolithic Tripillya culture on the territory of Ukraine. As well as clarifying the meaning of the terms Mesolithic, Early and Late Neolithic, Chalcolithic/Eneolithic, and their transitions.

2647. Scanning the Seeds: Towards a 3D Digital Reference Library for Archaeobotanical Identification

Authors: Chris Motz – Laura Motta (University of Michigan)
Format: Oral

We introduce a project to produce a reference library of 3D models that will facilitate identification of archaeobotanical specimens in a way not possible with 2D representation, thus addressing a significant shortcoming of existing reference materials. Archaeobotanical remains are a window into ancient environments and agriculture. Identifying plant remains is the crucial step between recovery in the field and interpretation. The basis of identification is morphological, i.e. comparing known materials with unknown. It is time consuming and based on specialized skills to recognize nuances in shape and texture that are hard to describe. Comparative collections of modern specimens and reference manuals are used to check for variability in shape and to identify diagnostic features. It is not possible for each archaeobotanist to assemble a complete comparative collection, so the discipline makes use of identification atlases containing two-dimensional drawings or photos. Digital technology has improved the quality of reference images and the availability of these resources. While there are now good atlases, they remain reliant on 2D images to represent 3D objects. In the framework of curating the Kelsey Museum of Archaeology's collection of desiccated crop remains from the Roman site of Karanis (Egypt), we developed a workflow for creating detailed 3D models of small botanical specimens. 3D models are much closer to a physical comparative collection, allowing users to rotate the specimen, assess the full shape, and zoom in to see small features and texture, all crucial steps in the identification process that are not possible in 2D. The project is also recording metadata/paradata and producing a public archive of all files used to create the models, which will enable researchers to re-analyze the raw data and confirm the accuracy of the 3D resources, enhancing their utility as reference materials.

1773. Inspired by field practice at Çatalhöyük: the 'heavy fraction' and its processing in Serbia

Authors: Djurdja Obradovic (Institute of Archaeology, Belgrade) – Dragana Filipović (University of Algarve | University of Bucharest) – Slobodan Mitrović (Public Archaeology Laboratory, Pawtucket) – Milena Vasić – Jovana Tripković (Independent researcher)
Format: Poster

Archaeology of Çatalhöyük featured prominently during our studies, and some of us had the privilege of working at this multifaceted site. The knowledge and practice learned there we carried onwards, to many or all of our subsequent archaeological engagements. Inspired by our work at Çatalhöyük, we established flotation at the site of Vinča-Belo Brdo in the 2000s and thus enabled archaeobotanical investigations there, while we also encouraged, or ourselves instituted, this practice at a number of other sites in Serbia. Besides our contribution to re-inaugurating and nurturing archaeobotanical research in Serbia via flotation and post-flotation work, our effort in tending to the 'heavy fraction' of flotation samples, both at Çatalhöyük and at sites in Serbia – the primary sorting and classifying, and then also studying and publicising – has significantly benefited archaeological practice and discipline. Theses (including ours), chapters and papers have been written that used the materials extracted from heavy residues, and more are possible, as we highlight on this poster. Heavy residue processing is tedious and time- consuming; it is a form of excavating away from the trenches, even when done on-site, since the materials recovered are not recorded in the field and they complement the finds

retrieved in the trenches. It is also a form of rescue work, because many of these materials (microliths, small beads, macrofaunal remains, plant remains) are too small to be spotted during the excavation and would be lost without heavy residue sorting. This poster illustrates and emphasises the importance of recovering and analysing the materials from heavy residue both for the sake of the study of the materials themselves and for the study of past daily activities, their spatial and temporal dimensions, including the nature of the process of accumulation of different material remains.

1800. Archaeobotany in Romania: Structural Challenges in Funding, Infrastructure and Data Integration

Authors: Ciuta Beatrice (1 Decembrie 1918 University from Alba Iulia)
Format: Poster

Across Europe, archaeobotany shows markedly uneven development, reflecting broader structural differences between western and eastern research environments. In Romania, archaeobotanical work is rarely embedded in routine archaeological practice due to limited and inconsistent funding, and is most often conducted only within externally funded research projects. In contrast, in many western European countries archaeobotanical analyses are standard components of development-led archaeology, supported by stable regulatory frameworks, dedicated infrastructure, and technical staff. These disparities result in fragmented and sparse datasets in Romania, hindering diachronic and regional synthesis and limiting broader interpretative potential. Additional constraints include restricted access to advanced laboratory equipment, such as high-resolution microscopy and SEM, and the absence of trained flotation technicians, which places excessive pressure on a small number of specialists. Using Romania as a case study, this poster highlights how structural inequalities across Europe affect data production, integration, and long-term disciplinary sustainability, underscoring the need for more balanced regulatory and funding frameworks.

2046. Archaeobotanical practice in Portuguese Development-led Archaeology: a case study from Silves and Loulé (Algarve, Portugal)

Authors: Maria Cravo (Universidade do Algarve) – Patrícia Monteiro (Património Cultural, I.P. – Laboratório de Arqueociências | ICArEHB) – Roxane Matias (ICArEHB)
Format: Poster

This poster examines the implementation of archaeobotanical sampling and recovery methods in development-led archaeological excavations in the Algarve region (southern Portugal), focusing on the municipalities of Silves and Loulé between 2001 and 2017. Based on a systematic review of excavation reports, the study challenges the common assumption that the limited number of archaeobotanical studies resulting from development-led projects is primarily due to the unfavourable preservation conditions of plant remains in the archaeological record. Instead, it argues that this scarcity largely reflects methodological limitations. The results show that although archaeobotanical macro-remains are frequently present in excavated contexts (61%), their collection is not consistently attempted (24%). When recovery does occur, the methods employed are often heterogeneous and arbitrary, even in contexts with high archaeobotanical potential. Notably, none of the reviewed interventions resulted in formal archaeobotanical analysis. This poster invites a discussion on how the current legal framework applicable to both archaeobotanical materials and methodological practice may contribute to the marginalisation of Archaeobotany within the analysed excavations. It also encourages a critical reflection on how Portuguese archaeology could benefit from a legal mechanism that formally integrates archaeobotanical practice into development-led archaeological excavations.

2184. An archaeological seed bank and xylarium. The archaeobotanical and reference collections at the Institute of Archaeology, University College of London

Authors: Ayelen Delgado Orellana (Institute of Archaeology, University College London) – Sue Colledge (Institute of Archaeology University College London) – Dorian Fuller (Institute of Archaeology, University College London)
Format: Poster

The archaeobotany laboratory at the UCL Institute of Archaeology has a been centre for research and teaching for just over 60 years. Over the decades, building an extensive reference collection has been a continuous effort. Along with seeds, pollen and phytoliths, today the Institute of Archaeology hosts a significant reference collection of wood blocks, thin sections of wood, wood charcoal and herbarium specimens of modern woody plants. These collections provide valuable material, for both identification and for teaching practical archaeobotany. It is also available as research material, including legacy archaeobotanical collections for reinvestigation. Archaeological plant samples include assemblages from U.K., Syria, Sudan, India, Southeast Asia and the U.K. Many modern comparative materials are also unique and represent crop varieties no longer likely to be grown, such as emmer and einkorn wheats collected by Gordon Hillman in central Turkey in the 1970s. In the case of woody plants, legacy materials donated to our collection such as European and near eastern species collected in the 1960's and 1970's by Cecilia Western are unique and part of the developmental history of the discipline. As part of the Advancing Access to the UCL Archaeological Reference Collections (A3RC) grant, part of the RICHeS programme, funded by the AHRC through the UKRI Infrastructure Fund, we have updated the catalogues of the reference collections and archaeobotanical collections, making these available for restudy by researchers who wish to visit our laboratory and use its microscopy and photography facilities.

2383. Regulating Archives and Archaeobotanical Archiving: Challenges from Bulgaria

Authors: Hanna Aleksandrova (National Archaeological Institute with Museum, Bulgarian Academy of Sciences) – Mila Andonova-Katsarski (Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences | Department of Archaeology, Sofia University "St. Kliment Ohridski")
Format: Poster

Archaeobotanical materials from Bulgaria have expanded rapidly through intensive – often rescue – excavations, producing datasets of considerable scientific value. Yet much of this evidence remains invisible/underused due to, inconsistent documentation and accessibility standards, insufficient infrastructure, and the lack of standardised protocols for long-term storage. Small or limited assemblages for example, often remain invisible to other specialists, as they are only briefly noted or summarised in annual reports; moreover, decisions by excavation directors strongly influence whether archaeobotanical data are presented or how they are presented, resulting in uneven reporting practices and fragmented data sharing. Arhive materials in museums are frequently inadequately curated, and access for academic research remains poorly regulated, this - further restricting its scientific circulation. Possible solutions, addressing these challenges require the establishment of centralised digital databases, standardised recording and storage protocols, transparent and regulated access policies, and coordinated conservation and publication strategies to ensure long-term visibility, comparability, and sustainable research development. Strengthening institutional collaboration, mandating comprehensive reporting standards, and investing in professional training and conservation infrastructure would enhance data visibility and integration, ensure sustainable preservation, and facilitate broader comparative and analytical research.

232 ARCHAEOLOGIES OF RURAL SUSTAINABILITY: RECLAIMING KNOWLEDGE, PRACTICE, AND BELONGING IN CHANGING LANDSCAPES

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Anna Maria Stagno (Università di Genova, Laboratory of Environmental Archaeology and History) – Despina Catapoti (University of the Aegean)
Keywords: Rural archaeology, Archaeological theory, Heritagisation processes, archaeology and sustainability, archaeology of commons
Format: Discussion session

SESSION ABSTRACT

Across Europe, rural territories are currently reimagined as spaces of sustainability and resilience in response to climate change, economic instability, and social fragmentation. However, most of these places are approached through the lens of touristification and heritagisation, which often celebrates rural "authenticity" while overlooking the deeper genealogies of work, care, and adaptation that shaped these landscapes. This session embarks upon an investigation of how the discipline of archaeology can engage differently with rural areas—not as heritage products to be consumed, but as living, dynamic environments imbued with ecological knowledge and social meaning. Archaeology has a unique capacity to reveal long-term practices of collective and shared forms of environmental management that speak directly to the challenges of our own time. For the purposes of this session and in an attempt to bring forward a vision of archaeology that not only studies but also participates in the ongoing life of rural landscapes, we invite contributions that explore how local communities and social groups in the past and present have understood, managed, and reactivated their environments through everyday practices (cultivation, grazing, sylviculture, fire use, and other forms of resource stewardship). We are especially interested in studies that combine archaeological sources with other ones (archaeobotanical, historical-ecological, documentary evidence, oral sources..) to reconstruct the social and ecological cycles of rural life across different historical contexts. Possible topics include: - Archaeological and historical perspectives on agro-sylvi-pastoral systems and practices to manage, reproduce and activate environmental resources; - The material and environmental traces of abandonment, reoccupation, and transformation in rural landscapes; - Critical reflections on heritagization and sustainability discourses in rural development; - Collaborative and community-based approaches that bring together local voices and scientific knowledge; - Conceptual and methodological approaches for studying environmental knowledge as a living cultural practice.

CONTRIBUTION ABSTRACTS

2800. Sustainability and landscapes: addressing continuities from archaeological perspectives

Authors: Anna Maria Stagno (University of Genova - Laboratory of Environmental Archaeology and History)
Format: Oral

This paper aims to promote a discussion on the problem posed by continuities. The theme will be discussed in relation to mountain spaces, where it is now clear that abandonment is generating changes, whose full scope was not yet fully perceived 40 years ago. The paper will address some of possible key questions: the visibility of continuity and the multiple meanings of the archaeological evidence and their relation with current heritagisation processes. The idea is to reflect on the possibility of studying continuity in

archaeology, as a central topic on the investigation of sustainability, considering, as key elements, the impermanence of things, their need to be maintained and cared for, and their role in generating social relations. Caring for something is possible when access rights or ownership of that thing are maintained, for this reason the maintenance of access rights is one of the prerequisites of continuities.

316. Land-use Transformations in Gemer (Slovakia) Under the Influence of Geopolitical Shifts from 13th - 20th century

Authors: Josef Petráš – Filip Vološin (Archaeology Institute of Slovak Academy of Sciences)
Format: Oral

The paper presents the results of interdisciplinary research into the long-term transformation of the cultural landscape of the Gemer region in eastern Slovakia. The study focuses on the dynamics of subsistence, settlement, and economic exploitation at altitudes ranging from 300 to 1,000 metres above sea level. The methodological framework integrates airborne laser scanning (LiDAR) with archival written and kartographic sources analysis, followed by systematic field surveys to verify identified features. This approach was supported by targeted pedological probing and Geographical GIS-based landscape modelling. Stratigraphic layers were analysed using XRF measurements, and charred macro-remains were used for taxonomic identification and radiocarbon dating. A key contribution of the study is the spatial analysis of relict field systems in currently forested upland areas. Contrasting these findings with historical data on marginal grain yields reveals unexpected agricultural intensification prior to a significant socio-economic turning point in the 2nd half of the 16th century. This milestone was characterised by Ottoman expansion and changes in land ownership, leading to the restructuring of the landscape through Valachian colonisation and the development of metallurgy. The analysis provides a detailed case study of the ironworking site in Drnava. Research into the forge (hammermill), recorded as deserted in 1569 and throughout the 17th century, confirmed its reactivation in the 18th century. Charcoal kilns identified across the region disturb earlier field system relics stratigraphically, providing irrefutable material evidence of a total shift in land use from agro-pastoral to industrial. These results enhance our understanding of human adaptability in mountain ecosystems under geopolitical pressure and offer an innovative model for studying relict industrial landscapes in Central Europe.

2040. Filling the Blanks: Agrarian Blueprints and Rural Knowledge in Medieval Brittany

Authors: Gerard Matser (CReAAH Rennes UMR 6566)
Format: Oral

The agrarian foundations of Breton society during the Early Middle Ages remain largely overlooked, despite agriculture constituting the core of subsistence, social organization, and environmental knowledge. This paper examines early medieval Brittany as a lived rural landscape shaped by long-term practices of cultivation and adaptation, rather than as a marginal or static periphery. Building on recent shifts toward the archaeology of everyday life, it foregrounds agrarian practices as forms of collective engagement with local environments. The study first reassesses carpological evidence from thirty-two sites dating between the seventh and eleventh centuries. While these data reveal coherent patterns of cultivation and settlement and demonstrate Brittany's participation in wider agrarian transformations across early medieval Europe, they remain spatially uneven and strongly shaped by the logic of preventive archaeology, concentrating on urban centers and infrastructure corridors. To address these absences, the paper adopts an interdisciplinary and collaborative methodology that combines environmental data (climate, soils, topography, and available plant species), material evidence (agricultural tools), and the experiential knowledge of contemporary local farmers. These collaborations provide insights into crop/soil relationships and viable cultivation strategies, enabling the reconstruction of agricultural "blueprints" for rural territories otherwise absent from the archaeological record. By mobilizing both archaeological and living environmental knowledge, this approach highlights rural landscapes as dynamic systems of work, care, and adaptation, offering a long-term perspective on sustainability grounded in everyday agrarian practice.

2362. The potential of archaeological finds in intensely cultivated agricultural fields: lost or found past?

Authors: Martti Veldi (Estonian University of Life Sciences | Tallinn University) – Tuuli Kurisoo (Tallinn University) – Maria Smirnova (University of Tartu) – Ulla Kadakas (Estonian History Museum) – Valter Lang (University of Tartu)
Format: Oral

Since metal detecting was legally regulated in Estonia in 2011, tens of thousands of finds have been reported and handed over to the National Heritage Board by hobby enthusiasts. Most of these finds originate from fields that have been intensively cultivated for centuries, suggesting that the context of most discoveries is too fragmented for systematic scientific analysis. Consequently, such finds have often been dismissed by professional archaeologists as unsuitable research material. Metal detecting as a hobby also continues to carry a contested reputation among archaeologists due to its perceived association with the black market in antiquities. This paper examines how the knowledge accumulated through metal-detected finds can broaden our understanding of the past when approached through landscape archaeology, historical GIS, and diverse fieldwork techniques, including engagement of hobby detectorists and local landowners. We analyse concentrations of stray finds within their landscape context and seek to understand their position within settlement patterns in relation to other archaeological sites. The paper focuses on three main site types commonly associated with finds from cultivated fields: graves, settlement sites, and hoards. We aim to demonstrate that, despite their disturbed contexts and fragmented documentation, both the finds and the sites themselves contain valuable information about

the past. Such material should not be disregarded as research data, as it continues to form an essential part of landscape history and the archaeological heritage.

233 SOCIAL FOODWAYS IN ARCHAEOLOGY AND BEYOND

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Ester Oras (Archemy Lab | University of Tartu | Swedish Collegium for Advanced Study) – Alice Toso (Bonn Center for ArchaeoSciences | University of Bonn)
Keywords: Social foodways, Diet, Biomolecular archaeology, Bioarchaeology, Material culture studies, Archaeological theory
Format: Regular session

SESSION ABSTRACT

Food has long been central to archaeological and anthropological investigations. Traditionally, diet has served as evidence for past economies, subsistence practices, and environmental change. Increasingly, however, foodways are recognised as embodied cultural practices through which individual and collective identities are made and contested. Age, sex, social status, religion and provenance can dictate what people eat at both individual and group levels. Food fulfils basic physiological needs, yet also carries social meanings, distinguishing everyday staples from special-occasions' consumption. Personal preferences, metabolic needs, and life histories further contribute to the dietary patterns beyond economic context or environmental constraints. This session brings together multiple ways of analysing and understanding social foodways - across material culture studies, bioarchaeology, biomolecular research - anchored in theoretical reasoning. We particularly encourage synergetic cross-disciplinary and -conceptual frameworks that integrate diverse datasets and proxies (e.g. archaeobotany, zooarchaeology, ceramic use-wear and residues, isotopes, proteomics), methodologies, and that operate across scales from molecules to meals to meanings. We invite contributions from archaeology, natural sciences, history, anthropology and ethnography from any region and period.

CONTRIBUTION ABSTRACTS

1059. Beyond Subsistence. Bone Breakage as a Cultural Foodway Practice in Cantabrian Magdalenian Societies

Authors: Rodrigo Portero Hernández (Universidad de La Rioja)
Format: Oral

Research on Magdalenian subsistence in the Cantabrian region has traditionally emphasised hunting strategies, carcass transport and nutritional optimisation. However, zooarchaeological and taphonomic analyses reveal that the systematic fracture of red deer bones for fat and marrow extraction constituted not only an economic behaviour but also a culturally embedded culinary practice. This paper explores bone breakage patterns from several Lower Magdalenian levels in northern Spain, focusing on the spatial distribution of percussion marks, the recurrence of specific technical gestures and the selection of skeletal elements with high medullary value. Quantitative data show a strong correlation between anatomical representation and marrow utility index, suggesting deliberate selection, transport and delayed consumption of fat and marrow rich elements. The repeated use of hammerstone and anvil techniques, the presence of counterblows, and the consistent localisation of impact notches on long bones indicate a shared operational sequence that endured over time. These behaviours, visible at the macroscopic and microscopic scales, reveal more than technological efficiency. They point to the embodied culinary knowledge of Magdalenian groups, who transformed animal carcasses into food resources and long-term energy reserves through systematic practices that followed shared sociocultural patterns. Interpreted through the lens of social foodways, these bone fracture patterns reflect learned practices, collective traditions of handling animal resources and subtle forms of social organisation around food processing. This study thus situates marrow extraction within a broader cultural framework, showing how Magdalenian communities shaped their dietary choices not only according to environmental constraints but also through socially transmitted culinary behaviours that structured identities and routines.

47. From Mammoth to Berries: Reconstructing Foodways in central Alaska over the last 15,000 years through Isotopic, Zooarchaeological, and Paleobotanical evidence

Authors: Briana Doering – Cinthia Campos-Hernandez – Haley Purifoy (University of Wyoming)
Format: Oral

Archaeologists have long focused on the role of large game in the diets, daily lives, and traditions of past North Americans. These animals not only leave large bones at archaeological sites, they are also associated with projectile point technology that is easily identified, and glorified, by archaeologists. Traces of plants and small game, such as fish and birds, are comparatively difficult to find, thus archaeologists have overlooked these resources, particularly in the Arctic. Traditional knowledge and ethnographic accounts both highlight the importance of resources such as salmon, migratory waterfowl, and berries to traditional foodways. Through an analysis of 30 central Alaskan cooking features or hearths from museum collections, we consider how a mixed-methods approach that combines archaeo-faunal, botanical, and isotopic data can reveal detailed changes in traditional cooking practices among past

Dene Athabascans. Changes in fuels can be related to resources cooked, and these data can in turn be compared to climatic and demographic change in the region. Expanding the potential "menu" in this way can help archaeologists to better understand how food relates to broader social and environmental shifts in the past.

2188. Faunal Remains from the Middle Neolithic Site of Luadisht (Albania): Subsistence and Animal Exploitation

Authors: Viktoria Fries (University of Cologne) – Edlira Andoni (Albanian Institute of Archaeology) – Jana Anvari (Flinders University) – David Orton (University of York) – Patrick Willett (Vrije Universiteit Brussel)
Format: Oral

The Korça Plain in eastern Albania is a fertile intermontane basin whose proximity to Lake Ohrid, Lake Prespa, and the palaeolake Maliq has made it an attractive settlement area throughout prehistory. The Middle Neolithic site of Luadisht, excavated by the Korça Neolithic Project in 2023 and 2024, has yielded a diverse assemblage of material culture, including pottery, figurines, lithic tools, botanical remains, and faunal material. Archaeological features identified at the site include a ditch which probably surrounded the settlement, building debris, and several pits. Faunal remains from archaeological sites highlight the importance of animals as resources for the diet of prehistoric people. Despite significant preservation issues resulting in a highly fragmented assemblage and a limited number of identifiable specimens, the faunal remains provide valuable insights into subsistence strategies at the site. Preliminary results indicate a strong reliance on livestock herding in the immediate vicinity of the settlement, with ovicaprines and cattle playing a central role, alongside domesticated pig. The presence of dog remains further suggests a close relationship between humans and animals beyond economic exploitation. Wild mammals such as red deer, wild boar, hare, and fox are present but occur in considerably lower frequencies, suggesting a secondary role for hunting. In addition to dietary practices, the assemblage attests to the use of animal bone as a raw material, evidenced by several worked bone artefacts. The identification of turtle remains and water birds further points to the exploitation of wetland and lacustrine environments associated with the palaeolake Maliq. Given the limited zooarchaeological research on Neolithic sites in this region, the analysis of the Luadisht faunal assemblage contributes important new data on herding practices, resource exploitation, and human–environment interactions in the Neolithic Balkans.

1044. A multidisciplinary approach to reconstructing prehistoric cheese-making in the Alpine region

Authors: Luise Tiemann (Ludwig-Maximilians-Universität)
Format: Oral

Early research on prehistoric dairying in the Alps often relied on analogies with modern mountain pastoralism, as Alpine cheese today forms an important part of cultural identity in this region. In my talk, I distinguish between these recent perceptions and the narratives revealed by the archaeological record. To develop a concept of prehistoric cheese-making, a multidisciplinary approach is required in order to address the various aspects of this practice. Dairying and dairy consumption were integral to the economy, culture, and social organisation of the prehistoric Alps and must therefore be considered as part of a broader, interconnected system. Although most people were lactose intolerant in prehistoric times, multiple lines of evidence attest to the considerable investment involved in dairying. Archaeozoological evidence allows for the identification of the animal species exploited and their significance for milk production. When combined with isotopic analyses and archaeobotanical data, it also enables inferences about herding strategies and their social organization. Finally, the identification of milk residues in specific vessel types and archaeological contexts allows the reconstruction of differences in access, use, and consumption of dairy products within society. All of these approaches converge within the archaeological context, where they can be interpreted in relation to the technical, economic, and social dimensions of prehistoric cheese-making. This talk presents current research questions and offers new insights from Alpine case studies by integrating multiple methods and interdisciplinary perspectives.

915. Broomcorn Millet Introduction into Bronze Age Central Europe: Insights from Paleoproteomics Analysis of Dental Calculus

Authors: Marine Morvan – Giedrė Motuzaitė Matuzevičiūtė (Vilnius University)
Format: Oral

Paleoproteomics enables the identification of consumed food items through the analysis of dental calculus, offering a direct window into past diets. While milk proteins have been extensively investigated, plant proteins have so far received comparatively limited and often opportunistic attention. Here, we present a novel interdisciplinary methodology applying paleoproteomics to explore the occurrence of broomcorn millet (Panicum miliaceum) proteins in dental calculus from Bronze Age populations in Central Europe, including individuals with and without isotopic evidence for C4 plant consumption. Biological sex was also assessed through paleoproteomics analysis of sex-specific proteins in dental enamel, allowing dietary patterns to be explored in relation to individual biological profiles. This approach allows the investigation of millet consumption at the individual level and complements multi-isotope analyses alongside contextual archaeological evidence. Our results provide new perspectives on the introduction and adoption of millet in Central Europe and support the reconstruction of dietary practices at both individual and community scales. Paleoproteomics represents a minimally destructive analytical approach that contributes to the preservation of archaeological material, while emphasizing the need for further research into protein taphonomy and dietary representativeness. When integrated with other archaeological and biomolecular methods, this approach offers a robust interdisciplinary framework for exploring Bronze Age

foodways, particularly in contexts where millet consumption was limited, episodic, or isotopically undetectable.

1779. From Grains to Porridge: Interdisciplinary Archaeobotanical Evidence from a Late La Tène Domestic Context at Șimleul Silvaniei (Romania)

Authors: Ciuta Beatrice (1 Decembrie 1918 University from Alba Iulia)
Format: Oral

This paper presents an interdisciplinary archaeobotanical analysis of processed cereal food remains recovered from a Late La Tène domestic context at Șimleu Silvaniei (north-western Romania). The material consists of compact, amorphous charred lumps found in association with a domestic fireplace and interpreted as the remains of a cereal-based porridge rather than baked products. This interpretation is based on the integration of archaeobotanical observations with microstructural and compositional analyses, including high-resolution digital microscopy and SEM–EDS. The remains display a dense cereal matrix with fragmented caryopses, lack vesicular porosity, and show no evidence of crust formation, features consistent with boiled cereal preparations. By combining micro-scale analytical data with archaeological context, this study moves from molecules to meals, reconstructing everyday food preparation practices within a Late La Tène community. Rather than addressing diet solely as a subsistence indicator, the paper situates cereal porridge within broader social foodways, highlighting routine domestic consumption and embodied culinary practices. The results demonstrate the value of interdisciplinary approaches for identifying processed plant foods and contribute to discussions on daily food practices in later prehistoric Europe.

2229. Insights into culinary practices at Stare gmajne pile-dwelling site (Slovenia, late 4th millennium BC): A multi-methodological study of organic residues

Authors: Ines Nabernik Bošnjak – Lara González Carretero – Oliver Craig (BioArCh, University of York) – Elena Leghissa (Institute of Archaeology, ZRC SAZU) – Alexandre Lucquin (BioArCh, University of York)
Format: Oral

The waterlogged site of Stare gmajne (Ljubljansko barje, Slovenia), dated to the second half of the 4th millennium BC, represents an exceptionally well-preserved archaeological context that has enabled extensive investigation of organic material. This paper presents the results of a state-of-the-art analytical approach applied to selected ceramic vessels with preserved foodcrust remains. The case study combined high-resolution digital microscopy and scanning electron microscopy (SEM) with biomolecular approaches, including lipid residue analysis and bulk stable isotope analysis. Both absorbed organic residues from the internal ceramic matrix and charred organic deposits adhering to vessel surfaces were analysed to reconstruct vessel use and culinary practices. The results indicate that the main components processed in the analysed vessels were mixtures of freshwater and plant-based resources, particularly cereals and underground storage organs. Possible evidence for dairy processing was identified in only a single vessel, while a small number of samples revealed the presence of ruminant adipose fats. Microscopically analysed foodcrusts showed a strong presence of plant remains, confirming the fundamental role of domesticated and wild vegetal resources in food preparation, whilst freshwater fish oils dominated the lipid profiles. Comparisons between absorbed residues and foodcrusts also reveal differences in vessel use over the lifespan of the vessel. Notably, this study provides the first evidence for the use of coniferous resin at a pile-dwelling site in Slovenia. These findings contribute new insights into food processing, resource exploitation, and pottery use among Copper Age lakeshore communities in the southeastern Alpine region.

1901. Creolisation and Cuisine: Multi-Proxy Evidence of Dietary Variability and Cultural Mixing at the Romano-Byzantine Fortress of Ibida, Romania

Authors: Mackenzie Masters (University of York | Vrije Universiteit Brussel) – Andrei Soficaru (Romanian Academy) – Malin Holst (University of York | York Osteoarchaeology Ltd.) – Jane Evans (British Geological Survey) – Michelle Alexander (University of York)
Format: Oral

This study presents the largest (n=119) multi-isotopic analysis (C, N, S, Sr, O, Pb) of any Roman period site from the region and a novel approach to integrating multi-proxy evidence (archaeothanatology, osteology, isotope analysis, bioarchaeology) to investigate variable dietary practices evident across three unique mortuary contexts. The mortuary landscape at the Romano-Byzantine (1st-7th c. CE) fortress Ibida (Romania) is extensive, comprising a commingled high-status tomb (MNI=39), a general necropolis (n=161), and M141, a commingled secondary multiple burial representing a suspected 'massacre of outsiders' (MNI=37). This site offers the opportunity to investigate coalescing populations and how this manifests in dietary practices along the lowest extent of the Danube Limes frontier. Funerary practices across the site represent both Romano-Christian and Pagan traditions as well as variable social status representation. This, coupled with the presence of individuals with artificially modified crania suggest a highly creolised community. Isotopic analysis identifies distinct dietary histories, suggesting distinguishable subsistence strategies and/or cultural identities between mortuary groups, with the M141 individuals consuming C4 foods (millet), contrasting the C3-dominant diet of individuals in the high-status tomb and necropolis. Further, lead isotope concentrations present a possible cultural divide with the high-status group presenting elevated anthropogenic values (ppm>0.5), suggesting long-term Roman cultural influence. While sulphur, strontium and oxygen isotopes identify potential non-locals across all contexts, suggesting an intermixed local and non-local community. The assessment of the different contexts exposes a range of dietary, mobility, and funerary practices at Ibida,

underscoring the fluid human experiences of the Roman frontier and how these can be observed via foodways.

1381. Foodways and Craft Production – Zooarchaeological and Isotopic Insights on Social and Political Strategies at Sialupe, Peru (900-1100 CE)

Authors: Aleksa Alaica – Luis Manuel Gonzalez La Rosa (The University of British Columbia) – Izumi Shimada (Southern Illinois University—Carbondale)
Format: Oral

Andean foodways were influenced by a range of ecozones. Moving between coastal and highland regions, communities have been sharing resources up and down the "vertical archipelago" for millennia facilitated by long-distance kinship networks. Even in arid environments, biodiverse landscapes allow for the management of a range of animal species. On Peru's arid north coast, during the Middle Sican period (900-1100CE), communities were dedicating daily and long-term tasks to the care and husbandry of camelids, dogs, and guinea pigs. In addition, wild species such as deer, marine birds, and Pacific fish were contributing to subsistence strategies through hunting and opportunistic collection. In this paper, we mobilize zooarchaeological and isotopic datasets to shed light on the population structures for wild and domesticated species. We employ these datasets to elucidate the social and political strategies involved in the acquisition, distribution, and access of food sources. As a key site of multi-craft production (pottery making and metalworking), we interpret preliminary results from Sialupe through the perspective of flexible subsistence and management practices in place during a pivotal time in the Andean past, when shifting social relationships demanded nimble strategies to mitigate local community interactions and nonlocal pressures from Moche and Wari political spheres.

2301. From Status to Staples: Diet and Inequality in Medieval Flanders, First Results from Ypres

Authors: Patxi Ramallo (AMGC Research Group, Vrije Universiteit Brussel | SHOC Research Group, Vrije Universiteit Brussel | Max Planck Insitute of Geoanthropology, Jena) – Antonio Delgado-Huertas (Andalusian Earth Sciences Institute, CSIC and Universidad de Granada) – Martijn Jacobs (AMGC Research Group, Vrije Universiteit Brussel | SHOC Research Group, Vrije Universiteit Brussel) – Barbara Veselka (AMGC Research Group, Vrije Universiteit Brussel) – Charlotte Van Riet (AMGC Research Group, Vrije Universiteit Brussel | SHOC Research Group, Vrije Universiteit Brussel) – Lucy Koster (AMGC Research Group, Vrije Universiteit Brussel) – Nicole Pouliart (Faculty of Medicine and Pharmacy, Vrije Universiteit Brussel, Brussels Belgium | Department of Orthopaedics and Traumatology, Universitair Ziekenhuis Brussel) – Steven Provyn (Faculty of Medicine and Pharmacy, Vrije Universiteit Brussel, Brussels Belgium) – Christophe Snoeck (AMGC Research Group, Vrije Universiteit Brussel) – Bart Lambert (SHOC Research Group, Vrije Universiteit Brussel)
Format: Oral

Re-urbanisation in western Europe from the 11th century onwards reshaped medieval society, generating new legal categories, privileges and forms of status. Across the following centuries, expanding towns concentrated labour and differentiated social strata in ways that also produced pronounced inequalities in wealth, rights and access to food. Medieval Flanders, one of the most densely urbanised regions of western Europe after northern Italy, offers a powerful laboratory to explore how rapidly growing cities provisioned themselves, and how social difference was embodied in everyday diets. Yet the written record is socially and gender biased, privileging elites and institutions; this project therefore sets isotopic evidence against historical narratives, testing what documentary sources imply and what they leave invisible. Diet is used as a key proxy to investigate inequality and adaptation through time, by status, sex, age and health, with particular attention to the 14th century crisis marked by famine and successive plague waves. We present stable isotope analysis of bone collagen (δ13C, δ15N and, crucially, δ34S) to reconstruct the balance between terrestrial and aquatic proteins and refine the detection of marine provisioning. A central aim is to assess whether isotopic signals are consistent with an expanding contribution of marine resources from the late 11th-12th centuries onward, and whether access to fish functioned primarily as prestige consumption or as a scalable alternative beyond elites. Focusing on a wider Flemish urban network, this paper presents first results from Ypres, discussing temporal shifts together with preliminary patterns by sex, age and archaeological context, as a first step toward reconstructing resilience and vulnerability in medieval urban foodways across a long chronological frame.

585. Weaning, childhood diet and inequality in Medieval Estremoz (Portugal)

Authors: Ana Curto – Anne-France Maurer (HERCULES Laboratory, University of Évora)
Format: Oral

Recent bioarchaeological research on the medieval population of Estremoz (13th–15th centuries, Portugal) has documented relatively low frequencies of skeletal indicators of physiological stress, homogeneous adult dietary patterns, and no clear evidence of differential treatment of individuals with physical impairments at the population level. While these findings suggest favourable living conditions and sustained access to resources, they are based primarily on adult skeletal and isotopic data. This study aims to investigate childhood dietary patterns in Estremoz, from which we already have adult diet data, with particular attention to potential differences related to sex and to physical impairment. Such differences may reflect differential care, gendered practices, or early-life inequalities that are not detectable through adult data alone. The study integrates incremental stable isotope analysis ($\delta^{13}C$ and $\delta^{15}N$) of dental tissues with osteological indicators of childhood stress, including linear enamel hypoplasia and growth disruption,

to reconstruct early-life dietary trajectories. By extending the analytical focus to infancy and childhood, this research provides a necessary complement to existing studies of health, diet, and impairment in medieval Estremoz. More broadly, it contributes to discussions on early-life conditions, care, and social organisation in past populations, highlighting the importance of childhood dietary evidence for understanding long-term health outcomes.

801. Elucidating Childhood in Late Medieval Vilnius: Diet, Sex, and Identity

Authors: Ruta Brindzaite – Jorūnė Sakalauskaitė (Vilnius University) – Rytis Jonaitis – Irma Kaplūnaitė (Lithuanian Institute of History)
Format: Oral

Our study presents an integrated bioarchaeological and archaeological analysis of nonadult individuals from the Bokšto Street 6 burial ground, the earliest known urban Christian cemetery in Vilnius (13th-15th centuries). The paper explores how childhood diet intersected with age, sex, and identity in the Grand Duchy of Lithuania. Stable isotope analysis of carbon and nitrogen, palaeoproteomic sex determination, palaeopathological assessment, and contextual analysis of grave goods are combined to examine dietary practices as embodied experiences shaped by social and cultural factors. We present the first application of palaeoproteomic methods for determining the biological sex of non-adult individuals from this region and period. By targeting enamel proteins, the focus was on amelogenin peptides (AMELX and AMELY). It was applied to deciduous and permanent teeth of individuals under 18 years of age, enabling reliable sex identification when osteological methods were inconclusive. These results were assessed alongside associated grave goods, revealing patterns that challenge normative sex-based expectations. Stable isotope data further indicate variability in plant consumption, with at least two individuals exhibiting dietary patterns distinct from the rest of the population during childhood or adulthood. These differences point to non-uniform childhood foodways and highlight the role of individual life histories and social differentiation within the early urban Christian community. Overall, the study contributes to broader discussions of understanding diet, identity, and childhood in late medieval urban contexts.

2738. Cacao and Chocolate as Living Heritage in El Salvador

Authors: Kathryn E Sampeck (University of Reading) – Estelle Praet – Danny Zborover – Rebecca Stacey (British Museum)
Format: Oral

Chocolate is now a global commodity for which increased demand leads to unsustainable cacao production practices, posing ethical and environmental threats for cacao growing areas. Domesticated in South America and widely used across Mesoamerica for at least 4000 years, cacao was used and processed in many diverse ways across space and time, mirroring distinct cultural traditions. In addition, three different cacao species (Theobroma cacao, Theobroma bicolor, and Theobroma grandiflorum) have been used and consumed across the Americas, sometimes even prepared together, as in the Izalcos region in El Salvador. The area is historically known for its original chocolate recipe which represents an intangible living heritage for Izalcos communities. However, archaeological evidence of cacao has often been reduced to the identification of theobromine as the ultimate biomarker of chocolate, masking the complexity of different recipes. This paper will present: 1) results from organic residue analysis (ORA) of an ethnographic chocolate pot from a Chontal community in Oaxaca (Mexico) and of vessels from archaeological contexts in Rio Ceniza Valley (El Salvador), revealing the complexity of identifications, and 2) interpretations derived from community engagement workshops in Izalcos on cacao growing, harvesting and processing to make the original chocolate recipe. The paper ultimately offers a reflection on the role of ORA in reconstructing diverse Indigenous food traditions, while advocating for the need multiple lines of evidence to grasp the nuance and complexity of cacao-based and chocolate recipes in Mesoamerica in the past and the present.

960. Plants, Animals, and Lagoon Resources: An Integrated Study of Etruscan Badia Vecchia

Authors: Claudia Moricca (Sapienza University of Rome) – Mirko Fecchio (University of Padua) – Eleonora Cerafogli – Elena Villani (Sapienza University of Rome) – Valerj Del Segato (University of Pisa) – Camilla Colombi (German Archaeological Institute, Rome)
Format: Poster

This paper presents an integrated archaeobotanical and zooarchaeological study from the Etruscan site of Badia Vecchia, near Vetulonia (Grosseto, Italy), conducted within the framework of the Prile Project. Although the recovery of charred plant remains was limited, the combined application of carpology, anthracology, and zooarchaeology provides a nuanced reconstruction of human–environment interactions in a lagoon-influenced landscape. Archaeobotanical evidence suggests the central role of cereals in the diet, while charcoal analysis reveals the exploitation of fruit-bearing and riparian trees, informing on both subsistence strategies and fuel selection. Zooarchaeological data indicate a well-structured animal economy dominated by sheep, primarily exploited for secondary products, alongside cattle used for traction and pigs raised for meat. Hunting and fishing activities, documented through wild fauna and aquatic species, further underline the diversified exploitation of local resources. Crucially, the integration of faunal and botanical datasets highlights consistent signals of humid environmental conditions linked to the nearby Prile lagoon. To address the limitations posed by the scarcity of macroremains, recent coring campaigns for palynological analysis aim to contextualize the site within its broader paleoenvironmental framework and to trace landscape dynamics over time. This case study demonstrates how interdisciplinary protocols and complementary datasets can overcome taphonomic biases and enhance the interpretative potential of archaeobotanical research, offering a model for studying complex coastal and wetland environments in protohistoric contexts.

1410. Dining at the Great Settlement Shang: Everyday Meals, Ordinary People and Urbanism at Yinxu, Late Shang China (ca. 1250-1046 BC)

Authors: Mengyang Wu (Institute of Archaeology, Chinese Academy of Social Sciences)
Format: Poster

Scholarly understandings of Yinxu, the last Shang capital, have long concentrated on elite narratives, with the everyday lives of its non-elite population largely overlooked. This study recenters ordinary people by examining the daily practice of eating at the neighborhood level, arguing for a more integrated model of early urbanism that acknowledges the dynamic interaction between bottom-up, generative processes and top-down, institutional forces. Through stable carbon and nitrogen isotope analysis of human skeletal tissues with contrasting turnover rates, this work shifts the focus from static dietary reconstruction to a life-course perspective, capturing both intra-population variation and dietary persistency. Our results reveal a stable, intensifying millet-based food system as the emergence of the Late Shang. Crucially, we demonstrate significant dietary variation linked to social identity, providing the first isotopic evidence for distinct nutritional patterns among sub-adults and specialized individuals. Sampling bones with fast and slow turnover rates offers novel insights into dietary changes during the often-neglected life stage of emerging adulthood. Furthermore, the differential diets of identified artisans and soldiers underscore the role of esoteric knowledge and skill mastery in shaping identity, with discussions of sex and burial evidence illuminating the interplay between craft specialization and gender inequality.

1465. Feeding the Garrison: Isotopic and Zooarchaeological Evidence from the Military Hospital at the Castle of São Jorge (17th-18th centuries, Lisbon)

Authors: Jéssica Manuel Paes – Nelson Almeida (University of Évora) – Carina Leirião (CIAS) – Anne-France Maurer (HERCULES Laboratory) – Susana Henriques (Cidehus) – Liliana Carvalho – Sofia Wasterlain (CIAS) – Ana Curto (HERCULES Laboratory)
Format: Poster

This study presents dietary data from 50 individuals buried in the military hospital of the Castle of São Jorge (Lisbon, Portugal), dating to the 17th and 18th centuries. This site represents a key landmark in post-medieval Lisbon, closely associated with the Restoration War (1640 – 1668). The main objective is to estimate the diet of the soldiers, prisoners, and hospital workers buried in the hospital necropolis, while also exploring meat consumption practices and possible differences in diet based on age at death. Preliminary faunal results show an assemblage of over 14.000 remains, composed largely by malacofauna with a prevalence of common cockle. Nonetheless, mammals likely represented the primary contribution to dietary protein intake, mainly caprines, followed by cattle and pig. Additional food resources included fish and avifauna, where chickens are well represented. Rib samples from 50 human individuals were analysed for carbon (δ13C) and nitrogen (δ15N) isotopes using Isotope Ratio Mass Spectrometry (IRMS). The human isotope results were compared with those obtained from faunal remains to provide a comprehensive picture of the animal resources exploited for consumption. These data were further integrated with the zooarchaeological and taphonomic analysis of food refuse associated with the hospital kitchen area.

1893. What the food? Isotopic insights into early medieval Dobrovíz (Central Bohemia)

Authors: Nicol Polakovičová – Lucia Krnáčová (National Museum | Department of Anthropology and Human Genetics, Charles University) – Zdeněk Vytlačil – Sylva Drtikolová Kaupová (National Museum) – Jan Frolík (University of Pardubice)
Format: Poster

Rescue excavations at Dobrovíz (Central Bohemia) uncovered 15 graves dated between the 9th and 12th centuries AD. Concentration of ceramic vessels, animal bones, and heating stones in the ditch accompanying the cemetery suggests a connection with the food-related activities, including commemorative or post-funerary gatherings, as well as a potentially significant role of food at the site. As the overall archaeological record provides only limited insight into the community represented at the site, a complex bioarchaeological approach was employed Long-term dietary patterns and variability within the group were assessed through stable carbon and nitrogen isotope analysis performed on bone collagen from 14 individuals, further supported by mobility analysis using 87Sr/86Sr ratios from their tooth enamel and a thorough osteological assessment. Of a particular interest is a distinctive individual, characterised by exceptional stature and robust skeletal features indicative of high physical activity, who also shows evidence of compromised health, reflecting a combination of physical stress and disease. This combination of archaeological, isotopic, and osteological analyses highlights how a multidisciplinary approach can deepen our understanding of the social identity of an individual from the past, particularly in unusual contexts with limited archaeological data.

1906. Embodied Diets: Physiological Stress, Chronic Disease, and the Biocultural Interpretation of Stable Isotope Data

Authors: Lucia Krnáčová – Nicol Polakovičová (National Museum | Department of Anthropology and Human Genetics, Charles University) – Zdeněk Vytlačil – Sylva Drtikolová Kaupová (National Museum)
Format: Poster

Stable isotope analysis is widely used to reconstruct past diets, yet interpretations often assume a direct relationship between consumed foods and isotopic values in human tissues. The potential effects of chronic illness and long-term physiological stress on these biochemical signals, however, remain insufficiently explored, posing challenges for bioarchaeological approaches that seek to understand foodways as embodied and socially differentiated practices. Using a documented skeletal collection from 19th-21st century Bohemia, this study investigates intra- and inter-individual variability of δ13C and δ15N values in relation to disease and physiological imbalance. Using data from 100 individuals, isotopic signatures of short- and long-term metabolic changes are investigated through differences between skeletal elements (rib and femur bone) with different turnover rates. A potential relationship between certain conditions (such as metastatic cancer) and bone isotopic values is suggested, which emphasises the need for increased caution when working with skeletal material from affected individuals. This perspective frames foodways as biocultural processes, where the physiological condition of the body may shape how biomolecular evidence of diet is formed and interpreted.

1989. Mobility, Meals, and Millet: Isotopic Insights from Migration Period Mušov (Moravia)

Authors: Sylva Drtikolová Kaupová (National Museum) – Nicol Polakovičová – Lucia Krnáčová (National Museum | Charles University) – Zdeněk Vytlačil (National Museum) – Zuzana Loskotová (Institute of the Archaeology of the CAS Brno)
Format: Poster

Transient Lombard occupation of South Moravia (CZ) during Migration period represents a particularly interesting episode. Nevertheless, the study of the major burial site at Mušov, uncovered during a rescue excavation between 2022 and 2024, is severely hindered by recurrent waterlogging resulting in extremely poor preservation of skeletal remains. This substantially limits the potential of traditional bioarchaeolgical logical analyses, making isotope analysis one of the few viable approaches for reconstructing individual life histories. The comprehensive sampling of the site resulted in a total of 132 samples for strontium isotope analysis and 115 samples for dietary analysis using stable carbon and nitrogen samples. The mean δ15N value was 9.3 ± 0.8‰, while the mean δ13C value was –19.2 ± 1.1‰. These values, and their comparison with a local faunal baseline dataset, suggest a predominantly terrestrial diet with no substantial contribution of millet at the population level. However, several outliers indicate a marked dietary input of C4 plants. Additionally, apart from multiple non-local outliers, measured 87Sr/86Sr ratios display unusual grouping hinting at potential mobility obscured within the estimated local range. The results are discussed in relation to known biological and social parameters of the buried individuals, as well as within the broader chronological and geographical context of the site.

2507. Of salt, meat, and grave goods: Proteomic investigations of ceramics from Halstatt, Upper Austria

Authors: Manasij Pal Chowdhury (Department of Evolutionary Anthropology, University of Vienna) – Georg Tiefengraber (Naturhistorisches Museum Wien) – Leila Afjehi-Sadat (Research Support Facilities- Mass spectrometry Unit, University of Vienna) – Katerina Douka (Department of Evolutionary Anthropology, University of Vienna)
Format: Poster

Over the last three decades, organic residue analysis has played an important role in the investigation of ancient diet, mostly via the identification of lipid remains trapped in unglazed ceramic vessels. On the other hand, proteins, although able to provide improved taxonomic specificity as compared to lipids, as well as being better suited for identifying important lipid-poor resources like cereals, have been relatively underexplored in this context, due to them being more liable to degradation as compared to lipids. Indeed, only a handful of reports of protein extraction from archaeological ceramics exist, with a majority of the reports focusing on sites with exceptional preservation. However, more recently, proteins have been identified from ceramic fragments belonging to more typical burial environment, and novel and improved extraction techniques focusing on protein extraction has been introduced. The present work analyses archaeological ceramics obtained from the famous salt-mining site of Halstatt in Upper Austria, which also includes an eponymous Iron Age burial ground containing over 2000 burials. In the mine, the salt has resulted in excellent preservation of a large number of organic materials, including textiles, wood, and leather. The ceramics, which included graphite clay pots presumably involved in the preparation of a concentrate from the residue left after salting of meat products, and grave goods from the Iron Age burial ground, were subject to protein extraction using a urea-GuHCl deep eutectic solvent (DES), and the resultant proteins were analysed using liquid chromatography- tandem mass spectrometry (LC-MS/MS) after enzymatic digestion. The proteins thus identified allowed us to directly determine the usage of the ceramic vessels and identify their contents, furnishing us with valuable information regarding the exploitation of various resources by humans in one of the most important Bronze and Iron Age sites in Central Europe.

234 MATERIALITY AND MEANING OF WOMEN'S CRAFTS IN PRE-MODERN SOCIETIES: A DIACHRONIC DISCUSSION ABOUT AGENCY, IDENTITY, AND PRACTICES

Theme: 1. Widening perspectives in material culture studies
Organisers: Ludivine Capra (Université de Strasbourg) – Alexandre Beaudet (Université Laval) – Julia Fileš Kramberger (University of Zagreb) – Ana Senar Sarrat (Universidad de Salamanca)
Keywords: Crafts, Women, Materiality, Identity, Agency, Mediterranean worlds
Format: Regular session

SESSION ABSTRACT

In recent historiography and archaeology, there has been a marked interest in craftspeople and their identities and socio-economic realities. This trend is combined with the progress of studies on gender and women, which has allowed us to consider women's craft activities and, more broadly, their presence and roles in this socio-economic sphere. Despite recent progress, particularly in funerary and textile archaeology, it is a field of research in which we still have many areas to explore and enrich our understanding of ancient societies. However, this is a difficult subject to approach due to the nature of material evidence and it's relation with craftspeople. We therefore propose this session to bring together researchers examining women's craft practices and to deepen our understanding of their identities and agency through the materiality and meaning of these activities, including artefacts and gestures. Our research questions should consider, but are not limited to, craft representation, tools and their context, waste, but also workspaces, as well as traces on objects and traces on human remains (work-related illnesses, for example). These objects should be regarded as valid testimonies of past societies, as they carried their own biographies, reflecting local traditions, movement of people and ideas, and social relationships. For example, tools offer insight on their production, but also on their symbolic meaning when deposed in graves or posthole or wrought in prestigious material. We thus seek to analyze any form of female artisanal activity across a wide variety of archaeological settings. The purpose of this session is to review the current state of research on this topic, share questions, difficulties, and advances. We deliberately encourage an interdisciplinary and diachronic approach to enrich the dialogue with comparisons and methodological exchanges. Accordingly, we would like to invite papers focusing on women and their relation to crafts in pre-modern societies.

CONTRIBUTION ABSTRACTS

1106. A day in the life of a loom-weight

Authors: Janja Mavrovic Mokos – Julia Fileš Kramberger – Franka Ovčarić (Faculty of Humanities and Social Sciences, University in Zagreb)
Format: Oral

Loom-weights found in burial contexts are often seen as symbols of femininity and textile craft, and their number in such highly staged closed contexts does not necessarily reflect their use during the everyday life of a certain community. Nevertheless, finds of loom-weights within settlements imply their direct utilisation on a daily scale, giving depth to everyday women's activities. The nuance in the interpretation of such finds comes from closed, settlement contexts where rows of in situ weights imply the exact position of a weaving loom, while several groups of loom-weights in a single structure reveal organised production and possible specialised workshops. The picture is further broadened by large quantities of singular loom-weights found in settlement layers, but outside of closed contexts, and by objects traditionally interpreted as loom-weights found in contexts not associated with weaving, such as hearth surfaces. This paper discusses several examples of mostly pyramidal loom-weights of varying sizes found in different closed contexts within Late Bronze Age and Early Iron Age settlements in north-western Croatia. Among the more intriguing are different loom-weights found on hearths, in refuse pits and post holes, or on a smithing hearth. Also, the aim of this contribution is to show that traditional interpretation of such tools can be strengthened, or possibly questioned, based on the position of their discovery. Further examination, analysis and comparison of such finds in contexts helps distinguish societies' habits of daily improvised use, recycling, and discarding of every-day (weaving) tools. If weaving is viewed as a mainly female craft, and textile production implements as women's symbols, different find locations of loom-weights in archaeological contexts may shed light on how women might have interacted within a certain community and how their everyday life, activities and crafts might have left a mark on settlement remains in archaeological contexts.

2775. Activity-Related Skeletal Changes, Spindle Whorls, and Needles in Classic Maya Burials

Authors: Alizé Lacoste Jeanson (Universidad Nacional Autónoma de México)
Format: Oral

This communication presents the results of an analysis of more than 300 individuals buried at ancient Palenque-Lakamha' (Chiapas, Mexico), a major center in the Classic Maya Northern Lowlands. The study explores the relationship between activity-related skeletal changes (ARSCs)—understood as osteological consequences of biomechanical loading—and social identity as expressed in mortuary treatment. Classic Maya funerary practices display considerable variability, including differences in decomposition environments, container types, skeletal articulation, type of deposit, grave goods, and body position. Much of this diversity has been interpreted as representing distinct stages within broader mortuary sequences, in which the living re-entered burial contexts to perform post-inhumation rituals. In several burials, spindle whorls and needles were recovered. In contemporary Highland Chiapas communities, it remains customary to inter individuals with objects associated with their daily activities, such as tools linked to gendered labor like textile production. This ethnographic parallel raises questions about the meaning of such artifacts in Classic Maya mortuary contexts. By examining the distribution of ARSCs potentially associated with repetitive movements related to backstrap loom weaving and traditional embroidery, and comparing these patterns with the presence of textile-related implements in burials, this study evaluates whether such objects reflect ritual symbolism or habitual labor and socially constructed identities. Integrating osteological and contextual data provides a more nuanced understanding of the relationship between embodied labor, material culture, and mortuary practices in ancient Maya society.

852. Women and Craft Service in the Frankish World (6th–10th Centuries): A Transdisciplinary Approach

Authors: Alexandre Beaudet (Université Laval | Université du Québec à Chicoutimi)
Format: Oral

Early medieval charters and polyptychs frequently depict women in contexts of unfreedom, owing services related to textile production. This is particularly evident in regions where the manorial system was more highly developed. Law codes likewise often refer to unfree women as textile workers or as being attached to various forms of domestic service. The historiography on this subject is substantial; however, recent archaeological research has shed new light on the material conditions associated with unfreedom and personal service. Burial practices are especially revealing. Graves are frequently found outside formal necropolises and cemeteries, often in connection with farms or manorial courts (curtes). These funerary patterns point to a range of social dynamics, frequently linked to family structures and land-use practices. However, in some cases the burial groups appear to correspond to service communities with a marked overrepresentation of women and young individuals. This pattern is particularly evident when graves are located in artisanal zones or near storage concentration. A few sites even suggest evidence of violent treatment and work-related illnesses among these individuals. This contribution therefore aims to compare what can be learned about the condition of women engaged in craft service through a comparative analysis of three distinct corpora: charters, legal texts, and funerary archaeology.

397. Mediterranean signature and technological crossroads: an example of the singular textile assemblage of Early Iron Age Salamanca

Authors: Ana Senar Sarrat – Juan Padilla Fernández – Antonio Blanco González (Universidad de Salamanca) – Cristina Alario García (Independent researcher) – Carlos Macarro Alcalde (Salamanca City Council)
Format: Oral

The Early Iron Age settlement of Cerro de San Vicente (Salamanca, Spain) represents a pivotal node for understanding the socio-economic dynamics of the Northern Iberian Plateau and the westernmost end of the Mediterranean. This contribution explores the site's role in articulating exchanges between Atlantic and Mediterranean spheres, focusing on its specialized textile industry and the circulation of technical know-how. The archaeological record reveals a singular assemblage of textile tools, notably bone spindle whorls and crescent-shaped ceramic loom weights. These typologies indicate tangible links with Mediterranean influences, including the Valencian Bronze and the Argaric periphery. We argue that these items signify not just the trade of commodities, but the mobility of artisans and the transmission of specific crafting techniques. A central thesis of this presentation is that such interactions were facilitated by a multi-modal connectivity network. Beyond Phoenician maritime influence via Atlantic enclaves like Santa Olaia (Portugal), we emphasize the role of fluvial corridors—specifically Duero-Ebro axis—as primary arteries for inland penetration. Combined with transhumance routes, these waterways allowed Cerro de San Vicente to emerge as a dynamic hub where technological hybridity catalyzed a textile industry fundamental to the region's economic development.

1380. Spindles and Steeds: Craft, Mobility, and Cultural Networks in Early Iron Age Veneto

Authors: Ronak Alburz (University of Melbourne)
Format: Oral

Weaving tools deposited in female burials of Early Iron Age Padua reveal more than textile production: they indicate forms of ritual and social authority, positioning women as holders of symbolic power across the Upper Adriatic and western Pannonian regions. The occasional presence of grave goods signaling long-distance connections alongside these tools further points to women's role as mobile agents in the transmission of techniques and broader cultural practices. Given the underrepresentation of men in Padua's funerary record and the absence of warrior or elite male graves, these patterns raise questions about the social mechanisms through which new cultural forms—including the emergence of horse-related practices—were introduced. Drawing on a case study from Veneto, this paper explores how female mobility associated with textile production may have intersected with the circulation of horses, as horse burials appear contemporaneously with textile-associated female graves. By analyzing the spatial and material contexts of textile tools alongside objects of foreign origin, the study uses weaving as an interpretive lens to investigate broader processes of cultural change, linking craft production, human mobility, and the circulation of animals in Early Iron Age northern Italy.

2764. Women, Textiles, and Social Display in Bronze Age Southwest Asia: Agency from Workshop to

Wardrobe

Authors: Zahra Kouzehgari (CNRS – Université Lumière Lyon 2, Archéorient)
Format: Oral

Textiles were among the most consequential commodities of Bronze Age Southwest Asia (ca. 3300–2000 BCE), yet the archaeological visibility of textiles themselves is limited. This paper reconstructs the materiality of women's textile crafts through a synthesis of administrative texts and iconographic evidence, asking how women's labor in textile production shaped economic structures and how clothing practices materialized gendered status and identity. From Late Uruk and Jemdet Nasr seal imagery of female groups engaged in spinning and weaving to Ur III archives documenting large-scale institutional workshops, the evidence consistently associates textile manufacture with women's labor—organized in teams, hierarchies, and, in some cases, supervised by women holding administrative authority and seal use. At the same time, visual representations of dress (smooth mantles, kaunakes, striped/pleated textiles, tasselled and crossed-back garments) reveal how crafted textiles operated as technologies of social display within temple and court settings. By bringing together production records and the visual grammar of garments, the paper argues that textiles functioned as a medium through which women's craft practices were embedded in political economy and transformed into visible markers of role, rank, and belonging. The study contributes a diachronic perspective on women's agency as both producers and socially significant users of crafted textiles in pre-modern societies.

2774. Tangled Webs: Craft, Women's Labor, and Economy Agency in the Textile Industry of Classical Greece

Authors: Katherine Harrington (The University of North Carolina at Greensboro)
Format: Oral

Ancient Greek women engaged in myriad forms of labor throughout their lives, yet most studies of the ancient economy ignore or downplay the social and economic importance of that work, much of which was unpaid. This paper argues that the reliance of scholars of the ancient economy on traditional approaches to the modern economy—which strongly emphasize the role of the market—have contributed to the continued downplaying of the importance of women's roles in activities like care work, household management, craft production, and food production. Feminist economists, in contrast, have long sought to expose the importance of various forms of "invisible labor" that often fall to women in the modern world. This paper calls for a similar rethinking the ancient economy by recognizing the economic value of women's labor, its potential to scaled up to generate income, and the widespread participation of ancient Greek women in the market economy. I argue that the particular trajectory of the development of Classical Archaeology has "invisibilized" the critical social and economic contributions of women's craft production in ancient Greece. I will focus in this paper on textile production because of its strong association with women in the textual and visual records. In particular, I assert the critical role of material and archaeological evidence in illuminating women's economic agency in this craft by examining change through time in several case studies from Athens, Olynthos, and Nisi-Eleutherna.

2342. Women and Lead Craft in the West of the Roman Empire (1st-3rd centuries A.D.)

Authors: Ludivine Capra (Université de Strasbourg)
Format: Oral

Aurelia Vernilla, the only woman whose name is associated in her epitaph with the profession of plumbaria, lived in Dalmatia between 300 and 600 AD. In the western provinces of the Early Roman Empire, there is no mention of any plumbaria, yet several dozen women's names were stamped, once or several times, on lead pipes in Italy and Roman Gaul. Modern researchers do not all agree on how to interpret the presence of these feminine names on the craft products. What roles did the women in question play in the production of lead items? Were they plumbariae, i.e. manufacturers, or workshop managers supervising production, or were they workshop owners with a purely financial role? We will also look at the identity criteria of the women whose names have been found stamped on lead pipes through onomastic studies. Thus, through the analysis of known stamps and the comparison of our corpus with stamps bearing male names, as well as with other types of sources (literary, legal and archaeological), our objective will be to identify the different craft practices that women may have been involved in during lead production. This approach based on the remaining material evidence of these activities will permit us to better understand Women's Agency in Roman crafts.

2782. Representations of feminine technai in Italiote ceramics: musicians, acrobats, and weavers

Authors: Maiwenn Tonna (University Paris-Nanterre)
Format: Oral

Although largely confined to the roles of wife and mother, women also participated in various crafts and performing arts. Numerous vases produced in Magna Graecia between the late fifth and late fourth centuries BCE depict technai associated with the female sphere of activity, particularly music and acrobatics. While the art of weaving is not explicitly represented on this pottery—unlike on Attic vases—it is subtly evoked through significant details such as spindles, kalathoi, and embroidered fabrics. Certain objects discovered in archaeological contexts further attest to these activities. The depiction of these technai also enabled vase painters to display their own artistic skill and to develop a form of visual reflexivity. Several aesthetic principles are shared between the potter-vase painter and these feminine technai, particularly the pursuit of precision. This concern is evident in the meticulous rendering of embroidered textiles, musical instruments, and the carefully articulated gestures of the women portrayed. Moreover, certain arts are conceptually linked through shared tools, such as the potter's wheel. The evocation of feminine technai is likewise common in the figurative arts and contemporary poetry. In poetic discourse, motifs such as weaving and braiding frequently carry metaphorical meaning: weaving is associated with cunning, while braiding evokes the interlacing of words to compose verse. Major female poets engaged directly with these themes, including Erinna in the fourth century BCE in her poem Ἠλακάτη ("The Distaff") and Nossis of Locri in the early third century BCE in her epigram dedicated to Hera, both of whom foreground spinning and weaving in their works. This paper examines representations of musicians and acrobats, as well as motifs alluding to weaving, in order to better understand the vase painters' sustained interest in these feminine technai.

1860. Spinning stars: Rethinking star-shaped spindle whorls in the Sava river valley and further

Authors: Julia Fileš Kramberger (University of Zagreb)
Format: Poster

Star-shaped spindle whorls are a rare and typologically unusual group of textile related tools in prehistoric Europe, and their function and meaning are still subject to speculation. In Iron Age Donja Dolina in Northern Bosnia and Herzegovina, as many as 17 such objects were found, which is a relatively unique situation in the region, where such finds are much more uncommon, if existent at all. Although similar finds have been recorded in archaeological collections in Bosnia and Herzegovina, Croatia, Slovenia, Italy and further afield in Europe, their bigger number and concentration in Donja Dolina would imply a local production center at this settlement, while the finds from neighbouring sites could be interpreted as reflections of communication and exchange networks. Additionally, similarities to star-shaped glass and amber beads in the broader region might suggest further stylistic and symbolic dimensions of such objects. Finally, the star shape, although visually appealing, might not have been strictly decorative or symbolic – and further functional interpretations of the shape while spinning are discussed in this paper. Such layered interpretation of star-shaped whorls transforms these objects into active elements of social and cultural processes in Iron Age Europe.

235 UNTIMELY DEATHS: CHILDREN'S BURIALS IN EARLY AND LATE ROMAN PERIOD

Theme: 1. Widening perspectives in material culture studies
Organisers: Marko Jankovic (University of Belgrade - Faculty of Philosophy, Department of Archaeology) – Lujana Paraman (Trogir City Museum)
Keywords: Burial customs, Roman and Late Roman burials, Archaeotanatology, Bioarchaeological analyses, Children burials
Format: Regular session

SESSION ABSTRACT

More often than not, burials of the children are different than those of the rest of the population. Special treatment of children is well documented in the Roman-era necropolises across the Empire. However, in the Late Roman period, especially with the emergence of Christianity and the changes in practices that accompanied it, our knowledge of burial customs becomes somewhat unclear. Children's burials, especially infant ones, are documented more rarely in the Late Roman period than in previous ones. Reasons for this vary; sometimes infant burials, simple as they are, are not recognized in the archaeological record, and in many cases, they are damaged while the necropolis is still in use. Finally, plain burials with no grave goods are rarely fully published, and we are often denied information about their archaeological context or bioarchaeological data. When it comes to interpretations, that is where the situation becomes even more complicated. Different customs and beliefs (Roman or Christian) are usually interpreted on the basis of similar archaeological situations occurring at the same time. If we are to understand the reasons behind such treatment of the youngest members of the population, we need to obtain more information. Bioarchaeological data, analyses of archaeological contexts, and archaeological or ethnographic analogies can give us only a glimpse of a solution, if done separately. The archaeotanatological approach, increasingly used in recent years, could be a useful path for understanding issues of special treatment in death, but it should be understood solely as a methodological tool, not as interpretation itself. The session is planned to bring together different approaches to children's burials and to initiate a discussion among scholars addressing these issues in various contexts, all with the aim of proposing the best possible solution for understanding burial customs in the Roman, Late Roman, and/or Early Christian period.

CONTRIBUTION ABSTRACTS

440. Mors Immatura – Continuity and Change in Burial of Children in Southern Liburnia

Authors: Zrinka Serventi (University of Zadar)
Format: Oral

Roman burials relied heavily on superstitions and common beliefs and various social structures and cultures approached death in different ways. However, among them children were often treated differently, both in life and in death. Death of a child was in Principate period considered to be mors immatura, an early death of a person not reaching its full potential, and rites for such burials were adapted accordingly. Indication of a different approach towards children can be detected for the Iron Age as well, with different types of burials, rituals and locations, while in Late Antiquity children were perceived in a new way, they were more often buried in graves and locations of greater significance, which can, among other reasons, be connected to religious changes. This special approach to children has been attested in many territories, and Liburnia, the territory spanning from rivers Raša to Krka in the Eastern Adriatic, was no different. Therefore, this paper shall present Roman burials of children in the territory of Southern Liburnia, area which is often regarded as the heart of the autochthonous Iron Age population of Liburni. Those burials will be analysed in the context of changing political, religious and social circumstances and compared to the Iron Age burials, which predated them, in order to define patterns, variations and continuities in burial rituals present in the transition period. These finds, with particular focus on one of the most important necropolises in Southern Liburnia, that of Iader, will also be compared to the relevant Late Antiquity contexts. The analysis will also be articulated within the research conducted for the interdisciplinary scientific project "Transformation of South-Liburnian Territory in Early Antiquity".

2511. A Glimpse into the Life and Death of Young Children in Roman Tragurium (Central Dalmatia, Croatia)

Authors: Lujana Paraman (Trogir City Museum) – Anna Osterholtz (Mississippi State University) – Mario Novak – Mario Carić (Institute for Anthropological Research, Zagreb)
Format: Oral

The modern city of Trogir (ancient Tragurion/Tragurium) is a UNESCO World Heritage Site located on the eastern Adriatic coast in present-day Dalmatia. During the Roman period, Tragurium was an urban settlement administered by the neighbouring provincial capital of Salona. The city flourished as a trading centre, relying on salt and stone production, as well as agricultural output from the Roman villa system within the centuriated territory of the Tragurium agglomeration. Rescue excavations conducted over the past two decades have yielded more than 150 Early to Late Roman period burials (both cremations and inhumations) from two sites within the city proper: the communal necropolis of Tragurium (50 BCE–600 CE) and a nearby private cemetery associated with a Roman villa (50 BCE–400 CE). Both cemeteries contain an unusually high proportion of non-adult burials, with a predominance of infant and perinatal individuals exhibiting exceptionally high frequencies of pathological changes consistent with metabolic diseases such as rickets and scurvy. These findings prompted an ongoing interdisciplinary research project employing multiple analytical approaches. This presentation explores the archaeological and pathological context of these burials, alongside results from genetic and isotopic analyses and elemental lead testing, which together begin to illuminate patterns of life and death in Roman Tragurium. The integration of archaeological evidence with non-destructive palaeopathological and chemical analyses provides unique insights into childhood health, mortality, and changes in burial practices associated with young individuals throughout the Roman period in Tragurium.

1088. The children of the island – A multi-analytical study of Roman period subadult burials from Cres Island, northern Adriatic

Authors: Mario Novak (Centre for Applied Bioanthropology, Institute for Anthropological Research | University of Primorska) – Matija Makarun – Dalibor Branković (Arheo Kvarner) – Katarzyna Talarczyk (Poznan University of Medical Sciences) – Mario Carić (Centre for Applied Bioanthropology, Institute for Anthropological Research)
Format: Oral

In 2022, the protective archaeological excavations of the Miholašćica settlement agglomeration on the island of Cres revealed the presence of architectural remains of a Roman period building dated to the 1st/2nd century CE. The purpose of the building, either commercial or residential, has not been resolved with certainty, but it probably represents a Roman villa rustica. Two inhumation burials were discovered in the immediate vicinity of the object, and it seems that the individuals were buried after the building lost its primary function. Grave 1 contained the remains of two subadults (3.5-4.5 years and 8-10 years of age) while grave 2 contained the remains of two adolescents (12-16 years and 16-18 years of age). By using a multi-analytical approach consisting of direct AMS dating, conventional bioarchaeology, C/N stable isotopes analysis as well as ancient DNA analysis we aim to reconstruct the general health, diet and genetic affinity of the individuals from Miholašćica. The comparison with similar contexts from wider Adriatic and Mediterranean areas will shed more light on the issue of subadult burials from the Roman period, especially those from insular contexts, but will also provide more information about everyday lives of children, the most vulnerable group in Roman society.

1140. Untimely deaths at Jagodin Mala Necropolis: Children burials from 2023 excavation campaign

Authors: Marko Jankovic (University of Belgrade - Faculty of Philosophy, Department of Archaeology) – Gordana Jeremić (Institute of Archaeology, Belgrade) – Aleksandar Aleksić (Institute of Protection of the Cultural Monuments of the City of Niš)
Format: Oral

The necropolis of Jagodin Mala was the urban necropolis of the Roman city of Naissus (southeastern part of modern-day Serbia), used during the period of the 2nd-6th century CE. The first burials were detected in the second part of the 19th century, and

archaeological excavations have been conducted since the 1930s. In more recent times, the part of the city where the necropolis once stood is under massive construction of new buildings and city infrastructure, so the protective excavations at the necropolis are way more common than ever before. In 2023, a plot of land has been prepared for constructing a new building, and protective excavations were underway, documenting 122 burials at the place. The remains of 85 deceased individuals were excavated and analyzed, and more interestingly, 38 % of the total number of the buried were remains of the subadults (up to 15 years old). For the purpose of this paper, the four youngest burials (<1yo) will be addressed. Previous archaeological analyses show different treatment of newborn and young children in the Late Roman Period – they are usually buried in a shallow pit, rarely with objects, and sometimes close to each other in what could be understood as a "child-areas" at necropolises. It is our intention to scrutinize those burials from Jagodin mala in order to detect potential differences with the rest of the burials and to try to give an explanation why they deserved such treatment in death and how that was connected to how they lived.

1538. Some remarks on the burials of children in Naissus (Niš, RS)

Authors: Gordana Jeremic (Institute of Archaeology, Belgrade)
Format: Oral

The necropolises of Roman and late antique Naissus, an economically and strategically important city in the interior of the Balkan Peninsula, represent one of the best-researched areas to date. However, much data on burial forms and the deceased themselves is missing due to the unavailability of the material. Analysis of human osteological materials from city necropolises has only been carried out since the 2000s, whereas research conducted from 1932 until then has at our disposal incomplete field and technical documentation, as well as the inventory of graves in the museum depot. Bearing in mind all the challenges that incomplete, sometimes unverifiable data from the excavations of the Naissus necropolises offer, we will attempt, by establishing a preliminary methodology, using researchers' notes on preserved skeletal remains, photographs, drawings, small-sized jewelry belonging to deceased, to reconstruct the dynamics of child burials, especially in the area of its eastern city necropolis of Naissus in Jagodin Mala. The available material, although insufficient, nevertheless provides insights into the different forms of burial of deceased children in Naissus, the treatment of their bodies, as well as social expression. Among the burial forms, isolated burial areas within a necropolis, individual or group burials, family graves and tombs have been recorded. A special variant consists of burials within the largest cemetery basilica, where both material (lead children's sarcophagi) and epigraphic evidence of child burials are present. Archaeological data provide insight into the equal treatment of deceased children with other buried persons. Although the arranged city necropolises in Naissus, mainly along the main roads, were in use from the second half of the 1st century to the beginning of the 7th century, most of the data comes from the period of the 4th and 5th centuries, at a time when the Christianisation of the city population were noticeable.

1934. Bioanthropology of children's burials at the Late Roman Site of Remesiana–East Necropolis

Authors: Tamara Sarkic (Center of Bone Biology, School of Medicine, University of Belgrade)
Format: Oral

Archaeological excavations conducted between 2018 and 2023 at the Late Roman necropolis of Remesiana–East Necropolis (province of Dacia Mediterranea, present-day Serbia) provide important insights into childhood, family structure, and health in Late Antiquity. The necropolis is dated to the 4th century AD, and its funerary architecture predominantly reflects family-based burial practices. A striking feature of the site is the exceptionally high mortality rate among children: more than half of the documented graves belong to individuals who died in early childhood. Children's remains were identified in a variety of burial contexts, including simple inhumations directly in the soil, burials within brick or stone-built tombs, and double burials with adults in monumental tomb constructions. The diversity of burial treatments suggests differentiated funerary practices for children, potentially reflecting age, familial relationships, or social considerations. This study adopts a bioarchaeological and archaeothanatological approach to examine childhood at Remesiana, focusing on the spatial distribution of child burials within the necropolis, body positioning, and funerary treatment, with particular emphasis on double burials involving adults. Bioanthropological analysis addresses demographic structure and paleopathological conditions, revealing numerous macroscopic indicators of infectious and dental diseases. In addition, the paper will discuss preliminary aDNA analyses providing new data on the biological sex of children and patterns of kinship across the cemetery, offering valuable insights into family organization. Together, these data illuminate the biological findings, social positioning, and mortuary representation of children in the Late Roman provincial context at Remesiana.

2687. Untimely Ends: Decapitation and Fragmentation Treatment among Non-adults in Western Late Roman Britain

Authors: Shaheen Christie (Terracon Consultants, Inc.)
Format: Oral

Archaeological studies of Romano-British mortuary practices demonstrate significant temporal and regional variation across in Roman Britain (1st – 5th centuries CE). The nuanced body of literature produced in the past twenty years has identified alternative funerary practices associated with the disruption of the integrity of the body and its position or placement, and location of the burial at differing stages of the Roman funerary process. This research explores bioarchaeological, taphonomic, and mortuary data from Late Roman period (2nd – 5th centuries CE) sites in central-western Britain where decapitation burials were recorded, totaling 122

decapitation (8%) and 1,424 (92%) non-decapitation burials. While the majority of the dead in Late Roman Period Gloucestershire and Oxfordshire were of adult age, non-adults experienced the rite as well. Results show both age groups were treated similarly to the non-decapitated population. These findings challenge interpretations that frame the application of decapitation or other alternative burial rites as evidence for social marginalization, and suggest instead that decapitated individuals, including non-adults, were more likely regarded as community members with identities similar to those of the wider population, and more broadly, communities across Roman Britain regarded select elements of the body with special significance as salient objects in the management of the dead.

236 GEOARCHAEOLOGY OF DOMESTIC CONTEXTS

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Cristiano Nicosia (Università di Padova) – Manuel Arroyo-Kalin (University College London) – Federico Polisca (Università di Padova | Università di Bologna)
Keywords: geoarchaeology, domestic contexts, household archaeology, daily practices
Format: Regular session

SESSION ABSTRACT

Archaeologists excavate the material remains of houses (i.e., the "dwelling units" of household archaeology), engaging themselves with past individuals, their practices, and their day-to-day domestic lives. Houses embody fundamental social, economic, and ritual aspects that reflect the life of communities, possessing a life history – a "biography" – that is a direct reflection of the life histories of their inhabitants. The geoarchaeology of domestic spaces offers a powerful means of investigating the material traces of everyday life through the study of sediments found within houses. The artefactual assemblage of domestic contexts, in fact, often provides a picture of the abandonment or post-abandonment scenarios, rather than of the life phases of a house. On the contrary, the domestic stratigraphic record is the result of the prolonged sedimentary accretion within a house, as it derives from the continued build-up of construction debris, hearth rake-out, waste, food processing residues, excrements and bedding for animals, floors, backfill, trample imported from outside, etc. Even when domestic surfaces are maintained, as for example by periodic sweeping, the study of waste heaps or rubbish pits provides essential information on the activities and, ultimately, the palimpsest of practices that were performed in the domestic space. This session welcomes contributions from any geographical region that employ the methods and approaches of geoarchaeology in the field and in the laboratory. From micromorphology to spatial analysis, from biomarker analysis to geochemistry this session will favour presentations that adopt a multi-proxy approach and that feature a strong link between the field/excavation scale and the microscale.

CONTRIBUTION ABSTRACTS

2124. Tracing daily routines across the floor of the Late Hallstatt Building 24 at Pungrt Hillfort, Slovenia: an integrated geoarchaeological study

Authors: Luka Gruškovnjak – Agni Prijatelj – Petra Vojaković (University of Ljubljana) – Jaka Burja – Barbara Šetina Batič (Institute of Metals and Technology, Slovenia) – Manca Vinazza (University of Ljubljana) – Rok Brajkovič (Geological Survey of Slovenia) – Tjaša Tolar (Institute of Archaeology ZRC SAZU) – Helena Grčman – Matija Črešnar (University of Ljubljana)
Format: Oral

Since the development-led excavations in 2020 and 2021, the proto-urban hillfort of Pungrt above Ig, located in the vicinity of the Slovenian capital, Ljubljana, has rapidly gained recognition as one of the most important Early Iron Age sites in Slovenia. The largest excavation of any hillfort settlement in Slovenia was accompanied by extensive geoarchaeological sampling of various buildings, with clearly discernible floor sequences, as well as open-area surfaces across the best-preserved areas of the site. The two sampling strategies employed at the selected buildings included vertical micromorphological sampling of exposed sections and horizontal grid sampling for micro-refuse and physico-chemical analyses. In this paper, we examine insights into daily activities and the structured use of space provided by an integrated geoarchaeological approach in one of the buildings studied, namely Building 24. In this case study, we will present the results of a detailed analysis of a single house floor level. The geoarchaeological methods employed include micromorphology, physico-chemical analyses (multi-element analysis, magnetic susceptibility, soil parameters), and micro-refuse analysis. The latter involved several analytical techniques, including petrography, metallography, multielement analysis, and SEM-EDS, coupled with metallurgical, geological, zooarchaeological, and archaeobotanical analyses. The results of micro-refuse and physico-chemical analyses of samples collected across the floor surface were then subjected to spatial analysis using kriging interpolation and complemented by micromorphological and physico-chemical analyses of samples collected from the exposed floor sections. This approach enables a detailed reconstruction of domestic and craft activities, floor maintenance practices, and the structured use of space within the building. Based on the results, we will compare and contrast, on the one hand, the data from macro- and micro-archaeological approaches and, on the other hand, the data from different micro-archaeological approaches employed in the studied household context.

2349. Bronze age domestic contexts in northern Italy: an inter-disciplinary approach

Authors: Cristiano Nicosia (Università di Padova) – Federico Polisca (Università di Padova | Università di Bologna) – Elisa Dalla Longa (CNR - Istituto di Scienze del Patrimonio Culturale) – Maria Sofia Manfrin (Università di Milano) – Francesco Breglia (Università di Padova)
Format: Oral

Research on selected domestic contexts dating to the Bronze Age was carried out in the framework of the ERC-funded GEODAP project (Geoarchaeology of Domestic Practices). Of all the context studied across several European countries by this project, we focus our attention on two sites: Oppeano - Via Isolo '4D' and 'La Muraiola' di Povegliano Veronese. Both sites are located in the Verona province in NE Italy (Veneto region) and date to the Middle Bronze Age. An inter-disciplinary research protocol was applied to these sites, in which excavation data were integrated with micromorphological, archaeo-botanical, geochemical and archeo-zoological analyses. Detailed information was gathered on both domestic activities and on animal husbandry techniques. These two forms of space use appeared to be very intimately connected in the daily life of two Bronze age site. This presentation aims at stimulating discussion on how such an interdisciplinary approach can change our perception of everyday life, of human-environment interactions, and of daily repeated gestures in two excavated sites of the Bronze Age.

2464. The microstratigraphy and micromorphology of houses in the Gumelnița tell settlement at Bordușani Popină, Romania

Authors: Constantin Haita (National Museum of Romania History)
Format: Oral

The stratigraphy of tell-type settlements from south-eastern Romania, attributed to the Kodjadermen - Gumelnița - Karanovo VI complex, is characterized by a succession of multiple layers of occupation (up to 12 meters at Hârșova Tell) and a well-organized area of occupation. The site from Bordușani Popină is located in the floodplain of Balta Ialomiței, in the form of a mound with about 9 meters of Eneolithic deposits, dated to the second half of the Vth millennium BC. The microstratigraphy consists of sequences interpreted as built spaces, passage areas, and waste zones. The micromorphological analysis, consisting of thin-section interpretation at the microscopic scale of sediments and soils in an undisturbed state, was performed on the same principles as the microstratigraphic study and allowed the interpretation of the identified sedimentary facies in terms of formation processes and anthropogenic activities. The house structures are characterised by thin-layered floors and very fine plasterings and units of accumulation and transformation, interpreted as construction-fitting-out-occupation sequences. Areas with a specific mode of occupation were identified in some dwelling structures, interpreted as zones for everyday activities, passage, or resting. In this paper, the dwelling structures recorded on the stratigraphic profile of the site's complete sequence and their interpretation, in terms of construction materials, mode of preparation, fitting out, and anthropic activities, are presented in correlation with studied cases from other tells in Romania. The detailed stratigraphic and chronological framework is correlated with possible natural and anthropogenic factors of human-environment co-evolution.

2794. Soil field and laboratory analyses as an approach to early medieval houses in Northern France

Authors: Kai Fechner (INRAP Hauts-de-France | CNRS/ UMR 7041 ARSCAN Archéologies environnementales) – Frederic Broes (INRAP Hauts-de-France) – Clara De Clercq (INRAP Hauts-de-France)
Format: Oral

Since 2007, soil scientists have investigated several hundred medieval domestic structures — including houses and sunken-featured buildings (so-called pit dwellings) — across northern France. Both in situ pedological observations and laboratory-based analyses, including portable X-ray fluorescence (pXRF) measurements, have contributed to the development of a more systematic and rational methodological framework for the study of these archaeological contexts. This communication presents, for the first time, a comprehensive synthesis of our results, with the aim of refining the functional interpretation and typological classification of these architectural units. Macro- and micromorphological observations deliver rare occasions to compare the soil science approaches with results from bioarchaeology, especially by the study of phytoliths, spheruliths and to a certain extent, parasite eggs. Although cases of clear in situ pollution with animal dung (Marnay-sur-Seine, …) are rare, they do not exclude the possibility of external input, for example by accumulation of dung away from the actual stabulation area. In some cases (e.g. Pfettisheim or Mericourt), a detailed synthesis with all the intervenants even shows clear cases of strictly post-depositional pollution.

1617. Kition-Bamboula: Micromorphological insights into the use of space during the Classical period (Cyprus)

Authors: Pantelitsa Mylona (Department of Antiquities, Republic of Cyprus) – Sabine Fourrier (CNRS-HiSoMA, MOM, Lyon | Archaeological mission of Kition) – Pauline Maillard (University of Basel | Archaeological mission of Kition) – Alexandre Rabot (CNRS-HiSoMA, MOM, Lyon)
Format: Oral

The ancient city of Kition (modern Larnaka), on the south-eastern coast of Cyprus, was founded at the end of the Late Bronze Age (13th century BCE) and it thrived as the capital city of a major Cypriot kingdom throughout the Iron Age. The site of Bamboula, located to the west and south of a natural harbour basin, experienced major transformations during the Classical period (5th-4th centuries BCE), especially linked to the construction of the shipsheds of the military harbour. Recent excavations on the western site of the basin (Sondage 11) revealed an intricate occupational history, with a series of pits and trenches, which document a succession of refuse, levelling and refilling processes in a short time span (4th century BCE). The interpretation of these levelling operations, of their relations with the former constructions in the area, as well as the provenance of the refuse materiel (among which a remarkable series of administrative Phoenician ostraca) are of primary importance to understand the nature and extension of the transformations experienced by the site in the Classical period. In order to answer the questions related to the use of space and the site formation processes, a geoarchaeological study was applied using soil micromorphology. Five thin sections from five sampled areas within Sondage 11 were analysed. The results indicate an environment predominantly shaped by human activity, including the destruction of earthen architectural features and the intentional deposition of sediments and hearth-related refuse. Trampling features are expressed across several microstratigraphic units, with varying intensity throughout the sequence. A constructed formal floor was identified in the southwestern area, exhibiting at least six distinct phases of maintenance.

1035. A soil micromorphology approach to early Neolithic pit-dwellings at Međureč, Serbia

Authors: Lyndelle Webster (Austrian Archaeological Institute) – Aleksandar Milekić (University of East Sarajevo) – Slaviša Perić (Institute of Archaeology, Belgrade)
Format: Oral

The nature of the dug-in structures or pit-houses typical of early Neolithic Starčevo settlements has long been a subject of debate. One avenue to improve our understanding of how this architecture was used, re-used and abandoned, is to apply a geoarchaeological approach, aimed at unlocking the micro-scale evidence held within the sediments. Međureč is a small Starčevo site near the Middle Morava valley and comprises just a few structures (as indicated by geophysical survey), of which one pit dwelling was excavated in 2007. As part of new excavations, resumed in 2025, we are using thin section micromorphology, integrated with other microarchaeological techniques, to study the deposits associated with the construction and use of the pit-dwellings, as well as the post-depositional processes that followed abandonment. In this paper we discuss our methodology and present initial results. The study forms part of a larger project ("NEOSOL") that seeks to elucidate lifeways within multiple large and small early Neolithic settlements along the Vardar-Morava river corridor using soil micromorphology.

239 DEPOSITION ON BRONZE AGE AND IRON AGE SETTLEMENTS

Theme: 1. Widening perspectives in material culture studies
Organisers: János Gábor Tarbay (Hungarian National Museum, HNM Public Collection Centre) – Kamil Nowak (Austrian Academy of Sciences) – Florin Gogâltan (Romanian Academy Institute of Archaeology and Art History) – Ondřej Chvojka (University of South Bohemia in České Budějovice)
Keywords: Bronze Age, Iron Age, Settlements, Hoards, Space, Built environment
Format: Regular session

SESSION ABSTRACT

During the Bronze Age and the Iron Age, deliberate deposition within settlements manifests in many forms. The built environment could serve as a setting for metal hoards, carefully arranged sets of ceramic vessels, animal and human remains, foundation offerings in post-holes, deposited raw materials and by-products from specific workshops, stored food and collections of tools from various craft activities, among others. These are all archaeological remains of various activities and events in the settlement's life cycle left by its inhabitants who often cohabited and likely interacted with the hoarded environment. But why did this happen? How does deposition within settlements appear, if it appears at all, across different periods, cultural groups and areas of Europe? To what extent do flat settlements differ from fortified hilltop centres in terms of hoarding practices? Can we reliably distinguish settlement waste from deliberately deposited hoards? How many forms could it take and how can we interpret them? Are there preferred zones for specific depositional activities? What methodologies should we use to research these phenomena? The session invites papers on new discoveries, as well as theoretical and methodological presentations, especially those with multidisciplinary approaches, that discusses deposits within the context of settlements dated between the European Bronze Age and the Iron Age.

CONTRIBUTION ABSTRACTS

2406. A Middle Bronze Age bronze hoard from the settlement of Szakáld–Testhalom

Authors: András Gömöri (University of Miskolc, Institute of Geography and Geoinformatics) – Vajk Szeverényi (University of Miskolc, Department of archeology) – Klára P. Fischl (ELTE Research Centre for the Humanities, Institute of Archaeology) – Alexandra Gavan (Institute of Archaeology and History of Art of the Romanian Academy Cluj-Napoca) – Tobias L. Kienlin (University of Cologne,Department of Prehistoric Archaeology)
Format: Oral

Within the framework of BORBAS (Borsod Region Bronze Age Settlement) international project investigating the Middle Bronze Age settlement network of the Southern Borsod Plain, research has revealed a dense network of settlements characterised by a complex internal structure. The central parts of these sites consist of multi-layered tells or tell-like mounds, surrounded by horizontally organised settlement zones separated by ditches. Systematic metal-detecting surveys have been conducted at all elements of this settlement network in order to determine the precise locations of metal finds and material remains associated with metal production. During these investigations, the bronze hoard presented here was discovered on the outer periphery of the horizontal settlement part at Szakáld–Testhalom. The assemblage contains elements of female attire as well as prestige weapons. In addition to a brief comparative analysis of similarly composed deposits from Middle Bronze Age tell and fortified settlements, the presentation focuses on the methodology of metal-detecting surveys at OFCC sites and presents the results of scientific analyses of the Szakáld hoard, including GC–MS analysis and the examination of textile remains.

941. Depositions on Bronze Age settlements in South Bohemia

Authors: Ondrej Chvojka – Tereza Šálková – Libor Vobejda (University of South Bohemia, České Budějovice)
Format: Oral

South Bohemia represents a region rich in Bronze Age deposits, especially hoards of metal artefacts, of which 182 have been documented to date. These deposits are usually located in an open landscape, outside contemporary settlements. Nevertheless, several assemblages have been found in settlement contexts. Only seven cases represent deposits within flat settlements, while ten hoards were found in hilltop settlements or hillforts. Do these settlement-related deposits differ in character and composition from hoards found outside contemporary settlements? Do deposits within settlements show links to particular areas of the settlement or to specific settlement features? Can archaeobotanical data recovered from corroded metal surfaces or from their immediate surroundings help to reconstruct depositional events? Were the hoards deposited in settlements that were occupied at the time, or is their association with earlier or later settlement activity merely accidental? This study seeks to address at least some of these questions through an analysis of Bronze Age hoards from South Bohemia (2000 – 800 BC).

1433. Intra-settlement deposition on the Late Bronze Age Somló Hill

Authors: János Gábor Tarbay – Bence Soós – Tamás Péterváry (Hungarian National Museum, HNM Public Collection Centre)
Format: Oral

The Somló Hill (Veszprém County, Hungary) is a recently re-investigated central hilltop site of the Transdanubian Urnfield and Hallstatt cultures. New field research has yielded thirteen hoards and more than a thousand individual metal finds dated to the transitional phase between the Late Bronze Age and the Early Iron Age. At the centre of the present study stands Hoard V, a small assemblage of heavily used metal objects carefully arranged inside a ceramic jug. The site is not located in a remote, marginal, or otherwise special place far from settlements; rather, it lies within the settlement itself. Based on the finds, activities well known from everyday life in Late Bronze Age communities, such as weaving, stone-tool knapping, and other domestic practices took place here. A trench excavation indicates that the hoard was deposited within an inhabited area dated to the Ha A–Ha B phases, in the vicinity of potential house structures. The other Somló hoards excavated so far also fit into the same contextual pattern. This raises the question of what might have motivated the deposition of lavish, intentionally arranged "mega-hoards" within a settlement that remained undisturbed and reached the Early Iron Age without the retrieval of these assemblages.

1678. Deposit finds, deposit habits in the Zala and Mura rivers regions (Hungary, Western Transdanubia) in the late Bronze Age

Authors: Csilla Száraz (Thúry György Museum)
Format: Oral

In the area of Western Transdanubia in Hungary (Zala and Mura rivers region) six fortified settlements located at high altitudes can be found, which were used in the late Bronze Age period. These were established on the plateau of the hills and made use of the natural protection, but they were artificially fortified intensively inhabited settlements. Compared to other regions of the Transdanubia, the settlements located at high altitudes in the region of the Zala and the Mura form a separate microregion. The six settlements located at high altitudes, among which 5 were definitely fortified, had a dominant settlement position in the landscape and in connection with the plain area surrounding it. Research is lucky because we have most information on the biggest fortified Bronze Age settlement (160 ha) of the Transdanubia. On the basis of the 14 bronze treasures and 2 golden finds as well as the dispersed bronze finds from the surroundings of the site it was the economic-social-religious centre of the region. Concerning their functions, the fortified settlements located at high altitudes are different. The Várvölgy-Nagyláz-hegy is the biggest and it may have been a centre with resident population, industrial bronze casting and representative treasures. The settlement of Várvölgy may have controlled the foreground of Lake Balaton as it was an important commercial and transportation junction. In this presentation, I intend to analyze the role of depots located within fortified settlements in the structure of the settlement and to define the individual deposition zones.

1396. Pottery depositions in Bronze Age settlements in the eastern Carpathian Basin

Authors: Florin Gogaltan (Romanian Academy, Institute of Archaeology and History of Art Cluj-Napoca | Babeș-Bolyai University)
Format: Oral

This paper builds on earlier and more recent contributions by Clemens Eibner, Fritz Horst, Ina Czybbora, Andrea Stapel, Hana Palátová, Milan Salaš, and others concerning so-called Gefässdepotfunde. In 2014, this category of deposits from Bronze Age settlements in Transylvania was systematically analyzed, leading to the definition of pottery deposits as intentional and irreversible depositions of one or several complete or restorable vessels, placed simultaneously and predominantly related to drinking practices. These deposits occur in contexts that do not constitute funerary inventories, do not belong to other clearly defined ritual settings (such as sanctuaries or metal hoards), and cannot be interpreted as evidence of proven domestic use (e.g. wells or household pottery assemblages) (F. Gogâltan, Drinking with the gods? The problem of Bronze Age pot deposits in Transylvania. Studia Universitatis Babeș-Bolyai 59, 1, 2014, 52). Recent discoveries from the eastern Carpathian Basin further expand this category of ritual depositions within settlement contexts. They include additional hoards of drinking vessels, vessels deposited as foundation offerings for domestic structures, assemblages associated with food remains, as well as deposits containing non-metallic objects. The paper presents several case studies considered particularly relevant for refining the interpretation of these practices. Taken together, these finds enrich our understanding of the Bronze Age spiritual universe and point to ritual practices documented across wide areas of Europe during the 2nd millennium BC. They reflect diverse communal rituals—such as commensality, foundation rites, and libations—aimed at negotiating relationships between communities and the divine.

1819. Semi-buried ceramics within Late Bronze Age settlements

Authors: Polett Kósa (Hungarian National Museum, National Archaeological Institute)
Format: Oral

In Late Bronze Age settlements, ceramic vessels are frequently found standing in pits of various sizes, typically with a relatively large capacity. One possible explanation is that, following their primary use, these vessels served for grain storage. Owing to their considerable weight, partial or complete burial would have been necessary to ensure stability. At the well-excavated site of Poroszló-Aponhát, however, vessels of much smaller capacity were identified that were likewise sunk halfway into the ground in an upright position. A notable characteristic of these vessels is their apparent association with houses. The excavation documentation does not always clearly indicate whether they were located inside or outside the buildings, although in several cases they cut into the yellow layer interpreted as the floor level. This raises the question of the function of these small, pot-type vessels with a capacity of approximately 1.5–2 litres. Were they part of domestic cooking assemblages used within the house? Could their partial burial have served to keep their contents cool? Alternatively, might they have played a role outside the house, for example as incense burners or small storage containers? Given the limited archaeological evidence, it is worth considering ethnographic parallels – such as practices observed in rural farming households from 100–150 years ago – in order to propose hypothetical interpretations of their possible functions.

2412. Depositional Practices at Late Bronze Age Settlements in Southwestern Poland: An Overview

Authors: Kamil Nowak (Austrian Archaeological Institute, Austrian Academy of Sciences) – Radosław Kuźbik (ISKANDER Archaeological Services: Wrocław)
Format: Oral

During the Late Bronze Age (1350–800 BC), the deposition of artifacts at settlements in what is now Poland assumed a diverse and complex character. Objects placed in pits, foundation trenches, and vessels share a common feature: they were intentionally removed from circulation and everyday use. This presentation examines the nature of these depositional practices. We discuss the most frequently deposited artifact types, the materials from which they were made, and the archaeological contexts in which they were recovered. We also identify potential regional patterns and broader connections shaping depositional behavior. In addition to metalwork deposits, we consider assemblages composed of other materials. Particular attention is given to ceramic and stone deposits, which are systematically characterized here for the first time in this region. Drawing on several case studies, the paper aims to provide a clearer understanding of settlement-based deposition and its cultural significance within the temporal and spatial framework of the Late Bronze Age in southwestern Poland.

1067. The Character of Early Iron Age Deposition Practices in Eastern Hungary Based on Several Recently Discovered Assemblages

Authors: Csaba Nagy – Gábor V. Szabó (Institute of Archaeological Sciences, Eötvös Loránd University)
Format: Oral

Over the past decade, we have conducted metal-detector surveys at several sites in eastern Hungary, predominantly fortified settlements, where we succeeded in discovering Early Iron Age deposit assemblages in closed contexts. The composition and find contexts of the deposits identified during our research fundamentally changed our view of the interaction networks of Early Iron Age communities in Eastern Hungary and outlined a much more differentiated picture of the character of deposition than previously assumed. In the presentation, we display the changing and diverse deposition practices of the period through the example of three sites. We present and analyse the first Hungarian pre-Scythian hoard assemblage unearthed in a documented context from Szilvásvárad. We also mention the pre-Scythian composite bridle uncovered at the fortified settlement of Cserépfalu-Mésztető, as well as a deposit containing glass beads and iron bracelets that was likewise uncovered there. A significant part of the presentation focuses on the analysis of thirty-five deposit finds uncovered at the site of Dédestapolcsány-Verebce-bérc. At this fortified settlement, dated to the late 7th and early 6th centuries BC, several types of deposits can be identified: we unearthed hoards containing gold ornaments, as well as a hoard containing gold, bronze, and amber objects, and numerous deposits containing weapons, tools, horse harness, and iron blooms. Our most exceptional find was a hoard containing more than one hundred bronze and iron objects, as well as textile and leather remains. The three case-study sites provide an opportunity to differentiate deposition strategies between the 9th and 6th centuries BC and to develop new narratives regarding the phenomenon.

276. Depositing in the House: Regional Choices in Iron Age Domestic Architecture in the Low Countries

Authors: Maël Benallou – Guy De Mulder (Ghent University)
Format: Oral

Structured or ritual depositions within settlement contexts have long been recognised in Iron Age archaeology, yet detailed information on their specific architectural contexts and material characteristics often remains limited. In the Iron Age Low Countries, domestic depositions are generally understood to consist of ceramic-filled pits and postholes, but studies addressing depositional context alongside detailed analyses of object typology, use, and alteration at a regional scale are rare. This paper presents an in-depth analysis of settlement depositions based on a combined study of grey and published literature, macroscopic analysis of ceramic assemblages and lipid residue analysis. By integrating contextual and object-focused approaches, the study aims to clarify both the formation processes and possible motivations for these depositional practices. The results show clear regional differences in the placement of structured depositions. Within the Meuse–Demer–Scheldt region, deposits occur in the postholes of dwellings, whereas elsewhere in the Low Countries such depositions are restricted to ancillary structures, namely granaries. Despite this spatial divergence, macroscopic and lipid analyses indicate a consistent focus on common household ceramics associated with culinary use, with use traces and residues confirming repeated exposure to food preparation. These findings suggest regionally distinct choices in the architectural setting of deposition, combining similar material practices with different spatial emphases. This raises important questions about how domestic space and ritual practice were conceptualised within Iron Age settlements in the Low Countries.

1765. Moment of a transformation. Ceramic deposition and intra-site dynamics at the Early Iron Age settlement near Mernye

Authors: Bence Soós (Hungarian National Museum Public Collection Centre, Hungarian National Museum)
Format: Oral

Between the 8th and the mid 6th century BC, Hallstatt communities in the western part of the Carpathian Basin were characterized by their efforts to maintain hilltop settlements that served as centres in various respects, as well as by the construction of monumental burial mounds for prominent individuals. The 6th century BC, however, appears to have brought significant changes. On a broader scale, both the signs and consequences of this transformation are evident. On the one hand, the custom of building barrows declined, and several major hilltop settlements were abandoned. On the other, Hallstatt communities began to establish closer contacts with populations in the eastern Carpathian Basin, leading to a partial hybridization of material culture. How this transformation unfolded on a local scale has, however, rarely been investigated. In recent decades, an increasing number of Early Iron Age (EIA) settlements have been uncovered in the western Carpathian Basin, offering detailed insights into the everyday lives of Hallstatt communities. In this paper, I focus on one of the so called "lowland" settlements of the Hallstatt Period. I argue that the site of Mernye Rézdomb enables the reconstruction of an EIA community's responses to this period of upheaval, and that both the discard of certain pottery types and the intentional deposition of vessel sets can be understood as local practices embedded within broader processes of social transformation.

1144. Intramural deposition of human remains in Middle Bronze Age Southern Mesopotamia

Authors: Kamilla Kersánszki (Eötvös Loránd University, Doctoral School of History, Institute of Archaeology)
Format: Oral

Intramural or house burials have been in practice in the region of modern Iraq and its neighbours since the Neolithic and until pre-Islamic times; and continued in some specific cases, like the case of stillborn children, until recently. For ancient Mesopotamians, this close contact with the dead meant a symbiotic relationship with the ancestors' spirits and a unity of the household which transcended the line between life and afterlife. The places of family remembrance and the ancestral cult known from several texts were rooted this way in the fabric of everyday household tasks. The identification of specific room functions based on both archaeological and philological sources offers a unique insight into the spatiality of these depositional practices in the Old Babylonian period, revealing a preference for the more private, inner parts of the houses, in the so called "main halls" or "family rooms" and its accompanying "living rooms". Additionally, a connection to the archives is considered, uniting family history written in clay with family history physically embodied by the remains of the ancestors in one shared location, a place that serves as the focal point of the

collective social memory of the kinship group.

241 SHADES OF RED: FROM CHARACTERIZATION TO PROVENANCE STUDIES AND CONSERVATION OF RED PIGMENTS AND COLOURANTS IN ANCIENT POLYCHROME ARTEFACTS

Theme: 1. Widening perspectives in material culture studies
Organisers: Alessia Coccato (University of Oxford) – Hilary Becker (Binghamton University, SUNY) – Simone Dilaria (University of Padova)
Keywords: archaeometry, Fe-pigments, As-pigments, cinnabar, Pb-pigments, contextualizing color
Format: Regular session

SESSION ABSTRACT

Since prehistory, red color has long served as a fundamental chromatic component in ancient polychromy, widely employed not only in wall paintings but also in the decoration of statues, reliefs, and a broad range of artefacts. The sources of red pigments were multiple, encompassing naturally occurring iron-rich earths, mineral ores such as cinnabar and arsenates, and artificial lead-based compounds including red lead and massicot. Each of these materials imparted distinct optical, textural, and durability characteristics to the resulting surface layers—qualities that were well understood in antiquity. Historical sources (such as Pliny the Elder, Dioscorides, Theophrastus, Vitruvius, etc) provide information on both the economic and symbolic values of ancient red pigments, and provide technical details on their extraction, preparation and application. This session seeks to investigate the multifaceted use of red pigments across diverse contexts, from their adoption in wall-paintings and mortar stratigraphies to their use in the applied polychromy of statuary, architecture and other organic or inorganic artefacts. Particular attention will be devoted to studies of pigment characterization, the provenance of raw materials from mineral deposits or trade networks, technological and applicative aspects, and the long-term stability and conservation behavior of red pigments on different supports and within varying depositional environments.

CONTRIBUTION ABSTRACTS

1549. Cinnabar in the Early Bronze Age Mortuary Practices in Northern Balkans (semantic and symbolic)

Authors: Stefan Alexandrov (National Archaeological Institute with Museum, Sofia) – Rositsa Manova (Institute of Information and Communication Technologies, Sofia) – Piotr Włodarczak (Institute of Archaeology and Ethnology, Krakow)
Format: Oral

Due to its unique qualities, beauty, and intensity, cinnabar has become a sacred color for many civilizations. Its extraction and production are also a sign of the development of early societies. On the other hand, the cult activities are not easy to understand on their own. It is precisely in cults that symbols are hidden, which often have no form or image. They can be related to ideas, but they can also be the result of life experience and knowledge. In Northeastern Balkans, up to 2024 no use of cinnabar prior to 1st millennium BC was attested. In 2024 - 2025, analyses were made on red pigments found in three graves discovered in an Early Bronze Age barrow near Kriva bara village, North-West Bulgaria. The first analysis was made of a lump of red pigment placed near the left shoulder of a 5-6 years old infant (feature no. 7). The second group of analyses were focused on the pigments on the endo- and exocranial parts of the skull of a male individual (feature no. 5) and on the tibia of another male individual (feature no. 4). SEM and Raman analyses showed that the pigments investigated are composed of hematite (Fe2O3) mixed with cinnabar (HgS) in a very low concentration. The third group of analyses was concentrated on the red staining of the cancellous long bones of the individual from feature no. 4. The staining contains hematite with microelement titanium (Ti) and cinnabar (HgS). The Kriva bara results are the first documented evidence for the use of cinnabar in EBA Northern Balkans. The three graves discussed date to 2900 – 2500 BC period, which corresponds to the "Late Yamna" chronological horizon in Lower Danube region.

1985. 'I am wrapped in a red cloak of terror against you': The Materiality of Red Pigment in Assyro-Babylonian Ritual Practice

Authors: Anastasia Tchaplyghine – Mathilde Touillon-Ricci (British Museum)
Format: Oral

Neo-Assyrian and Neo-Babylonian (ca. 9th-6th c. BCE) clay figurines of protective divine beings that were buried beneath the floors of palaces, temples, and priestly houses, often preserve varying amounts of pigment – especially red, black, and white. By contrast, the more widely occurring female clay figurines of the same time period – whose meaning and function have remained enigmatic – do not usually retain any traces of pigment (perhaps because they were actively used rather than intentionally buried). While the protective figurines are associated with specific ritual texts and have been identified with named deities and composite creatures,

this is not the case for the female figurines. This talk will focus on two such distinct examples in the British Museum's collection that are both coated in red pigment: the upper half of a nude woman with hands clasped at her waist; and a dog, inscribed with its name 'Catcher of the enemy', that was found buried beneath a palace doorway. Scientific analysis of the substance(s) covering these two figurines will inform how the colour red and its materiality contributed to, or directed, their functionality, allowing for a comparative look at official, royal ritual practices and those of the broader population. Considering the female figurine in the greater context of magico-medical texts and the more understood protective figurines, will contribute to our understanding of this seemingly anonymous figurine-making tradition. For example, the colour red appears in rituals against illness, demons, and witchcraft. Akkadian red pigment names have been tentatively identified with cinnabar (HgS), minium (Pb3O4), and red ochre/haematite (Fe2O3)—minerals often found in ancient Mesopotamian archaeological contexts.

2283. Identification and provenance studies on the red pigments used by Iron Age Scythians of the Ukrainian Steppe

Authors: Aj Lamm – Margarita Gleba – Simone Dilaria – Gilberto Artioli (University of Padova)
Format: Oral

The Scythians of the Iron Age (7th-4th centuries BCE) inhabited the Pontic Steppe north of the Black Sea as a nomadic empire well versed in warfare with their neighbors. Having no written language of their own, all knowledge of them is filtered through the sources of their contemporaries, who were none too eager to paint their rivals in a flattering light, or through their archeological finds, where researchers can attempt to reconstruct some of the intricacies surrounding their trade and cultural exchange. Funerary goods from the burial mounds (kurgans) of the Scythians are no strangers to rich decoration, both in prized metalwork and what remains of vivid color. This study focused on the characterization of primarily red pigments from various perishable goods (leather fragments, wooden arrow shafts, and bone spindles) from kurgans across the southern territories of modern-day Ukraine. Using a multi-faceted approach comprised of Scanning Electron Microscopy coupled with Energy Dispersive Spectroscopy (SEM-EDS), Raman spectroscopy, X-Ray Diffraction (XRD), and visual analysis with Optical and Confocal microscopy, mercury sulfide (∞-HgS, cinnabar) and hematite (∞-Fe2O3, red ochre) were identified on the surface of twenty samples. Cinnabar, a popular pigment in antiquity, traces its usage back to the Neolithic period, found within the ceramics of the Vinča culture in the Balkans and the complex of Çatalhöyük in Türkiye. The usage of cinnabar persisted into the times of the Scythians, as evidenced by numerous finds within their funerary goods, but the provenance remains unclear. Further research seeks to identify the origin of this cinnabar, using isotopic analysis to determine whether the pigment was obtained through long-distance exchange from the nearest known mines in Almadén or Ephesus, or mined locally from yet-unevidenced sites within the Donbas region or the Carpathian mountains.

1026. The Tale of a Terret: New Data on Late Iron Age Glass in Britain

Authors: Courtney Nimura (University of Oxford) – Mary Davis (National Museums Scotland) – Susan Nehzati (Diamond Light Source)
Format: Oral

On display in the European Prehistory gallery in the Ashmolean Museum in Oxford is a small and unassuming terret, made to guide the reins of a horse. The label tells us it comes from Lakenheath, Suffolk, and is broadly dated to the Late Iron Age (likely 1st century CE). Upon inspection, one can see that this piece of Iron Age horse gear is exquisitely decorated in a classic 'La Tène-style', ornamented with crescents, incised lines, and small cells of coloured glass. The red glass can be visually characterised as 'sealing wax' red glass typical of the period, but different shades of dark, translucent blue are also present and are less well understood. As part of the LINXS Institute of Advanced Neutron and X-ray Science theme 'Heritage Science', our team analysed the terret at Diamond Light Source, the UK's national synchrotron light source science facility. This paper presents new data on the dating, production, and chemical composition of the glass resulting from X-ray fluorescence imaging (XRF) and X-ray absorption spectroscopy (XAS) analyses. With these new data, we can not only write a more detailed object biography of the terret, but we can also explore the broader sociocultural context of glass trade, production, and use in Late Iron Age Britain.

2721. An Investigation of the Melting and Forming Properties of a Red Fifteenth Century German Forest Glass

Authors: Annika Blake-Howland – Doris Möncke (NY State College of Ceramics at Alfred University)
Format: Oral

A citizen-driven archaeological excavation from 2001 to 2005 in the Taunus Mountains of Germany uncovered a mid-fifteenth century CE glass workshop along with more than 25 kg of glass shards, production waste, and vessel fragments. The glass is particularly unusual in that it is significantly opaque and deep red in color with striations of various shades of red and teal blue. Previous research into the Unterhalb Dornsweg glass determined that the primary colorant in the glass was copper, specifically copper(0) nanoparticles, and the opacity was due to copper(I) oxide crystals. Generally, copper(I) oxide crystals can form at temperatures greater than 700°C, whereas the copper(0) nanoparticles form between 500 and 800°C. Additionally, to create a copper red glass the copper ions must be in a significantly reducing environment with controlled temperatures over extended periods of time, with the oxygen partial pressure within the furnace being exceedingly important. While the color and opacity of the glass are well understood, the melting and forming conditions are not. Previous researchers have noted unusual melting behavior and the difficulty of

blowing a glass-ceramic. The melting and forming properties of the glass were explored though thermal and spectroscopic analysis, both of samples of the glass and through the creation of surrogates. Through this varied approach, it was possible to understand the conditions under which this interesting historic glass can be made.

1978. The reds of Northern Etruria: the use of cinnabar and red ochre in Roman contexts from Tuscany

Authors: Massimiliano Puntin (Sapienza, University of Rome) – Ilaria Benetti (SABAP Pisa Livorno)
Format: Oral

The proposal presents a diachronic study of the red pigments ochre and cinnabar applied in a series of archaeological sites from Roman northern Etruria. The study investigates a broad chronological range, through the entire Roman period, focusing on the coastal and insular zones of northern Etruria. The primary aim is to examine the decorative styles, the application methods and the mixing of pigments, aiming to identify the strategies adopted to achieve specific tones. The contexts are analysed from a stylistic perspective, highlighting an evolution in decorative motifs consistent with Roman taste during the early Imperial period. In contrast, from the 2nd AD onwards, a progressive loss of artisanal and technical skills that can be observed, reflected in decorative schemes that increasingly appear as a synthesis of earlier models, rather than as fully innovative or technically refined compositions. The materials, then, have been investigated through an integrated approach combining analytical methods (pXRF, Raman, ATR-FTIR, FORS, HIS, SEM-EDS), technological observations, spatial and functional considerations. Importance is placed on the chromatic associations, such as mixtures of pigments to obtain specific hues. The study also explores possible connections between the nature of the pigments and the spatial location of the decorations, referenced to cinnabar and its presence in spaces exposed or not exposed to light, a condition that, as widely known from Roman times, may influence this hue. From a technological perspective, an apparently regional association between specific minerals and pigment application techniques, in connection with overpainting, is highlighted. Overall, this contribution aims to demonstrate that the use of red ochre and cinnabar reflects deliberate and complex choices, in which decorative, technological, spatial, economic, and symbolic factors are closely interconnected.

2307. The colours of Tridentum: wall paintings and pigments at the northern fronter of Roman Italy

Authors: Emma Donisi (University of Trento, Department of Physics) – Cristina Bassi (Superintendency for Cultural Heritage, Archaeological Heritage Office of Trento) – Paolo Chistè (University of Trento, Department of Humanities) – Paolo Ferretti (MUSE - MUSEO DELLE SCIENZE, Research and Museum Collections Office) – Barbara Maurina (Superintendency for Cultural Heritage, Archaeological Heritage Office of Trento) – Fabio Santaniello (University of Trento, Department of Humanities) – Marco Zanatta (University of Trento, Department of Physics)
Format: Oral

In our common imaginary, Roman cities are plain white. However, there is nothing further from the truth: buildings were often painted in bright, vibrant colours, and red played a major role in their palette. The city of Tridentum, founded in the second half of the 1st century BC in Northern Italy, is no exception. This work presents an archaeometric analysis of the pigments used for wall paintings in Tridentum, from its foundation to the late Roman Empire. We aim at determining the receipt of the pigments, possibly highlighting the presence of local production centres by correlating composition and colour rendering. Calibrated pictures of the specimens were analysed with colorimetric algorithms to determine the absolute coordinates in the LAB and XYZ colour spaces. The elemental analysis was assessed through SEM and XRF measurements, whereas minerals were studied by microRaman spectroscopy. Results show that pigments were obtained by combining locally sourced raw materials with more expensive ones, imported from all over the Empire. Among them, cinnabar and haematite stand out for their abundance, making reds, oranges, yellows and pinks the most common hues among the fragments. Conversely, blue and green were obtained by mixing simple colour bases with Egyptian blue and lazurite to enhance their brightness. The presence of such expensive materials shows how the newborn city of Tridentum was rapidly integrated in the Roman social, cultural and economical network.

620. Red in Roman Nijmegen

Authors: Luc Megens (Cultural Heritage Agency of the Netherlands) – Lara Laken (Independent researcher)
Format: Oral

In this paper we investigated the red pigments which were used for painting the plastered walls in different Roman settlements within the borders of modern-day Nijmegen. After discovering that varieties of red ochre on the painted walls of a first-century house in Oppidum Batavorum could be distinguished chemically, it was found that various types of this pigment were used at other locations as well. One type of red ochre was without characteristic trace elements, while other varieties contained respectively high and low trace amounts of arsenic, some contained barium sulphate as a trace mineral, and others had varying trace amounts of lead. The red ochre with barium sulphate was not only found on the walls of the house in Oppidum Batavorum and contemporary plaster remains found at a different location, but also on second-century plaster fragments from Ulpia Noviomagus. Two types of red ochre with arsenic as trace element, lead-containing red ochres, and ochres without trace elements were present on the plaster fragments from both Oppidum Batavorum and Ulpia Noviomagus. Therefore, no relationship was found between a specific type of ochre and a period or location of use. The chemical characteristics may help in determining the origin of the pigment, but much work is still needed to draw definitive conclusions.

2382. Red in Polychromy of Stone Monuments in Croatia from Roman Times to Romanesque Period

Authors: Miona Miliša (University of Split, Arts Academy)
Format: Oral

It is often forgotten that Medieval stone sculpture and architectural decorative elements were originally painted. However, the original polychrome layers have survived only on rare artifacts, since pigment layers are far less durable than stone and many were damaged through cleaning procedures in the past. This paper will present rare examples of surviving polychromy on preRomanesque and Romanesque monuments, mostly from the Eastern Adriatic with just one known example from continental Croatia. The research of presented monuments applied multiple documentation methods, including macro photography, microscopy, FTIR and XRF chemical analyses, and classification of samples. Pre-romanesque reliefs were typically painted in three dominant colours: blue, red, and yellow, with yellow often replacing gold. Although surviving traces of polychromy along the eastern Adriatic coast are scarce, scientific analyses have identified key pigments and enabled the reconstruction of the probable original appearance of several monuments. Based on analytical results, digital reconstructions were created to visualize the likely original polychrome surfaces. The rare Romanesque example is famous Rudina Heads (stone heads dated in 12th century) which were sampled and analysed only last year. For medieval sculpture, comparisons with the Early Christian mosaics and manuscript illumination suggest continuity in motifs, compositional principles, and colour choice across media. The production of these works involved collaboration among patrons, clergy, designers, sculptors, and painters, within a cultural environment shaped by limited literacy and Catholic liturgy. The successful preservation and professional treatment of surviving pigment traces is of crucial importance, as the remaining polychromy may provide crucial insight into the symbolic meaning of individual motifs, because colour in this context held not only decorative but symbolic meaning, since most of the stone monuments were initially installed in sacred spaces.

1688. Painting the Dead: Cinnabar, Mortuary Practice, and Social Hierarchy in Northern China during the Warring States Period

Authors: Shuxin Kong – Quanchao Zhang (Bioarchaeology Laboratory, Jilin University | Jilin University)
Format: Poster

The Warring States period (475–221 BCE) was a transformative era characterized by intense sociopolitical upheaval and expanding cross-regional interactions in early China. This study presents archaeological findings from the Lijiazhuang Cemetery in Yu County, Hebei Province, associated with the "Dai" culture and situated at the frontier zone of interaction between the Central Plains cultural sphere (including states such as Yan and Zhao) and northern nomadic groups. Notably, evidence of post-mortem red pigmentation was observed on human skeletal remains recovered from select high-status burials. To elucidate this phenomenon, a multi-analytical approach was employed, including X-ray fluorescence (XRF), Raman spectroscopy, X-ray diffraction (XRD), scanning electron microscopy with energy-dispersive spectroscopy (SEM-EDX), and Fourier-transform infrared spectroscopy (FT-IR). The results indicate that the red pigment consists of natural cinnabar mixed with a possibly proteinaceous organic binder, suggesting that the pigment was applied in the form of a prepared liquid compound rather than as dry mineral powder. This finding not only demonstrates a relatively sophisticated level of processing and application technology but also suggests that communities in the northern frontier were able to acquire and utilize valuable, non-local mineral resources. Such evidence attests to the existence of extensive trans-regional exchange networks over two millennia ago. Importantly, this specific ritual treatment was applied not only to high-status elites but also to their sacrificial retainers, thereby reinforcing social stratification beyond death. The practice materially transformed the deceased body and, within the context of mortuary ritual, served to reaffirm and reproduce social hierarchy. In this sense, the application of red pigment constituted an integral component of funerary practice through which social order was materially and symbolically reproduced.

242 RECONSTRUCTING CLOTHING, ORNAMENTATION, AND THE SENSES IN PREHISTORY

Theme: 1. Widening perspectives in material culture studies
Organisers: Emanuela Cristiani (Sapienza University of Rome) – Barbara Cvitkusic (Institute for Anthropological Research, Zagreb)
Keywords: Clothing, Ornaments, Use-wear traces, Residues, Body, Identity
Format: Regular session

SESSION ABSTRACT

Prehistoric communities expressed their sense of identity and belonging through the gestures, materials, and sensory experiences involved in making, wearing, and modifying the body. However, reconstructing these bodily practices and technologies—such as clothing, wrapping, and self-decoration—remains challenging, as most of the evidence is perishable. Recent advances in use-wear and residue analyses, combined with detailed contextual and archaeothanatological studies, are opening new possibilities for identifying clothing and other forms of bodily ornamentation, modification, and augmentation in prehistory. We invite contributions

that explore how people engaged bodily with materials through the making and use of objects during the Palaeolithic and Mesolithic periods. This session highlights the potential of integrating microscopic and chemical analyses with experimental and ethnographic approaches to illuminate practices related to clothing, ornamentation, and the symbolic construction of the body. Case studies may address tools for hide- and fibre-working, ornaments and trinkets, sound-producing artefacts made from stone, shell, or bone, or other objects that connect craft, performance, and identity. Ultimately, the session aims to foster a creative and collaborative dialogue on how we can move from microscopic traces to vivid reconstructions of gestures, skills, and sensory worlds.

CONTRIBUTION ABSTRACTS

710. Tooth ablation in Japan between the Early Jōmon and Middle Yayoi. A new perspective

Authors: Claudio Pelloli (No affiliation)
Format: Oral

Tooth ablation, i.e. the removal of perfectly and healthy teeth, is considered a typical, autochthonous aspect of Jōmon period. For a long time, archaeologists focused their researches on teeth extraction, looking for a reason why someone should have removed healthy teeth. Social, food or gender motivations were proposed, and someone proposed the binomial: different types of tooth ablation-different human groups (however this last theory has been disapproved). In particular, archaeologists believe this custom was widespread and became a common practice between the Late and Final Jōmon. The rapporteur's speech raises two main issues: was tooth ablation during the Jōmon period truly widespread in the Japanese archipelago? Or did the ablation cases increase significantly later, after the beginning of the Yayoi period in Kyūshū? Secondly, was tooth ablation practice widespread due to "internal factors" or is it the "fossil guide" to prove the presence of newcomers from current China teritories, the only ones who could have introduced also the wet rice in the Japanese archipelago.

759. Threads of Meaning: Reconstructing the Lespugue String Skirt with implications for Gravettian Taskscapes

Authors: April Nowell (Univeristy of Victoria) – Aurora Skala (University of Victoria)
Format: Oral

Knowledge of textile production in the Upper Paleolithic derives from a number of sources including stone, bone and ivory tools, possible spindle whorls, imprints on bone and fired clay, and images of garments on depicted on figurines. Of all the items of clothing identified on figurines, perhaps the most enigmatic is the singular string skirt depicted on the Gravettian "Venus" of Lespugue (France). Precursor to the better known Neolithic string skirts, this Paleolithic version was comprised of individual cords plied around a base cord which may have served as a belt despite the fact that the skirt hangs below the figurine's buttocks. In order to manufacture a string skirt, Upper Paleolithic peoples must have possessed a deep knowledge of the shifting availability of the necessary resources, the affordances of the materials at their disposal and the symbolic meaning of each of their decisions from the initial selection of the plants from which to make their fiber to the choice of whether or not to dye the garment. Drawing on experimental archaeology, ethnographic data, a close reading of fabric imprints from the Gravettian and clues from the figurine itself, we report on our work in progress to recreate the string skirt with implications for how the many facets of textile production may have been integrated into broader social and economic taskscapes in the Gravettian.

1437. Hooked with a buckle: bone hooks from elk premaxilla in the forest zone of prehistoric Eastern Europe

Authors: Ekaterina Turina – Ekaterina Kashina (—)
Format: Oral

In this talk, a rare category of bone artifacts from Late Stone Age settlements of semi-sedentary hunter-gatherer-fishers in the East European forest zone is examined: large hooks (8–16 cm) made from elk premaxillae. These artifacts were found in central Russia, Belarus, and Lithuania and are dated to the mid-4th to 3rd millennium BC. The current study synthesizes the results of use-wear analysis and discusses probable changes in garment. The natural form of the premaxilla required minimal modification. Use-wear analysis reveals hafting traces along the side edges, intense polish and fine striations near the hook's bend. Such wear could have been caused by friction with hide or fibers. Similar objects were found among hillfort materials of the Middle Volga basin Early Iron Age and in one chronologically corresponding female burial, where an item was located near the hip. Most probably, these artifacts served as belt buckles in both forest communities. There is little archaeological data on prehistoric clothing in the Eastern European forest zone. According to ethnographic data from Arctic and taiga hunter-gatherer-fisher communities, specialized belt buckles were not necessary elements of costume. However, such items appeared in the specified territory and time period. The 4th millennium BC was a time of major changes in the Eastern European forest zone and the Circum-Baltic area. Ceramic, lithic, and bone industries experienced significant transformations. This trend may also be relevant to shifts in bodily practices. The emergence of standardized premaxilla bone buckles in the mid-4th millennium BC and later may be related to changes affecting garments. The choice of this particular elk bone (premaxilla) was seemingly determined not only by its engineering suitability but also by symbolic or magical considerations, as the elk was the main hunting prey and one of the dominant images in Late Stone Age rock and portable art.

1576. Cord-Impressed Vessel Decoration and Bodily Ornaments in Late Neolithic and Early Bronze Age Funerary Contexts in Poland

Authors: Kinga Winnicka – Monika Kaczmarek (Faculty of Archaeology, University of Warsaw) – Magdalena Przymorska-Sztuczka (Archaeological Museum in Biskupin) – Marek Truszkowski – Agata Ulanowska (Faculty of Archaeology, University of Warsaw)
Format: Oral

Pottery decorated with cord impressions is a recurring feature of Late Neolithic and Early Bronze Age funerary assemblages in Central and Eastern Europe, but its relationship to other forms of bodily ornamentation in graves has not been examined systematically. This paper explores the material and symbolic relationship between corded decoration on funerary vessels and ornaments deposited with the dead, particularly strings of beads made into pendants, belts, and similar items that once relied on cordage, thread, or other textile structures. A combined imaging, analytical and experimental approach to cord-impressed pottery fragments allowed us to reconstruct the fibre technologies and gestures involved in producing these impressions. The results are then related to the organisation of ornaments on the body and the indications of wrappings, bindings, and other textile elements in the grave. Building on A.P. Kowalski's insights into the Indo-European symbolism of cords and knots - associated with binding, continuity, protection, and the life-thread - the study explores whether encircling cord motifs on vessels mirror the encircling ornaments placed on the body. By examining funerary contexts culture by culture, we evaluate whether there are any correlations between specific cord patterns and particular forms of bodily adornment, like e.g. multi-string bead necklaces. The results suggest that corded decoration may not be only stylistic, but part of a constellation of perishable technologies and symbolic actions that shaped identity, continuity, and the sensory experience of funerary rites.

1080. More Than Beads: Wearing and Meaning in Upper Palaeolithic Ornaments from northern Spain

Authors: Daniel Pérez (IIIPC, Universidad de Cantabria) – David Cuenca-Solana (IIIPC, Universidad de Cantabria | Centre de Recherche en Archéologie, Archéosciences, Histoire CReAAH, UMR 6566) – Borja González-Rabanal (Facultad de Filosofía y Letras, Universidad de Valladolid | Grupo I+D+i EvoAdapta, Universidad de Cantabria) – Ana Marín-Arroyo (Grupo I+D+i EvoAdapta, Universidad de Cantabria) – Elsa Duarte-Matías – Marco De La Rasilla-Vives (Facultad de Filosofía y Letras, Universidad de Oviedo)
Format: Oral

One of the most compelling and methodologically challenging aspects in the study of prehistoric personal ornaments concerns the ways in which these elements were used, including the parts of the body that were adorned, the arrangement of beads, and the criteria or order governing their disposition. In funerary contexts, the spatial position of beads often allows these aspects to be inferred with a relatively high degree of precision; however, when ornaments are recovered from habitation contexts not associated with burials, such reconstructions become considerably more complex and rely exclusively on usewear and residue analyses. This study focuses on the assemblage of personal ornaments from Llonín cave (northern Spain), one of the largest and most diverse in the region, comprising more than 250 elements distributed across a long chronological sequence spanning from the Upper Solutrean to the Azilian (21.8– 11 ka cal BP). Microscopic analysis of these materials has, in many cases, made it possible to reconstruct the suspension modes according to which the ornaments were organized, revealing a wide range of practices, from freehanging beads to embroidery and the possible use of certain elements as buttons. The integration of these results with biometric, taxonomic, and other analytical approaches has further enabled the association of different suspension modes with potentially differentiated social uses at both diachronic and synchronic scales.

1230. The Gravettian ornamental assemblage of El Palomar rockshelter (Yeste, Albacete): A new perspective on cultural connectivity and social networks

Authors: Oriol Montero-Buch (I.U. d'Investigació en Arqueologia i Patrimoni Històric, Universitat d'Alacant) – Paloma De La Peña (Departamento de Prehistoria y Arqueología, Universidad de Granada | Evolutionary Studies Institute, University of the Witwatersrand) – Javier Fernández-López De Pablo (I.U. d'Investigació en Arqueologia i Patrimoni Històric, Universitat d'Alacant | Dp. Prehistòria, Arqueologia, H. Antiga, F. Grega-Llatina, Universitat d'Alacant)
Format: Oral

Personal ornaments are considered key elements for the study of cultural identity during the Early Upper Palaeolithic on a pan-European scale. For the Gravettian of the Iberian Peninsula, two distinct cultural affiliations have been proposed based on ornamental assemblages. However, these cultural groups have been characterized primarily from ornaments recovered from sites near the Mediterranean and Cantabrian coasts, as well as the Atlantic seaboard. Consequently, there remain regions that are insufficiently studied, such as inland Iberia and much of the south. As a result, the mechanisms underlying the distribution of personal ornaments at regional and cross-regional scales within settlement networks are still poorly understood. Here, we present an analysis of the ornamental assemblage from the Gravettian levels (III, IV and V) of the El Palomar rockshelter (Yeste, Albacete). This site is located in the upper basin of the Segura River, within the Baetic mountain system, situated more than 180 km from the MIS 3 Mediterranean coastline. It has yielded evidence of ornaments made from both fluvial and marine mollusks, with a notable presence of marine gastropods such as Littorina obtusata/fabalis, Tritia reticulata, and Trivia sp. In this work, i) we will discuss the

chrono-stratigraphic association of these findings with the Gravettian lithic assemblages; ii) we will report the results of the technological and functional analyses; and iii) we will discuss their implications in the context of human mobility patterns and social networks during the Gravettian in Europe.

1453. Procurement and patterns of preference of fossilized mollusc shells in the Epigravettian Danube Bend area

Authors: Csaba Bálint (Eötvös Lóránd University | Dobó István Vármúzeum)
Format: Oral

The find material of various Epigravettian sites of Central Northern Hungary's Danube Bend area contain sizeable amounts of mostly unmodified, fossilized tertiary mollusc shells. At most of these sites shells were found scattered throughout the habitation surface, and moreover at the site of Szob-Ipolypart they were arranged into piles, and are classically interpreted as storage deposits. A small number of the shells were modified to be used presumably as personal ornaments. The shell assemblages present at the sites show distinct preferences of mollusc shells mainly focusing on one to three different genera. These tendencies hint at conscious selection during the procurement process. The Danube Bend area possesses numerous exposed sediments bearing tertiary marine fauna that were possibly available as sources during the Epigravettian. This presentation focuses on the question of selection and the preference of certain mollusc genera during the procurement phase. By highlighting the availability of certain genera within specific, probably utilized geological sources, we can hopefully ascertain if selection of specific molluscs was based on convenience or a more focused effort of acquiring desired forms of shells.

2258. Multiproxy Microscopic and Functional Approaches to Perishable Bodily Technologies: Evidence from Shell Tools

Authors: Barbara Cvitkusic (Institute for Anthropological Research, Zagreb) – Emanuela Cristiani (Sapienza University of Rome, Rome) – Dario Vujevic (University of Zadar)
Format: Oral

Reconstructing prehistoric clothing is challenging, primarily because organic materials rarely survive in the archaeological record. Consequently, research requires a multidisciplinary approach combining material culture, paleoclimatic data, genetics, and other forms of evidence. Within material culture studies, particular attention has been paid to lithic tools used for skin and plant processing, and more recently to bone tools, which document hide-working activities. However, the functional role of some tool categories remains poorly understood. In this contribution, we present the results of our research on the shell industry from the Late Upper Palaeolithic site of Vlakno in Croatia. Although these artefacts are generally interpreted as ornaments, our functional analysis indicates their involvement in a range of daily-life activities. We highlight the potential of combining use-wear analysis with histological staining and residue analysis to investigate perishable bodily technologies. In particular, we report on the potential of Picrosirius Red (PSR) staining to detect and characterise hide processing residues in experimental and archaeological bivalve shell tools. The resulting microscopic and histological data were integrated with use-wear analysis, enabling more robust functional interpretations. This combined approach provides new insights into clothing-related technologies, as well as the gestures and technical practices associated with hide and skin processing at Vlakno, contributing to broader reconstructions of Upper Palaeolithic bodily technologies. By bridging microscopic, experimental, and functional perspectives, the study highlights the value of residue-based methods for accessing subtle traces of craft activities that are otherwise archaeologically elusive.

885. Personal Ornaments and Embedded Production: Jewelry Manufacture within Elite Households at Chaco Canyon, New Mexico

Authors: Hannah Mattson (University of New Mexico, Department of Anthropology)
Format: Oral

Pueblo Bonito (850-1140 CE), located in Chaco Canyon in the U.S. Southwest, contains the largest assemblage of personal ornaments of any site in the Ancestral Pueblo region and more turquoise jewelry than any site north of Mexico. There is also abundant evidence for the presence of high-status individuals, concentrated in certain portions of the structure, and centralized ceremonial activity. Almost all previous research on Chacoan ornament manufacture, primarily conducted in the 1970s-1990s, has focused on smaller sites located throughout the canyon. These investigations yielded evidence for widespread ornament-making at small sites, including possible workshop-level production at two locations. Given that consumption of finished jewelry items is clearly concentrated at large sites ("great houses"), the accepted narrative is that lapidary production was part of a larger corporate political strategy, in which goods produced in surrounding small farming hamlets were used to sustain communal events related to construction activities and ritual performances at great houses. However, until now, evidence for in-situ jewelry manufacture at great houses has not been systematically considered. I build on my previous research on jewelry and social identity at Pueblo Bonito and present the results of an examination of lapidary tools from the site. I find abundant evidence for on-site ornament production, a significant portion of which is concentrated within elite domestic contexts, suggesting embedded production. This requires us to reconsider our models for the organization of production in the canyon and the role of jewelry in Chacoan political economy.

1411. From product to process: reconstructing the adorned body in pre-Roman Italy

Authors: Tayla Newland (The University of Cambridge)
Format: Oral

The transformation of bodily surfaces is a cultural universality, enduring as a system of non-verbal communication from antiquity to the present day. For ancient communities, personal ornamentation played a central role in this dynamic process, allowing individuals to fashion personal identities, to signal belonging, and to engage with the social and material worlds of which they formed part. As artefacts that were worn during life before their deposition with the dead, ornaments also preserve unique sensorial properties, allowing archaeologists to reconstruct the daily performance of identity and its construction in the funerary sphere. However, researchers have been slow to recognise the interpretive potential of ornamentation, particularly in the context of Iron Age southern Italy. Though the women of southern Italy were buried with rich ornament assemblages, past studies of their jewellery have often proven superficial, and the evidence supplied by their adorned bodies has yet to be fully articulated. The following paper fills this lacuna through a case study of indigenous necropoleis from Iron Age Apulia and Basilicata. It aims to shift attention from the passive outcome of ornamentation to the process of becoming via adornment, situating the body as nexus for the interplay of human and material agency. This argument is underpinned by a Social Network Analysis of diverse burials, which ties together computational modelling and Actor-Network Theory to produce similarity networks of jewellery. Analysed in GEPHI and R, the resulting networks visualise patterns of consumption and exchange amongst indigenous communities, shedding light on social and material systems of exchange engendered by women, and embodied via adornment. Ultimately, this paper seeks to reconstruct the ways in which individuals engaged with ornaments in their daily lives, in order to trace shifts in identity and agency across time and space.

2433. Dressed for Burial? Visual Disply of Ornaments Assessed through Use-Wear and Residue Analysis: The Epigravettian Burial of Romito 9 (Italy)

Authors: Emanuela Cristiani (DANTE-Diet and Ancient Technology Laboratory/Sapienza University of Rome) – Barbara Cvitkušić (Institute for Anthropological Research, Zagreb) – Domenico Lo Vetro (University of Florence) – Fabio Martini (Museo e Istituto Fiorentino di Preistoria, Florence)
Format: Oral

Personal ornaments are among the most intensively studied categories of Upper Palaeolithic material culture and are commonly interpreted as markers of identity and social communication. However, their functional integration within clothing systems remains difficult to assess, as interpretations have largely relied on typology and spatial distribution rather than on physical interaction with the body and perishable materials. This study presents a functional and use-wear analysis of the ornament assemblage from the burial of Romito 9, discovered at Grotta del Romito (Calabria, southern Italy), one of the most important Upper Palaeolithic sites in the Mediterranean. The burial is stratigraphically dated to 16,129 ± 100 uncal BP (ca. 19,800–19,100 cal BP) and belongs to the Evolved Epigravettian, a key transitional phase between Gravettian funerary traditions and less elaborated burial practices of the Final Epigravettian. The analysis explores whether the ornaments were freely suspended, attached to a loose cover, or sewn directly onto garments. Combining microscopic use-wear analysis, experimental archaeology, morphological data about shells, and contextual data, we assess attachment modes, degrees of mobility, and movement constraints on shells and deer canines. Microscopic use-wear and residue data reveal recurrent and standardized wear patterns consistent with limited mobility and prolonged use in stable positions, suggesting that these ornaments were likely integrated into clothing. The results indicate that most ornaments found in situ were sewn directly onto garments, forming part of body clothing. This interpretation supports the view of clothing as an active "second skin" for visual communication in Epigravettian funerary practices and highlights the role of dress in the continuity of complex symbolic traditions at the end of the Last Glacial Maximum.

2712. Disguise, Mimicry and the Meaning of Clothing

Authors: William Buckner (Durham University)
Format: Oral

Discussions of clothing use in prehistory often focus on its use for thermoregulation, a function which was particularly salient during the colder climates of Paleolithic Europe. This point of emphasis can obscure broader practical, social, and symbolic uses of clothing in human societies. Notably, even in warm climates, among present-day hunter-gatherers who often wear little-to-no clothing during their daily activities, clothing still plays an important role in both social and subsistence life. Here I discuss these patterns of clothing use among contemporary hunter-gatherers, with a focus on the importance of costumed performances. Costumes worn in service of impersonating other agents, such as animals, spirits, and mythical creatures, are frequently worn in the hunt, in ritual contexts, and for entertainment. Costumed impersonations are frequently used as tools of social control by initiated adult males and directed towards women and children. Patterns among contemporary foragers suggest that clothing in prehistory involved similarly complex symbolic uses of clothing outside of thermoregulatory needs.

244 URBAN ARCHAEOLOGY FOR DEMOCRACY: HOW CAN WE USE ENGAGEMENT WITH THE PAST TO DRIVE FUTURE PROSPERITY AND WELLBEING?

Theme: 2. Crossing the divide. Archaeology and the open world
Organisers: Paul Belford (Heritage Innovation) – Jeroen Bouwmeester (Cultural Heritage Agency of the Netherlands)
Keywords: urban archaeology, development, society, heritage management, wellbeing, social value
Format: Regular session
Affiliation: Community for Urban Archaeology

SESSION ABSTRACT

Urban places were the first spaces where people could engage outside conventional social hierarchies and develop awareness of places beyond their own locale. They were hubs for the exchange of materials, ideas and identities, and melting pots which led to modern democratic societies. This session will look at how we can enhance the value of urban archaeology to help create sustainable legacies for future generations. Urban archaeology faces many challenges: Preserving archaeological remains in situ Competing with other demands on resources Developing new techniques, approaches and syntheses Pressures from stakeholders to deliver wider public engagement There is a need to advocate for urban archaeology as a discipline, both within and beyond archaeology, and to politicians and the wider public. Questions that this session seeks to explore include: Definition: what do we mean by urban archaeology today? Chronology, materials, structures, concepts, methods. What value does urban archaeology bring to society? Case studies where urban archaeology has added value (or not) — positive and negative consequences of using urban archaeology to inform development, or is it just 'set dressing'? What is the economic value of urban archaeology? How is it able to contribute to the wider 'heritage' economy, and what benefits does urban archaeology bring to the general economy? How does urban archaeology contribute to mental wellbeing? We want to consider alternative concepts of value, and the social gains which derive — both to individuals and communities — from the actions and outcomes of urban archaeology. Who are, and should be, stakeholders for driving urban archaeology forward as a 21st century discipline? We welcome papers from across Europe and beyond, from any area of the discipline (commercial, academic, heritage management) to consider these questions, and the contributions that urban archaeology could and should make to safeguarding and renewing democracy in challenging times.

CONTRIBUTION ABSTRACTS

1784. On the value of urban archaeology for future generations

Authors: Paul Belford (Heritage Innovation)
Format: Oral

This paper provides an introduction to the session on 'urban archaeology for democracy', by exploring some of the questions we might consider to help maximise the legacy which urban archaeology can deliver for the future. Archaeological knowledge of past urban environments is made up of a mixture of physical remains — archaeological structures and features, as well as artefacts — together with the intangible web of information derived from more than 100 years of archaeological and historical investigations of urban places. One of the key challenges which archaeologists face is how to articulate that knowledge to deliver public benefit. Archaeologists have become quite good at telling stories to the general public. We have also made many advances in embedding archaeology into processes for urban renewal. Those processes recognise that archaeology is a 'finite and non-renewable' resource that has to to be managed. We have developed mechanisms for assessing significance and survival, and we can influence discussions around conservation. However archaeologists are rarely the decision-makers, nor are we always able to take advantage of our unique 'deep time' perspective to inform planning decisions. How can we move towards using the archaeological resource as a raw material for creative and dynamic change in urban environments? Is there scope to challenge some of the existing paradigms around archaeological preservation and interpretation? Can we make archaeology central to how urban centres deal with modern challenges — immigration, climate change, gentrification — all of which are reflected in the archaeological record? Indeed, what contribution can urban archaeology make to safeguarding and renewing democracy itself?

1260. Producing Democratic Subjects: Urban Archaeology, and Governance in Nordic Cities

Authors: Visa Immonen (University of Bergen)
Format: Oral

Urban archaeology is increasingly framed as a democratic practice: a means of engaging publics with the past, strengthening civic identity, and contributing to wellbeing and inclusive urban futures. Yet in many European – particularly Nordic – contexts, decisions about excavation, preservation, and reburial remain embedded within representative planning systems and heritage management institutions. Public participation is widespread, but typically takes place after key decisions have already been made. This paper asks not whether urban archaeology is democratic, but what kind of democratic subject it produces. Drawing on cases from Nordic cities where substantial urban archaeological remains have been excavated, documented, and subsequently reburied or built over, it examines how publics are positioned in relation to archaeological decision-making. It argues that urban archaeology commonly produces an informed, engaged, and affectively invested public, while simultaneously limiting opportunities for direct influence over outcomes. Conceptually, the paper draws on analyses of cultural governance that treat participation as a technique through which civic conduct, expectations, and legitimacy are shaped, rather than as a straightforward transfer of decision-making power. Empirically, it develops a typology of recurring configurations – such as archaeology as mitigation, symbolic stake, and post-hoc heritage – to show how democratic engagement is structured and contained within urban development processes. Rather than presenting this as a democratic failure or success, the paper argues that urban archaeology is highly compatible with representative democratic models, while sitting uneasily with participatory ideals increasingly invoked in heritage discourse (like the Faro Convention). Recognising this tension allows for a more precise understanding of the political work urban archaeology performs in contemporary cities.

913. From Demolition to Preservation: How Urban Industrial Archaeology Can Shape Civic Debate

Authors: Hynek Zbranek (Masaryk University Brno | Brno City Museum)
Format: Oral

The city of Brno (Czech Republic) is characterized by a high concentration of former factory complexes and industrial buildings located in the wider city center. This pattern stems from early industrialisation, driven above all by the wool industry and its supporting infrastructures. Industrial archaeology in Brno therefore rarely takes place only in peripheral "brownfields"; instead, it is conducted within a living, rapidly transforming urban organism where former factories are under strong pressure from demolition, reconstruction, and functional change. This presentation show the archaeological, methodological and cultural challenges created by this setting—and how archaeological work can shift the debate from inevitable loss towards informed preservation. The pace of redevelopment demands rapid yet scientifically reproducible recording: building-archaeological documentation of standing structures; systematic capture of technological traces (machine bases, channels, service runs and distribution systems); mapping of infrastructural linkages; and explicit integration of field evidence with archival sources (plans, inventories, personnel documentation, and others). Subsequent excavations may also reveal the earliest "factory layers"—phases of early industrialisation often obscured by later rebuilding. All of this unfolds within broader urban transformation, as manufacturing sites become places of memory and cultural heritage. Industrial heritage is thus a negotiated field involving communities, owners, developers and local government: it can unite the city through shared narratives of work and identity, or polarise actors if perceived as an obstacle to development. Using recent examples from Brno, the presentation shows how negative scenarios—demolition followed by archaeological research and public outreach—helped catalyse later positive cases in which civic and professional mobilisation contributed to preserving selected industrial buildings. In conclusion, urban industrial archaeology—working with local communities and interdisciplinary experts—can help create the conditions for the preservation, documentation, and meaningful presentation of industrial heritage. By turning field evidence into shared knowledge, it can mobilise society to safeguard urban history in rapidly changing cities.

577. Layers of the City: Urban Archaeology and Public Access to the Past in Bucharest

Authors: Elena Gavrila – Dan Pîrvulescu (Bucharest Municipality Museum)
Format: Oral

Archaeological research in Bucharest, particularly urban investigations carried out in the context of large-scale infrastructure rehabilitation projects, has revealed a wide range of buildings, cemeteries, and public and private structures dating to the medieval and modern periods. Some of these remains are well documented, while others have largely faded from view. Taken together, they trace the complex process of the city's emergence and long-term development. This process was shaped over time by repeated transformations and destructive natural events such as fires, earthquakes, and floods, as well as by systematic demolitions during the communist period and the pressures of continuous urban expansion. A number of these discoveries were proposed for conservation and integration into the public urban space. However, only a limited selection has been preserved in situ and made visible to the public, most often through display under glass pavements, largely due to financial constraints. In these rare cases, the reaction of both residents and visitors is striking: the hidden archaeological layers beneath the modern cityscape generate curiosity, surprise, and a renewed awareness of the city's historical stratigraphy. By examining selected case studies, both successful and unsuccessful, we reflect on the challenges of in situ conservation of archaeological remains, the pressures exerted by various stakeholders involved in urban planning and development processes, and the competition between heritage and other priorities of the contemporary city. In this context, the presentation examines the extent to which urban archaeology is genuinely integrated into development processes as a tool for knowledge production, decision-making, and public dialogue, or whether it is often reduced to a symbolic, decorative role, selectively employed to validate projects whose outcomes have already been determined.

1372. Archaeology of the Warsaw Ghetto - restoring history and rebuilding the identity of the place

Authors: Jacek Konik (Museum of Independence in Warsaw)
Format: Oral

After World War II, Poland's new communist authorities decided to rebuild Warsaw that was 90% destroyed. Intended to be the capital of the communist country, memory of its past had to be shaped accordingly. One of the methods was to settle people from different regions of Poland in Warsaw. For the new residents the city's wartime history, including the ghetto, was not part of their own memories. Thus, the authorities could more easily serve up a propagandistic, distorted version of the past. After the fall of communism in 1989 questions began to be asked about what had really happened in the city during the war. Attention was drawn not only

to the archival research but also to the archaeological excavations that were more and more frequently conducted in connection with the expansion of the modern city. This enabled the preparation of fully scientific archaeological projects on the Warsaw Ghetto, including the 2022 excavations near the famous Jewish Combat Organization bunker at 18 Miła Street. The relics of the basements of the former tenement houses were discovered, along with numerous artifacts from World War II and earlier. The research work was met with great interest from current residents of the area. For them it was crucial to see with their own eyes that their homes really stand on the ruins of the former buildings of the Jewish Quarter. Archaeological research has given the local residents a sense of significance and uniqueness of the place they live, as well as the connection with its past. This new awareness was visible in their desire to acquire knowledge, and in their support for the idea of commemorating former residents and preserving their heritage, including the initiative of entering the excavated remains into the national register of historical monuments.

1113. From the past to the future. Urban archaeology in 2040

Authors: Jeroen Bouwmeester (Cultural Heritage Agency of the Netherlands)
Format: Oral

The world has changed. From a marginal archaeological discipline, urban archaeology has advanced towards the frontline of society. The development of urban archaeology in the Netherlands is very representative in this respect. It has developed from emergency research after the war, followed by resistance from society against urban renewal in the 1960s and 1970s, the gradual erosion of the archaeological soil archive in cities in the 1980s, to a new position in society because of the Valletta Convention. But that was several decades ago. Meanwhile, the position in society of archaeology, and urban archaeology in particular, has changed. There is a clear trend from a focus on research towards a focus on meaning. Archaeology is no longer an obstacle but an opportunity. We are at the beginning of this exciting transformation. The challenge is to embrace this change without losing the scientific identity and integrity of the profession, but to interweave it with this change. The third science revolution has brought many benefits. It is also so specialised that it creates distance. The scientific side of urban archaeology is under pressure. However, when these circles of interests — society, scientific archaeological research, spatial planning, and public archaeology — overlap, something exquisite can emerge. Based on a reflection on the past, in this lecture I want to explore what it might look like: urban archaeology in 2040…

2058. The Interference of Contemporary Networks in the Interpretation Process of Occupation Sequences – The Case of Lisbon

Authors: Ana Rosa (Uniarq-FLUL/FCT)
Format: Poster

The adaptation of societies to new infrastructures and architectures transforms the urban fabric into a living, changeable entity. The ongoing processes of transformation, development, and expansion are often justified in the name of economic progress and social well-being, yet they have direct effects on archaeological heritage. Movements in the subsurface—excavations, trench openings, soil disturbance—affect and alter the strata, complicating the diachronic interpretation of sites. Like any metropolis, Lisbon is subject to human becoming. From the contrast of daily actions, "seven feetfrom the ground" reveal stratigraphies with intense levels of destruction and construction, evidence of an uninterrupted cycle of occupation. In fact, the chronological timeline extends from prehistory to the present day, a result not only of the favorable natural conditions but also of the ability to interact with the different communities that occupied its territory. This paper, therefore, aims to discuss the impact of contemporary infrastructure networks on sites, structures, and materials, focusing on specific interventions carried out in Lisbon.

245 PRODUCTION AND TRADE IN THE EASTERN MEDITERRANEAN FROM THE HELLENISTIC TO THE ROMAN PERIOD: FROM TECHNICAL KNOWLEDGE TO COMMERCIAL NETWORKS

Theme: 8. Beyond the Middle Sea: rethinking the Mediterranean in motion
Organisers: Nicolas Morand (Eveha international | Muséum national d'Histoire naturelle | CRAVO) – Mohga Abd El-Kawy (Ministry of Tourism and Antiquities) – Aude Simony (CEAlex CNRS)
Keywords: workshops, hard animal materials, ceramic production, trade networks, interconnections, Eastern Mediterranean
Format: Regular session

SESSION ABSTRACT

The productive capacities of ancient societies are well-attested by the abundance of artifacts recovered from archaeological contexts. While the organization of workshops and specialized production spaces remains a key scholarly debate, this session focuses on analyzing the dynamics of manufactured goods—specifically ceramics, metals, gemstones, glass, and hard animal materials—and their subsequent commercial distribution across the Eastern Mediterranean basin and beyond. Our chronological scope spans the Hellenistic through the Roman period (4th century BCE – 4th century CE), examining territories where long-distance trade was catalyzed by intense interregional connections. We specifically seek to understand whether the location of production centers was driven by proximity to essential raw materials, determined by their strategic position along major trade arteries and distribution hubs (urban centers, harbors), or established to satisfy specific demands. Understanding the process, from resource procurement (local or imported) to the chaîne opératoire, is crucial for defining the exploitation strategies and the resulting diversity of economic dynamics. A key objective is to evaluate the production capacities of territories and the subsequent dissemination of their products. An important research interest is to clarify the extent of change beginning in the Hellenistic and Roman periods, assessing whether craft activities represent a fundamental continuity, upholding regional traditions, or whether they signal a significant innovation and transformation of these practices. To analyze this potential, this session advocates for a holistic methodological framework. We particularly encourage contributions that bridge archaeometry, archaeology, iconography, and philology to trace the movement of goods and the transfer of production knowledge. Presenters are invited to submit studies that explore the mechanisms of production and the mobility of goods within micro- or macro-regional economic systems, ultimately shedding light on the underlying political and social dynamics that underpinned these commercial networks.

CONTRIBUTION ABSTRACTS

744. From Cult to Commerce? The Temple Bakery of Heliopolis during the Pharaonic–Ptolemaic Transition

Authors: Klara Dietze (German Archaeological Institute, Cairo)
Format: Oral

Excavations at the Temple of Heliopolis (Egypt) have revealed an economic quarter at the periphery of the main temenos, active from the 8th to the mid-2nd century BC. During the Late Period, this district produced perishable foodstuffs, initially for the temple's offering cult and subsequently redistributed to the wider population through the institutionalized cycle of offerings. Bakery installations, cattle stables, and associated waste deposits allow a detailed reconstruction of production mechanisms within a diversified economic regime combining baking with cattle husbandry and meat processing. This model collapsed under Achaemenid rule in the 5th century BC, when production sharply declined. A fundamentally different regime emerged during the transition from the Late Dynastic to the early Ptolemaic period (4th–3rd century BC), associated with a revival of the temple under Nectanebo I. The precinct was reorganized into a highly specialized, large-scale bakery, while all other production branches disappeared. Substantial changes in baking techniques, oven architecture, and spatial organization markedly increased efficiency—strikingly coinciding with the gradual contraction of cultic activity and the eventual abandonment of the Temple in the early to mid-Ptolemaic period, when its monuments and building materials began to be transferred to Alexandria. Ptolemaic bread production at Heliopolis thus stands at the intersection of technological tradition and innovation, with estimated capacities clearly exceeding the needs of a declining local cult. Adopting a diachronic perspective, this paper addresses the central interpretative problem: why did bread production intensify at Heliopolis precisely as the temple was approaching abandonment, and for whom was this bread produced if no longer primarily for the gods?

1286. Roman Pottery Workshop within an Integrated Insular Economy at Tabbet Metawah (Mariout, Egypt)

Authors: Mohga Abd El-Kawy (Ministry of Tourism and Antiquities, Egypt)
Format: Oral

The Tabbet Metawah site, an island approximately 20 km southwest of Alexandria on the southern coast of Lake Mariout, hosted a complex insular economy. Its eastern depression contained a substantial Roman pottery workshop, while other areas included a habitation zone, a hypogeum, and additional productive installations, reflecting a highly organized and multifunctional landscape. The workshop comprised three kilns, two of which featured a sophisticated design with divided firing chambers, possibly enabling simultaneous firing of distinct vessel types or dual pottery-lime functions, positioning these among the most intricate amphora kilns documented in the Mediterranean. Ceramic analysis confirmed AE3 amphora production, with post-firing resin treatment reducing porosity, likely to facilitate the transport of wine produced at the nearby press. Pottery wheel emplacements, pre- and post-firing hearths, and refuse deposits containing overfired, broken, and unbaked pottery provide an exceptionally complete view of the workshop's chaîne opératoire. Crucially, the pottery workshop functioned within a broader insular productive landscape encompassing viticulture, fishing, and textile-related activities. Together, these industries formed an integrated local economy oriented toward the packaging and circulation of agricultural surplus, particularly wine, within regional Mediterranean trade networks. Habitational evidence on the Kom's upper area, spanning from the early Ptolemaic to the late Roman periods, suggests seasonal or temporary occupation by workers associated with these industries, highlighting the dynamic interaction between craft production, resource exploitation, and socio-economic organization. These findings illuminate the technological expertise, spatial organization, and labor practices underpinning Roman craft production on Tabbet Metawah. More broadly, this study demonstrates how localized production hubs were interwoven with wider economic and commercial networks across the Eastern Mediterranean, offering valuable insights into the circulation of goods, technical knowledge, and economic strategies in antiquity.

2288. Amphora production in Mareotic Region during the Ptolemaic and Roman periods

Authors: Aude Simony (CEAlex, UAR 3134, Cnrs) – Valérie Pichot (MSHE, UAR 3124, Cnrs)
Format: Oral

Since 2013, the Centre d' Études Alexandrines (CEAlex, UAR 3134, CNRS) has been conducting surveys southwest of Alexandria, in the western part of the Mareotic Region, with the aim of identifying and mapping archaeological remains, which are largely threatened by modern development work. This region, closely linked to the Ptolemaic capital as its agricultural hinterland, underwent significant development from the 3rd century BC onwards. During the Ptolemaic period and then the Early Roman Empire, amphora production workshops developed along the southern shore of the Mariout Valley, linked to large agricultural villas located on the lake's edge. The remains of these workshops, which are still partially visible today, bear witness to intense agricultural production, mainly focused on wine-making. The Ptolemaic period productions (AE1 and AE2 type amphorae), largely inspired by Aegean containers in circulation in the eastern Mediterranean, were succeeded by imperial productions of Egyptian or Mediterranean tradition (AE3 or AE4 type amphorae), which were produced on a larger scale. This paper aim at presenting amphora production in this region during the Ptolemaic and Roman periods, based on research conducted by CEAlex on the southern shore of Lake Mariout. It also examines Mediterranean influences on this production and the economic vitality of this region within Alexandria's sphere of influence.

2050. Material Networks in the Hellenistic Eastern Mediterranean: A Comparative Study of Faience from Maresha and Memphis

Authors: Ruth Jackson Tal (Israel Museum, the Hebrew University) – Nurith Goshen (Israel Museum) – Andrew Shortland (Cranfield University)
Format: Oral

The study of faience production provides a valuable lens for understanding the movement of materials, skills, and ideas across the Hellenistic Eastern Mediterranean. Memphis, a well-documented faience production center of the Hellenistic-Roman period, has yielded extensive published material that maps its manufacturing techniques and workshop organization. In contrast, Maresha presents a rich faience assemblage yet lacks clear archaeological evidence for local production activity. This project seeks to map for the first time the typology, context, production techniques, and composition of the Maresha assemblage. By comparing these results with the established data from Memphis, we aim to evaluate whether the Maresha material represents local manufacture or imported products. The comparative framework is designed to illuminate patterns of technological transmission, economic interaction, and interregional connectivity between Egypt and the southern Levant. More broadly, the study addresses the question of Ptolemaic influence on the material culture of the southern Levant under Seleucid and Hasmonean rule. By focusing on faience, a small craft tradition often overlooked in large-scale political narratives, the research highlights how seemingly minor artifacts can expose the entangled dynamics of cultural exchange, technical knowledge, and imperial power that shaped the region's political and economic landscape.

1940. Terracotta roof tiles from Ptolemaic Alexandria cross study, preliminary results

Authors: Patricia Abou El Nil (CEAlex)
Format: Oral

Although frequently remaining in the periphery of studies concerning the ancient Mediterranean economy, architectural terracotta offers vital insights into urban supply chains. This presentation reconsiders this artifact group based primarily on the collection of over one thousand terracotta roof tiles in the storerooms of the Centre d'Études Alexandrines (CEAlex). By cross-referencing comparative data from sites such as Delos, Thasos, Kom Bahig, and Taposiris Magna, we aim to provide this material with the academic attention it warrants. A significant assemblage from the CEAlex rescue excavations in modern Alexandria stands out due to its archaeological integrity; recovered from the Garden of the Former British Consulate, this group belongs to a Ptolemaic-era context identified as a primary deposit. Dating to the 3rd century BC, the finds consist exclusively of fragments of Corinthian-style roof tiles. Morphological observations reveal a diversity in typology, specifically regarding variations in the distance between the transverse ridge and the tile's edge. These variations appear directly related to the nature of the clay, and by extension, the provenance of the tiles. Supported by the findings from CEAlex's excavations, the present study investigates a hitherto overlooked connection through a comparative analysis of the fabric characteristics of roof tiles and amphorae from the same context. By focusing on the finds from Alexandria, we aim to demonstrate that amphorae and roof tiles were produced, stamped, and distributed within a unified organizational framework. Ultimately, this research explores the underlying economic and political motivations of this practice, clarifying how building materials were supplied to the capital of the Ptolemaic Empire within the broader Mediterranean trade network.

1332. Beyond Bone: Luxury Animal Materials in Trade and Craft Dynamics in Alexandria and its Hinterland (Late Pharaonic to Roman Period)

Authors: Nicolas Morand (Eveha International/MNHN)
Format: Oral

Archaeological excavations in Alexandria illustrate the major role played by this Mediterranean metropolis in Antiquity. The numerous remains of object production reveal the importance of exploiting hard animal materials within this urban center. Local and exogenous materials coexist in these production spaces, testifying to the diversity of supply sources. Elephant ivory, a symbol of prestige from the Horn of Africa, alongside materials from the Levant and Europe, such as red deer or fallow deer antler, and

mother-of-pearl from the Indo-Pacific, raise questions about the reality of these long-distance networks. Associated with these rare materials, domestic mammal bones (cattle, donkey, camel) were used as the primary resource, serving as a viable substitute for rare and costly ivory. This reliance on abundant and affordable material reflects the intensity of production demands. While the use of local resources (ivories, ostrich eggshell, mammal bone) follows a long Egyptian tradition dating back to the Predynastic period, the Hellenistic and Roman eras mark a continuity and a large-scale expansion within the productions of an expanded world, of which Alexandria is a prime example. This communication proposes to re-examine the role of hard animal materials in these production spaces, focusing on both the raw materials used and craftsmanship that blends tradition and innovation. We will analyze the evolution of artisanal practices within the urban fabric to identify the actors of production and customers in the city and determine whether they are associated with other chaînes opératoires. On a regional scale, fleeting evidence from other settlements in the Nile Delta dating from the Late Pharaonic to Roman period will be presented to illustrate broader global dynamics of production and exchange.

2572. A Roman Ivory Scabbard Chape from a Sarmatian Grave: Research Perspectives on Ivory Sword Fittings in the Pannonian Region

Authors: Zsófia Masek (Institute of Archaeology ELTE Research Centre for the Humanities, Budapest) – Anna Biller – Lóránt Vass (Budapest History Museum: Aquincum Museum) – András Gulyás (Jász Múzeum, Jászberény)
Format: Oral

A recent rescue excavation conducted in the Sarmatian Barbaricum of the Carpathian Basin—located approximately 65 km east of Aquincum, Pannonia—revealed a heavily disturbed Roman-period Sarmatian grave. It included an ivory scabbard chape, which likely reached the site as part of a provincial Roman spatha and its associated fittings. We present the results of the zooarchaeological analysis, which has identified the material as elephant ivory, excluding alternatives like narwhal or walrus tusks, whalebone, red deer antler, or hippopotamus ivory. This study examines the distribution, social implications, and interaction networks of ivory scabbard components within the Roman Empire and beyond its frontiers. Box-shaped chapes (Dosenortbänder) were primarily in use along the Rhenish limes (second quarter of the 3rd century AD until the end of the century, C1b–C2 periods). While representative specimens are typically associated with high-ranking military officials, a surprisingly high number of "barbarian" imitations have been identified in northern Europe, linked to elite warrior groups. Box-shaped chapes crafted from ivory are exceptionally rare; only about ten examples are known. The sole known site in the Barbaricum was the Vimose bog deposit in Denmark. Ivory carvers (eborarii) operated trans-provincial trade networks to procure raw materials and distribute manufactured products. Ivory objects arrived in Pannonia as finished goods. Only 1% of the processed bone artifacts from Aquincum are ivory, evidencing long-distance trade in urban centers. Within this small percentage, military equipment is even scarcer. This study explores whether the object's presence is linked to specific military trade networks and dispersal patterns or to the long-distance commercial distribution in Pannonia. While Roman weapons often crossed borders through trade, diplomatic gifting, or loot, the rarity of this military prestige item suggests a connection to individual mobility or elite interaction networks, serving as a significant source of personal prestige within Sarmatian society.

2468. Coral and Garnets in Byzantine Alexandria: Exploitation of Distant Resources for Intercontinental Trade

Authors: Nicolas Morand (Eveha International/MNHN) – Patricia Abou El Nil (Centre d'Études Alexandrines)
Format: Poster

Excavations by the Centre d'Études Alexandrines (CEAlex) have revealed an active artisanal district dating to Late Antiquity. In this area, butchery activities coexisted with a specialized sector for processing semi-precious stones. Over 3,000 objects made from 15 different materials sourced across the ancient world were discovered. Spatial analysis of these finds suggests the existence of organized workshops. This site illustrates the importance of craftsmanship in the city. This presentation focuses on two materials that perfectly illustrate the diversity of raw material sourcing and trade routes in the ancient world: garnet and red coral. Analysis of the garnet fragments allows for the reconstruction of the various stages of their transformation into thin plates, a morphology like the Merovingian "cloisonné" style. Chemical analysis and inclusion studies link these specimens to Type I and II garnets from India and Sri Lanka. In the same area, significant evidence of red coral processing, sourced from the Western Mediterranean, highlights an inverse supply chain. While ancient texts record a high demand for red coral in India during Antiquity, these finds confirm that Alexandria served as a key hub where stocks were processed into jewelry, such as beads and rings. These results demonstrate that Alexandria was a central interface for transformation and redistribution during Late Antiquity.

246 THE MEANING AND PRACTICE OF BRONZE METALLURGY IN PREHISTORY — DEDICATED TO HEPHAESTUS, THE DIVINE SMITH

Theme: 1. Widening perspectives in material culture studies
Organisers: Agne Civilyte (BRIAI) – Paolo Piccardo (University of Genoa)
Keywords: Bronze Age metallurgy, Alloy compositions, chaîne opératoire, Experimental archaeology, Hermeneutic
Format: Regular session

SESSION ABSTRACT

In recent years, the study of metallurgy and bronze production technology has become a particularly dynamic field. While much research has focused on the chaîne opératoire and the technological processes behind bronze artefact manufacture, the essential meaning and broader significance of metal in human life remain open questions. This session aims to explore both the practical, ethnographic, and aesthetic dimensions of bronze artefacts, emphasizing their importance within prehistoric societies. Dedicated to Hephaestus—the divine blacksmith and symbol of creative transformation—this session seeks to understand not only how these objects were made, but also why they were made in particular ways. Like the Platonic Demiurge, smiths transformed "ideas" into tangible objects and tools through the application of knowledge and skill to the resistant matter of copper alloys. Material, form, and composition thus embody meaning and value, where "value" encompasses both use and aesthetics. We aim to investigate how ancient metallurgists acquired, mastered, and transmitted their deep knowledge—creating objects that were simultaneously functional and beautiful. The properties and potentials of bronze artefacts depend on alloy composition and microstructural features shaped by thermomechanical history. Researchers from archaeology, chemistry, and metallurgical sciences contribute to this inquiry, with experimental archaeology serving as a crucial means of reconstructing metallurgical practices. These experiments, like a metallurgist's touchstone, test the quality of our hypotheses. We will also address bronze recycling as a form of prehistoric sustainability, exploring its traces in the archaeological record, and consider the health and environmental implications of ancient metal production. Finally, the session invites researchers who interpret metallurgical data through social, philosophical, and hermeneutic lenses, linking ancient craftsmanship with enduring reflections on materiality, form, and creation. Through these perspectives, we seek to decode the technological, aesthetic, and philosophical dimensions of bronze, illuminating the human experience of metal in prehistory.

CONTRIBUTION ABSTRACTS

1324. Bronze Age Metal Alloys: Innovation, Networks, and Health Impacts

Authors: Agne Civilyte (Klaipeda university, Institute of Baltic Region History and Archaeology)
Format: Oral

This paper examines prehistoric metal alloys from the fourth millennium BC onward, focusing on their technological, social, and environmental implications. It outlines the principal alloy types and their components from a practical perspective, emphasizing alloying as a key stage of the metallurgical cycle that shaped both the functional quality and visual properties of metal objects. The deliberate selection of metals and careful control of proportions reflect the high level of technical knowledge achieved by Bronze Age craftspeople. These innovations contributed to intensified inter-regional contact, exchange, and trade among prehistoric communities. The second part of the paper addresses an underexplored dimension: the impacts of heavy metal exposure on human health and the environment. Adopting a multidisciplinary framework that integrates archaeometallurgy, bioarchaeology, and environmental studies, this study highlights the long-term ecological and biological consequences of early metallurgical practices and encourages dialogue with modern industrial metallurgy to inform more sustainable and responsible approaches today.

323. The making of the Bronze Age dirk of Ommerschans: What can chemical analysis and imaging techniques tell us

Authors: Ineke Joosten – Luc Megens (Cultural Heritage Agency of the Netherlands) – Yueer Li (TU Delft) – Tonny Beentjes (University of Amsterdam) – Luc Amkreutz (Dutch National museum of Antiquities)
Format: Oral

In 1896 a remarkable hoard was discovered near Ommerschans in the eastern Netherlands that included a spectacular object: a giant bronze sword. The Bronze Age dirk of Ommerschans seems to be of an exceptional quality. Its extraordinary large dimensions and delicate working suggest that it was a one of kind object. However, five similar shaped dirks of this period have been found, suggesting that these were made in series. The exceptional nature of this dirk and the five other similar dirks found on the European continent and in Great Britain and the assumption that they were made for ceremonial purposes, led us to further investigate the production process and potential use of the Ommerschans dirk by means of non-invasive analytical and imaging techniques like digital 3D microscopy, X-ray radiology, MA-XRF and Neutron tomography. The following research questions were addressed: what can be said about the mould and the material that this mould was made of, how was the dirk cast, was the surface of the dirk worked afterwards and are there any traces of wear visible.

687. Hephaestus, bronze, and belief: metallographic evidence of technological choice in Hercules votive statuettes from Molise region (Central Italy)

Authors: Camilla Criaco (University of Genoa-Department of Chemistry and Industrial Chemistry, DCCI) – Davide Delfino (Museo Archeologico Nazionale di Campobasso | Parco archeologico di Sepino-Direzione Regionale Musei Nazionali Molise) – Enrico Rinaldi (Parco archeologico di Sepino- Direzione Regionale Musei Nazionali Molise) – Matilde Pedemonte – Caterina Lupi – Roberto Spotorno (University of Genoa-Department of Chemistry and Industrial Chemistry, DCCI) – Paolo Piccardo (University of Genoa-Department of Chemistry and Industrial Chemistry, DCCI | UMR 6034, Université Bordeaux Montaigne – CNRS, F-33607)
Format: Oral

In Greek and Roman thought, Hephaestus embodied not only the act of making, but the sequence of processes through which inert matter was transformed into meaningful form. Taking this perspective, this paper approaches bronze artefacts as repositories of technological memory, accessible through metallographic analyses. Focusing on votive bronze statuettes of Hercules from ancient Samnium, this study investigates how technological choices were embedded within the metallurgical chaÎne opératoire of regional craft tradition. Votive statuettes indeed represent a critical intersection between metallurgical practices and religious expression, where material choices directly shaped ritual efficacy. This research, combining p-XRF, SEM-EDS, Raman spectroscopy, and metallographic examination, represents the first metallurgical investigation of these archaeological findings housed at the National Archeological Museum of Campobasso (Italy). All statuettes are manufactured in ternary Cu-Sn-Pb alloys, whose controlled lead content was selectively modulated to enhance casting fluidity and mold filling in relation to morphological complexity. Metallographic observations reveal homogeneous as-cast microstructures characterized by α-phase dendrites, interdendritic eutectoid, and dispersed lead nodules, consistent with controlled solidification regimes tailored to small-scale sculptural casting. This study demonstrates that metallurgical choices in votive production were neither arbitrary nor purely economic, but represented informed decisions integrating technical capabilities, aesthetic intention, and ritual function. In this sense, the metallurgical practices of Samnite smiths resonate with the Hephaestian model of creation: a knowledge-driven transformation of matter through controlled technological action.

1862. Mould Thermal Effusivity and Microstructure of Cu-Sn-Pb Alloys: An Archaeometallurgical Study on San Casciano dei Bagni Bronzes

Authors: Jessica Catanzaro – Roberto Spotorno – Camilla Criaco – Matilde Pedemonte – Flavia Boragina – Liza Upman – Paolo Piccardo (University of Genoa)
Format: Oral

This study investigates the correlation between the thermophysical properties of casting materials and the microstructural characteristics of Cu-Sn-Pb ternary alloys, within the framework of research on the recent discoveries from San Casciano dei Bagni. The objective is to reconstruct the "technological biography" of the artefacts through a protocol aimed at creating an experimental comparative database. The methodology involved an initial non-destructive XRF screening of five votive statuettes, followed by targeted micro-sampling for internal structure analysis. Metallographic sections of the originals were examined via LOM and SEM-EDS to characterise their structural arrangement. The acquired data informed the experimental phase, during which specific metallic charges were prepared to replicate the identified nominal compositions. The alloys were cast into moulds with varying thermal effusivity, ranging from mineral refractories and binders (clay, sand, gypsum, gypsum plaster, steatite) to metallic alloys and carbonaceous materials (steel, brass, bronze, graphite) to simulate different cooling regimes. Characterisation was performed using LOM and SEM-EDS, focusing on the quantification of Secondary Dendrite Arm Spacing (SDAS), the formation of $\alpha + \delta$ phases, and lead segregation. The results demonstrate that the microstructure is directly correlated to the thermal effusivity of the mould. The resulting dataset constitutes a diagnostic atlas that allows for the indirect deduction of ancient foundry techniques, compensating for the frequent absence of physical mould remains. This work expands the understanding of the technological expertise of ancient workshops and provides essential data for proper conservation, enabling the prediction of long-term material behaviour based on specific structural genesis.

1771. Traces of Fire: Macroscopic Colour as a Marker of Composition and Non-Equilibrium in Cu–Sn Bronzes

Authors: Matilde Pedemonte – Roberto Spotorno (University of Genoa, Department of Chemistry and Industrial Chemistry) – Michele Magnozzi (University of Genoa, Department of Physics) – Camilla Criaco – Caterina Lupi (University of Genoa, Department of Chemistry and Industrial Chemistry) – Livia Sforzini (Istituto Centrale per il Restauro) – Paolo Piccardo (University of Genoa, Department of Chemistry and Industrial Chemistry | UMR 6034, Université Bordeaux Montaigne – CNRS, F-33607)
Format: Oral

The macroscopic color of archaeological copper alloys is often regarded as a qualitative attribute, strongly influenced by surface condition and illumination. However, it also reflects the intrinsic optical response of the alloy, which is related to its chemical composition and microstructure. In this study, binary Cu–Sn alloys with tin contents ranging from 1 to 16 wt.% were reproduced in both as-cast and homogenized conditions to investigate whether colorimetric measurements could reveal systematic trends in the CIE Lab* colour space. With respect to compositional variations, the results show that the a* coordinate exhibits a consistent trend with increasing tin content. To better characterize this relationship, ellipsometric measurements were performed to determine the wavelength-dependent optical constants (n and k), enabling the reconstruction of the spectral reflectance of the alloys and supporting the interpretation of the colorimetric data. A second experimental campaign focused on a bronze alloy with a fixed tin content of 11 wt.% cast into moulds with different thermal conductivities, producing distinct cooling rates and tin microsegregation patterns. In this case, non-equilibrium microstructures led to measurable variations in macroscopic color, primarily expressed as changes in the overall colour difference (ΔE). This indicates that colorimetric parameters are sensitive not only to composition but also to deviations from equilibrium conditions induced by microstructural heterogeneity. The aim of this work is to assess whether, under controlled surface and illumination conditions, colorimetric data combined with optical modelling can provide a semi-quantitative, non-destructive estimation of tin content and microstructural state in Cu–Sn bronzes. This approach offers new perspectives for

archaeometallurgical studies in which sampling is limited or not permitted and forms part of a broader project aimed at developing a protocol for the monitoring and conservation of metal objects from excavation contexts to museum storage and exhibition spaces.

1857. Recycling Ideologies – the case of the Bronze Age Viksø helmets

Authors: Heide Noergaard (Moesgaard Museum)
Format: Oral

The Viksø helmets have been the focus of a detailed craft technical examination revealing their operational sequence, their relationship to the material culture of the Late European Bronze Age and their place of origin. Thus, the complete craft biography of these unique horned helmets can now be revealed! This presentation will highlight the importance of ideologies in the crafting of cultural or religious items, to which the helmets should be counted. Based on the crafting history, this study highlights the interconnections among beliefs, rituals, and wealth, showing that the modern trend of upcycling and recycling also played a major role in Bronze Age society. In line with the session's topic to highlight symbols of creative transformation in Bronze Age metalwork, the here presented detailed operational sequence of the helmets will not just reveal their making but also give insights into why they were made and how it actually works to transform "ideas" into tangible objects. An excursion to the origin of the helmets will furthermore provide an opportunity to identify the makers, their networks, and the sources of inspiration. Having been seen as continental European imports, this presentation will show a completely new option for the origin of the helmets, adding valuable information to the discussion of mobility and knowledge exchange in Bronze Age Europe.

1869. Silver-plated bronze nummis from the Roman Period: reproduction of the plating methods

Authors: Liza Upman – Alberto D'Erba – Paolo Piccardo (University of Genoa) – Maria Pérez-Lopez – Fernando Poyatos-Jiménez (University of Seville)
Format: Oral

In Antiquity, various methods were used to coat bronze coins with silver, such as amalgamation or the production of monetae suberatae. However, most of these techniques were poorly suited for large-scale monetary production due to the technological complexity of the processes involved. Studies of ancient Roman silvered coins from the period of the Tetrarchy, have suggested that a different silvering method may have been employed, namely the selective depletion of a silver-containing bronze alloy. Despite the silver rich surface of the coins founded in the Misurata Hoard as well as in the Tomares Hoard , all of them are made of a Cu–Sn–Pb–Ag alloy, with silver content ranging from approximately 3 to 8%. The present study is based on the average values of the group of coins from the reign of Diocletian within this hoards. The alloy composition was CuSn5%Pb9%Ag5%, and quantitative analysis revealed a non-uniform distribution of silver from the core of the coin towards its surface, where it appeared as if it was a silver coin. This study aimed to experimentally replicate the observed features using materials and methods available in antiquity. By applying a combined approach involving chemical treatment (exposure to various solutions) and physical processes (temperature and striking), it was possible to reproduce almost exactly the characteristics of the coins described above. This method may be a key to understanding the technological features of ancient Roman coin production.

1752. Preliminary results on Aes Rude characterisation at Gonfienti (Italy): an integrated neutron and SEM-EDS approach

Authors: Caterina Lupi (University of Genoa | National Council of Research, Institute of Applied Physics "Nello Carrara") – Paolo Piccardo (University of Genoa | Université Bordeaux Montaigne) – Francesco Cantini (National Council of Research, Institute of Applied Physics "Nello Carrara" | National Institute of Nuclear Physics) – Roberto Spotorno – Camilla Criaco – Matilde Pedemonte (University of Genoa) – Arianna Vernillo – Pasquino Pallecchi (Soprintendenza ABAP Firenze e Prato) – Francesco Grazzi (National Council of Research, Institute of Applied Physics "Nello Carrara" | National Institute of Nuclear Physics)
Format: Oral

The term "aes rude" typically designates raw copper fragments frequently found in Etruscan contexts dated between the 6th and the 3rd century BC. Archaeological evidence suggests these objects had potential value in early exchange systems. However, their marked morphological and compositional heterogeneity creates a critical interpretative problem: distinguishing fragments potentially utilised in exchange from intermediate products of metallurgical production chain. Understanding this distinction is key to reconstructing the function of aes rude in archaic societies and to assessing the organization and skills of local metalworking practices. This study examines compositional and microstructural characteristics of twentyfive aes rude from Gonfienti (Tuscany, Italy), an Etruscan settlement occupied from the late 6th to mid-5th century BC. The analytical strategy integrates complementary approaches: Time-of-Flight Neutron Diffraction (ToF-ND) and White Beam Neutron Tomography (WB-NT), conducted at the large-scale facility ISIS Neutron and Muon Source (UK), and SEM-EDS. The comparison and integration of results will help establish a comprehensive analytical protocol for the complete characterisation of these metal artefacts, reducing as much as possible the need for sampling which is often unfeasible on archaeological finds. Preliminary results reveal that aes rude production was not governed by standardized manufacturing protocols. Instead, the observed compositional and microstructural variability reflects heterogeneity in ore sources and metallurgical operating conditions. Of particular significance, we identified a subset of highly ferruginous copper samples that would have proven unsuitable for artefacts production, whether via casting, hot-working,

or cold-working. This work is part of a wider research project that also includes the study of finite metal artefacts (tools and weapons) from the same site, with the aim of reconstructing the complete metallurgical process, from raw metal to finite objects, and assessing local technological expertise at the Etruscan settlement of Gonfienti.

2146. The symbolism of bronze objects and their relationship to other spheres of the material world

Authors: Klara Pusztaine Fischl (ELTE Research Centre for the Humanities Institute of Archaeology)
Format: Oral

In the Middle Bronze Age and Koszider-period (RBA-BB1) metalworking of the Carpathian Basin, decorative motifs appear primarily on bronze and gold prestige objects whose interpretation cannot be undertaken in isolation. These ornaments (spirals, waves, concentric circles) form part of a symbolic system that extends into other spheres of everyday life. Their understanding therefore requires consideration not only of ceramic and bone craftsmanship, but also of the internal spatial organisation of settlements. According to the observable repetitive elements and regularities, the recurring additional design elements must have possessed a certain mnemonic function, through which they were connected to an underlying concept or set of concepts. Although this symbolic system extends across broader spatial and chronological frameworks, the paper examines the identity-signalling role of motifs appearing on metal artefacts through connection with other phenomenon within the Otomani–Füzesabony cultural complex. The aim of the presentation is not to match symbols with modern concepts, but to place the symbol system in context.

1605. Bronze Age stone casting mould from the village of Drama, Yambol district, Bulgaria

Authors: Todor Valchev (Regional historical museum - Yambol)
Format: Poster

The archaeological visibility of the production and consumption of Late Bronze Age (1500 – 1100 BC) bronze items in the Balkan Peninsula, increased substantially. This is the period during which tin-bronze came into mass circulation. It was used for the production of a wide variety of weapons, tools, jewelry, and different ritual and prestige objects. Prehistoric smiths were able to copy any object, including imported ones, and to give it individual characteristics. The aim of this poster is to present a stone casting mould used. It's double and was used for the production of celt axe and of chisel. The casting mould was found in the prehistoric settlement mound near the village of Drama, in the area of the Lower Stream of the Tundzha River. Situated in present-day Southeastern Bulgaria, the valley of the Tundhza River represents a very important passage which connects the Aegean coast with the lands north of the Stara Planina Mountain and the Danube River Basin. During the Late Bronze Age at least one of the important casting centers was situated there.

2489. Standardized Metal Forms, Their Circulation and Processing: Toward a Shape-Based Metal Economy in the Late Bronze Age of Poland

Authors: Kamil Nowak (Austrian Archaeological Institute, Austrian Academy of Sciences)
Format: Poster

Recent archaeometallurgical research on the Late Bronze Age has increasingly focused on identifying the provenance of copper and other non-ferrous metals used in local production. The absence of confirmed copper ore exploitation within present-day Poland suggests that metal was acquired primarily through import. At the same time, characteristic raw material forms widely documented elsewhere in Central Europe – particularly casting cakes and their fragments, known from hundreds of finds in regions such as Austria, Czechia, and Hungary – are almost absent from Polish assemblages. This discrepancy raises a fundamental question: in what form did metal circulate into this area? Rather than assuming that imported ingots were routinely remelted and thus rendered archaeologically invisible, this poster explores the possibility that metal entered circulation in alternative, standardized shapes. Drawing on evidence from hoards containing both foreign and local axe types, I argue that the former may have functioned as standardized carriers of raw material intended for remelting and redistribution. These assemblages provide new insight into patterns of metal flow, processing, and resource management, pointing toward a shape-based organization of the metal economy during the Late Bronze Age.

2580. Krummesser – from stone to metal or vice versa?

Authors: Viktória Kiss (ELTE RCH Institute of Archaeology) – Viktória Kisjuhász (HNM Castle Museum of Esztergom) – Orsolya Mateovics-László (Archäologischer Dienst GesmbH) – Boglárka Maróti (HUN-REN Centre for Energy Research) – Nóra Szabó (ELTE RCH Institute of Archaeology) – Gábor Szilas (Budapest History Museum) – Szabolcs Czifra (Hungarian National Museum) – Gabriella Kulcsár (ELTE RCH Institute of Archaeology)
Format: Poster

At Budapest-Óbuda, Északi Városkapu site numerous small jugs and a unique metal knife were found in a scattered cremation burial of the Nagyrév culture. Based on non-destructive pXRF and prompt-gamma activation analysis the knife was made of copper. The shape of the copper object is similar to stone Krummesser (German: curved knife). Classic stone curved knives appeared at the Early Bronze Age in Romania, in assemblages of the Glina III–Schneckenberg complex and in the later, Epi-Schneckenberg period,

as well as in the Otomani, and Wietenberg culture during the Middle Bronze Age. In Poland, similar stone knives are associated with the Trzciniec culture or with the Otomani–Füzesabony culture. In Hungary the most characteristic stone Krummesser was discovered from an urn burial. This grave was identified as an unusual burial of the Füzesabony culture, since the deceased of this culture were usually buried with skeletal ritual. Several less characteristic stone pieces were found in other contemporaneous settlements of the Vatya and the Hatvan culture, and in the Copper Age Baden culture. Some researchers believe that the stone curved knives may have been influenced by early metal pieces. Based on the copper knife dating to the period of the Early Bronze Age Nagyrév culture, our presentation raises the possibility that the mentioned Early and Middle Bronze Age curved stone and metal knives were actually used contemporaneously with similar functions.

2776. From Furnace to Philosophy: Western Anatolian Metalwork and Early Aegean Understandings of Physics

Authors: Aziz Kayaalp (Charles University)
Format: Poster

Although the Aegean communities display a strong sense of interregional cohesion in both the Late Bronze and Early Iron Ages, their shared material culture has mostly been read through migration theories or solely trading activities in the past, obscuring the most important agents of circulation: humans. Rather than merely contextualizing the occurrence, understanding the human mind behind its locus is a crucial step in visualizing the whole picture. In this sense, metal findings in archaeological contexts provide a useful avenue: especially due to the developments in archaeometallurgical laboratory analyses based on their chemical compositions, the techniques behind metal findings are identifiable. By comparing the nuances between neighboring techniques, one can have a healthy perspective on certain choices. Many deliberate choices in production, implemented by the craftspeople, were related to the ancients' understanding of nature. The conception was mostly limited to the geographical and geological characteristics of their homeland, manifesting itself in folklore. The rich philosophical traditions of western Anatolia convey valuable clues into this epistemology. Especially Aristotle's compilation of Pre-Socratic knowledge, and later philosophers hailing from western Anatolia, transmit the ancient Aegean understanding of physics and chemistry, allowing us to reconstruct what ancient smiths would have known about the elements. As addressed in my Master's thesis "Western Anatolian Metalwork (and the Self-Image) of Metalworkers in the Later 1st Millennium BC: a Historical-Archaeometrical Approach", a closer look at ancient Lydian and Phrygian metalworking techniques reveals certain chemical understandings that found their display in later Ancient Greek metalwork and conception of mineralogy. This paper will present published data from Sardis, Dascylium and Gordion in comparison with Laurion, and also contain philological observations on Strabo and Herodotus.

247 BACK TO THE BEGINNING: WHAT PHILOSOPHY OF TECHNOLOGY AND ARCHAEOLOGY MAY LEARN FROM ONE ANOTHER

Theme: 6. Transient theories
Organisers: Karel Kuipers (Faculty of Archaeology, Leiden University | Erasmus School of Philosophy, Erasmus University Rotterdam) – Daniela Maio (ICArEHB- University of Algarve) – Hub Zwart (Erasmus School of Philosophy, Erasmus University Rotterdam)
Keywords: Philosophy of Technology, Epistemology, Archaeological Theory, Human Evolution, Human–technology relations, Technics
Format: Discussion session
Affiliation: Early Career Archaeologists Community - ECA, Palaeolithic and Mesolithic Community - PaM

SESSION ABSTRACT

Archaeology has traditionally always positioned itself in two ways. On the one hand it is a technoscience, studying the human condition by excavating sites and analysing material remains. On the other hand it is a humanities field and aims to deepen human self-understanding by addressing the question who we are and where we come from. A dialogue between philosophy and archaeology has a long history and has always been fostered by the fact that both areas of inquiry follow the same adagium: know thyself. This session invites critical reflection on our relationship with technology, past and present. On the one hand, technological practices have shaped the trajectory of human evolution; on the other, in today's archaeology, technological methods themselves increasingly drive research questions . How does this shift affect the epistemology of the field? What is gained and lost when technicity overtakes inquiry, especially with growing reliance on AI, which risks distancing researchers from ther material object of study? In contemporary philosophy, the question of technology has taken centre stage; not only in response to disruptive developments such as AI, but because human existence and thought have always been conditioned by technology. It is here that the philosophy of technology and the philosophy of archaeology meet, for archaeology explores the relationship between technics and human existence from its very beginnings. What is needed is an understanding of technology that treats technics not merely as a means or byproduct, but as a structuring aspect of what it means to be human. Drawing on the work of Gilbert Simondon, Bernard Stiegler, and André Leroi-Gourhan, this session seeks a shared framework where critical reflection takes precedence over purely technical approaches.

CONTRIBUTION ABSTRACTS

567. Technics and thinking in the deep past: towards a phenomenology of the Pleistocene spirit, Neanderthal research as case history

Authors: Hub Zwart (Erasmus University Rotterdam)
Format: Oral

In Phenomenology of the Spirit (1807) the philosopher Hegel aspired to capture the history of human thinking on its pathway towards comprehensive knowledge. In early writings, Hegel emphasises how human history is conditioned by technics from the very beginning and one of his early manuscripts entails an archaeological philosophy of technology (a philosophy of archaeology) emphasising the role of technics and labour. For Hegel, the history of thinking began twenty-five centuries ago, notably in ancient Greece, resulting in an intellectual daybreak, when early thinkers addressed the question of the primordial beginning (archè) of the world as we know it. Such a timeframe, however, as impressive as it may have been in the early nineteenth century, is far too limited. The journey of human thinking already commenced millennia ago, somewhere in the deep Pleistocene past. And precisely here, in the very long ago, the intimate entanglement of technics and thinking played a decisive role. What we know about early human history primarily concerns early human technics, e.g., the production and use of artifacts and art in the context of Pleistocene industries. My paper outlines how an intense collaborative dialogue between Pleistocene archaeology and philosophy of technology may allow us to explore in outline the development of human thinking in deep history, thereby broadening our temporal and spatial horizon, using Neanderthal research as my case history, while building on philosophers of technology such as Simondon and Stiegler who already emphasised the importance of a collaborative dialogue between archaeology and philosophy. For Hegel, philosophy and archaeology share the same objective: deepening human self-understanding (who are we and where we come from?). Is it possible for us to gain access into distant worlds of thinking, informed by an archaeology-philosophy dialogue on technics, knowledge and art in the deep past?

2363. Praxis as knowledge transmission: a critical assessment of concepts used in cultural transmission models

Authors: Astolfo Araujo (Museum of Archaeology and Ethnology, Universitu of São Paulo)
Format: Oral

Archaeology provides the only long-term record of human culture. Therefore, researchers interested in understanding cultural evolutionary patterns of long duration would greatly benefit from studying and incorporating data provided by archaeological materials. Cultural Evolutionary Theory (CET) postulates that one can approach cultural changes or stasis through evolutionary terms borrowed (and then adapted) from Biological Evolutionary Theory. Here we present a proposal to define concepts commonly used in the domain of CET, such as "information", "culture" and "cumulative culture" but whose meaning is often dubious or difficult to implemente in a long-term, evolutive rationale. We emphasize the need to distinguish between "information" and "knowledge", in addition to recognizing that "knowledge" can be divided into four distinct modes: doxa, sofia, technê, and episteme. We suggest that doing / performing (praxis) is the prime catalyst for ideas or mental constructions, being the main factor that allows the reliable transmission of knowledge over time. Lastly, we will discuss how some ideas espoused by Simondon, Stiegler, and Lero-Gourhan can be placed in this context.

1419. Mediating Narratives from Archaeometric Data: A Reflective multi-proxy Framework on Technicity for Interpreting Chalcolithic Ceramic Technologies in the Balkans

Authors: Sebastian Dumitrescu (ArchaeoSciences Platform ASp-ICUB, University of Bucharest | Interdisciplinary School of Doctoral Studies, University of Bucharest) – Bogdan Manea (ArchaeoSciences Platform ASp-ICUB, University of Bucharest) – Daniel Stoicescu (University of Bucharest) – Vasile Opris – Theodor Ignat (ArchaeoSciences Platform ASp-ICUB, University of Bucharest | Bucharest Municipality Museum) – Cătălin Lazăr (ArchaeoSciences Platform ASp-ICUB, University of Bucharest)
Format: Oral

This research examines the methodological challenge of integrating complementary archaeometric datasets to construct robust, human-centric narratives about the past. Using Neolithic-Chalcolithic white-paste inlaid ceramics as a case study, it interrogates how discrete observations—elemental data, micrographs, statistical clusters—become social narratives. The proposed case study highlights how laboratory choices and interpretive frameworks—shaped by available infrastructure, training, and disciplinary tradition—influence the narratives built from archaeometric data. This inquiry thus operates on two interrelated technological planes: the ancient technics of ceramic production under study, and the contemporary scientific instruments through which that past is reconstructed. The investigation is grounded in a complementary study of ceramics from multiple Neolithic and Early Chalcolithic traditions in Lower Romania (Starčevo-Criș, Dudești, Vădastra, Boian, Hamangia – c. 6000-4500 cal. BCE). A dual-method approach (pXRF & SEM-EDX) provided compositional and microstructural data. PCA analysis revealed three distinct paste groups—calcium-rich, silicon-rich, and mixed-composition—interpreted as distinct recipes. These recipes reveal a technological landscape utilizing both local resources and distantly-sourced materials. Each instrument offers a distinct lens: pXRF maps broad compositional choices while SEM-EDX reveals microstructural details of mixing and firing. Together, they constrain and enable

different facets of the technological narrative. The conundrum in many studies lies in modeling a functional, multi-proxy correlation of archaeometric results with other datasets and established narratives. This study maps a clear interpretative sequence: from compositional groups to material, from material to chaîne opératoire and knowledge, and from non-local provenance to evidence for procurement networks. Overlaying these interpretations onto cultural and chronological frameworks transforms data into powerful narrative constraints. An iterative, reflective multi-proxy methodology thus provides the empirical rigor necessary to construct plausible narratives about past technological practice.

2103. From Typology to Process: Rethinking Lithic Analysis through Technics and Material Inference

Authors: Karel Kuipers (Faculty of Archaeology, Leiden University | Erasmus School of Philosophy, Erasmus University Rotterdam)
Format: Oral

In recent years, the study of lithics has been shaped by developments from two directions. On the one hand, the biomolecular turn has increasingly positioned lithic analysis into a more supportive or auxiliary role, rather than as a primary mode of inquiry to study human behavior in the deep past. On the other hand, there has been sustained critique of how lithic typologies are constructed and applied, raising questions about their epistemic robustness. While typological and technological classifications are still operated in a consciously pragmatic manner, they are often epistemically underdetermined and tend to operate at the scale of assemblages and/or artefacts, limiting their explanatory or predictive power. Against this backdrop, this paper explores the potential of a dialogue between archaeology and philosophy of technology. More specifically, the paper combines a semiotic approach to material inference with Stiegler's theory of technics in order to examine how lithic analysis might be grounded in materially warranted inference and processual explanation. Semiotics is used to constrain inference from archaeological traces, restricting analysis to robust relations grounded in technical processes, and thereby avoiding appeals to meaning or mentalist explanations. Stiegler's account of technics, in turn, offers a way to think through how technical practices carry memory and generate historical continuity. Taken together, these perspectives suggest how technical lineages might be reconstructed as processual trajectories grounded in what had to occur for artifacts to exist, rather than as expressions of constructed cultural units.

248 ARCHAEOLOGY AND HISTORY OF WOODLANDS – HUMAN-TREE INTERACTION THROUGH TIME

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Oliver Nelle (Tree-ring Lab, Baden-Württemberg State Office for Cultural Heritage | Institute of Botany, University of Regensburg) – Aleksandra Fostikov (Institute of History Belgrade) – Dorina Moullou (Ephorate of Antiquities of East Attica, Hellenic Ministry of Culture | School of Applied Arts and Sustainable Design, Hellenic Open University) – Maria Ntinou (Department of Archaeology, Aristotle University of Thessaloniki)
Keywords: woodland, human-tree interaction, material and historical sources, interdisciplinarity, environmental archaeology, long-term perspective
Format: Regular session

SESSION ABSTRACT

Woodlands have evolved under human influence for millenia, with the availability of tree products playing a pivotal role in shaping the development of human societies. The interaction of humans with trees and woodland is a long and regionally diverse story. Although the topic has a rich history of research, it increasingly requires more detailed regional and synthetic investigations and truly interdisciplinary approaches, with innovative combinations of methods and archives. In this session, we focus on combining archaeological material and written or iconographic evidence, alongside oral history and ethnographic data. The complementation of archaeological finds and features -waterlogged wood, timber in historic buildings, charcoal, tar, carpological remains- with sources from historical sciences such as texts, maps, and iconography offers unique potential to explore the interrelatedness of woodland products, their uses and their analysis. Knowing the consequences of woodland use through time is essential for understanding current ecosystems and contributes to contemporary debates on biodiversity and climate change. After a session at the EAA 2024 on PoTaRCh (Network of Forest by-products Potash, Tar, Resin, Charcoal in Europe, EU-COST Action 22155) and the 2025 session focusing on the connection of wood and charcoal with metallurgy, we now stress the collaboration between archaeologists, historians and environmental scientists. This session expands the PoTaRCh network's initiative to promote transdisciplinary research on forest by-products across Europe. It aims to bring together researchers from different periods, regions, and disciplines to examine how human activities have shaped and been shaped by woodland ecosystems. We seek to identify long-term trajectories in woodland exploitation and perception by integrating archaeological, historical, ethnographic, and ecological perspectives. We welcome contributions on wood procurement and trade, management, charcoal and tar production, resin extraction, timber construction, palaeoecology, and the symbolic or ritual role of trees.

CONTRIBUTION ABSTRACTS

515. Let there be light?! The Late Iron Age Land Opening around the Oppidum Altenburg-Rheinau in Southwestern Germany

Authors: Lisa Holler (Prehistory, Early History and Medieval Archaeology, University of Tübingen) – Elena Marinova (Archaeobotany Laboratory, Baden-Württemberg State Office for Cultural Heritage) – Oliver Nelle (Tree Ring Laboratory, Baden-Württemberg State Office for Cultural Heritage) – René Wollenweber (Prehistoric Archaeology, Baden-Württemberg State Office for Cultural Heritage) – Martin Bartelheim (Prehistory, Early History and Medieval Archaeology, University of Tübingen) – Günther Wieland (Prehistoric Archaeology, Baden-Württemberg State Office for Cultural Heritage)
Format: Oral

The first major urbanization north of the Alps arose during the late pre-Roman Iron Age and resulted in fundamental cultural transformations. This process profoundly shaped the landscape and land cover, especially around early central places such as oppida. The significant shift is due to an increased demand for food and wood supplies of a growing and artisanal more specialised population. This study aims to gain a broader understanding of landscape changes and human-environment interactions based on the macro botanical evidence of the late La Tène oppidum Altenburg-Rheinau, which is situated on two strategically favourable peninsulas of the Rhine River (Swiss-German border region, east of Basel and west of Schaffhausen). Especially in southwestern Germany, but also vast parts of Central Europe, the combination of the carpological and anthracological subdisciplines is yet rarely conducted on late La Tène sites. Thus, information on vegetation shifts often derives from carpological and palynological perspective only, restraining potential evidence of silvicultural practices or wood import. So far, the carpological results from Altenburg-Rheinau (peninsula Schwaben), attest to a clear presence of open and grassland vegetation, which supports the idea of land opening. Interestingly, the outcomes of the anthracological investigations indicate no bottlenecks in high quality wood supply. The duration and spatial extent of activity of the oppidum suggest a high wood demand and it is likely that the resource was first locally exploited. This would have extensively affected the surrounding forest. This paper intends to investigate reasons for the predominant presence of high-quality fuel and timber (oak and beech). Thus, the potential of sustainable silvicultural practices is explored through tree ring analysis. Furthermore, other possible supply systems are posed in a theoretical approach. Finally, the results will be presented in a diachronic framework, and an outlook on possible future research will be given.

1457. Layers of Change: Human–Forest Interactions and Landscape Transformation in the Šumava Mountains (18th–20th Centuries)

Authors: Tereza Blažková (Center for Theoretical Study, Charles University)
Format: Oral

The Šumava Mountains form a densely forested border range in the southwest of the Czech Republic. Their role as a wooded frontier landscape has been recorded since the Middle Ages and even earlier. Until the late 18th century, however the region remained almost untouched—a true primeval forest—despite the existence of several trade routes and some local-scale forest use. Major transformations began with the rise of noble-controlled timber trading at the turn of the 18th and 19th centuries. This paper presents the results of an interdisciplinary study focusing on the transformation of this landscape under the influence of intensive human interaction with forest . The large-scale exploitation of forest resources—particularly the extraction of firewood for industry in Vienna and Prague— initiated profound ecological changes that continues to affect the region today (forest clearance, soil degradation, bark beetle outbreaks, and increased vulnerability to windthrow). In addition to the massive logging also special trees were extracted for their rare, healthy wood for example resonant wood for the production of musical instruments. Forestry led to settlement development, as previously uninhabited mountain regions became places for people to live is villages and seasonal dwellings. Further profound transformations occurred during the 20th century due to wars, political upheavals. These events deeply impacted the landscape, ecosystems, and patterns of human settlement. After the Second World War, most of the local population was expelled or relocated, and the region became a restricted border zone where military activity continued. My research integrates archival documentation, historical maps, oral histories, and non-destructive archaeological field survey to reconstruct long-term trajectories of human–forest interaction. By combining material traces of woodland use with written and cartographic evidence. the study reveals both visible and hidden traces of two centuries of human–environment interaction that continue to shape the now protected Šumava region.

1492. Woodlands of Macedon: Macedonian wood and pitch

Authors: Maria Ntinou – Ioanna Vasileiadou (Department of Archaeology, Aristotle University)
Format: Oral

In the historical period, the woodlands of Northern Greece have been a major attraction for rulers from the East and settlers from the South. Ancient authors (Herodotus, Euripides, Theophrastus, Thucydides) praised the richness and biodiversity of the forests of Mounts Olympus, Cholomontas, and especially Pangaion (Daton), while charcoal and palynological studies confirm the wealth of Macedonian woodland environments. Since prehistory, local communities possessed the technical knowledge required to exploit forest resources of their natural environment. In historical times, and specifically during the 4th century BCE, timber from Mount Pangaion, which was in high demand, and Chalkidiki timber were integrated under the label of Macedonian timber and became

a highly competitive commercial product, distributed to markets throughout Greece, as evidenced by both epigraphic and literary sources. Ancient Macedonia was an invaluable source of timber for shipbuilding, which was often included in inter-city state treaties of ancient Greece and used as diplomatic leverage to achieve key political and military objectives. Alongside timber, the production and trade of Macedonian pitch was an inconspicuous yet particularly important economic resource. Herodotus' "Pierian pitch" of 5th century BCE constitutes the earliest literary reference to pitch production in ancient Macedonia. During the reign of Philip II, pitch produced by the community of Chalkidiki appears to have been incorporated into Macedonian pitch – the "pitta" mentioned in inscriptions. Fiscally, pitch was treated in the same way as timber. At the microeconomic level, both timber and pitch had various applications (resin/pitch coating, funerary practices, resinous wine-type of ancient "retsina", etc.). Archaeological residues of resin and pitch from sites across ancient Macedonia attest to its widespread use. In this presentation, we examine the exploitation and management of the woodlands of ancient Macedonia from an interdisciplinary perspective, combining historical and epigraphic sources with an emphasis on archaeological data and laboratory analyses.

2030. Wooden Artefacts from a Late Antique Hillfort Cistern at Ajdovski Gradec: Dendrochronological Evidence

Authors: Daša Pavlovic (National Museum of Slovenia) – Maks Merela – Daša Krapež (University of Ljubljana)
Format: Oral

In 1977 - 1978, a cistern was excavated within one of the defensive towers of the Late Antique hillfort settlement of Ajdovski Gradec above Vranje (Slovenia). Owing to its exceptional construction quality, the structure remained water-tight for approximately 1,400 years. A total of 271 wooden artefacts were recovered, including elements of the roof structure, roofing components, gutters, ceiling elements, a trough, a ladder, and various smaller utilitarian objects. Such an extensive assemblage of well-preserved wooden material archaeologically attributed to the 6th century, is extremely rare in Slovenia and the wider south-eastern Alpine region. Most wooden objects were conserved with polyethylene glycol (PEG) in the 1980s, which substantially limits the reliability of radiocarbon dating. Consequently, dendrochronological analysis represents the most suitable method for establishing a precise chronology. This work presents the results of dendrochronological analyses conducted in late 2025 and early 2026 on 22 selected samples. Preliminary analyses indicate that all sampled timbers are oak (Quercus sp.) and are suitable for dendrochronological measurement and dating. The results contribute to a more refined chronological framework for the construction of the cistern, and associated settlement and provide new insights into climatic conditions and environmental changes during Late Antiquity in the south-eastern Alpine region.

1643. Forest use in medieval Serbia

Authors: Mirko Vranic (University of Belgrade, Faculty of Philosophy, Department of Archaeology) – Aleksandra Fostikov (Institute of History Belgrade) – Nemanja Pavlović (University of Belgrade, Faculty of Philosophy, Department of Archaeology)
Format: Oral

Forests were among the key natural resources of medieval Serbian society, given that the central Balkan region—excluding its Mediterranean areas—is rich in forest vegetation. The multifaceted role of wood is evident in construction (as a structural material), economic activities (mining and metallurgy, crafts, and manufacturing production), and everyday consumption. Data on tree species and terminology in connection to them as well as information on their usage, are drawn primarily from historical sources (charters, legal texts, and other documents), iconographic evidence, local toponymy, and modest but increasingly frequent archaeological (anthracological) analyses of samples from diverse contexts (fortifications, settlements, mine shafts, metallurgical remains, etc.). Environmental factors influencing forest use are also taken into account. This paper aims to provide a comprehensive overview of current knowledge and to highlight the potential of an interdisciplinary approach to the study of forest use in medieval Serbia. In this way, the study also opens possibilities for further comparison within a broader and better-researched European context.

2214. Woodland exploitation and selection in the prehistoric southwestern Balkans: insights from dendrochronology on waterlogged wood

Authors: Andrej Maczkowski – John Francuz (University of Bern) – Matthias Bolliger (Archaeological Service of Canton Bern) – Maxim Yermokhin – Albert Hafner (University of Bern)
Format: Oral

This study investigates diachronic woodland exploitation in the prehistoric southwestern Balkans through an integrated dendrochrono/archaeo/typo-logical analysis of waterlogged oak, juniper, pine, and other deciduous-tree remains spanning the 6th to 1st millennia BC. Oak was consistently the dominant construction timber (>50%), reaching almost 90% at Iron Age Vrbnik (Lake Ohrid). The vast majority of oak timber comes from subgenus Quercus taxa, and the near absence of Cerris-type oaks in the archaeological assemblages suggests either cultural preferences or ecological constraints. Diachronic comparison of ring-number/diameter, ring-number/growth-rate relationships, and site-specific average growth curves reveals subtle yet meaningful woodland-use patterns. At Neolithic Dispilio (6ht mill. BC, Lake Kastoria) predominantly young oak trees were used, whereas during the 45th–44th century BC occupation of Ploča Mičov Grad (Lake Ohrid) mixed-aged forests were exploited. Only the Late Bronze Age phases at Ploča show indications of targeted selection, including diameter clustering in the 15th-14th c. BC and a shift to older growth in the 14th-13th c. BC phase. The vigorous juvenile growth of oaks observed at Iron Age Vrbnik aligns with regional pollen evidence for widespread

forest thinning after 1150 cal BC. Juniper use, prominent in the 6th and 5th millennia BC, demonstrates early exploitation of these durable taxa, with Ploča specimens showing larger diameters and greater age than those from Dispilio, possibly indicating more open woodland stands. Pine species are mostly represented by P. nigra/sylvestrist-typa, but are less chronologically informative due to poor preservation of waney edges. Overall, the results underscore a remarkable continuity in woodland composition and sustainable exploitation across many millennia of human settlement, consistent with broader findings that long-term traditional land use maintained high biodiversity in the Mediterranean. The study also highlights the transformative potential of combining dendrochronology and targeted high-resolution radiocarbon modelling.

2319. Human-tree interactions through time on Vitosha Mountain, Sofia, Bulgaria: a charcoal-production sites' survey

Authors: Mila Andonova-Katsarski (Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences | Department of Archaeology, Sofia University "St. Kliment Ohridski") – Anani Antonov (National Archaeological Institute with Museum, Bulgarian Academy of Sciences) – Borislav Grigorov (Department of Geology, Sofia University "St. Kliment Ohridski")
Format: Oral

Vitosha Mountain lies immediately adjacent to the modern Bulgarian capital, Sofia. Its natural resources have been intensively exploited by the inhabitants of the Sofia Plain from the Neolithic period through Roman and Late Antiquity, the Medieval period, and into the present day. Forestry resources, including wood and tree fruits, are well documented as having been sourced from Vitosha and utilised in the ancient city of Serdica. In contrast, much less is known about archaeological forestry by-products, such as charcoal, that may have originated from the mountain. Historical sources, however, attest to charcoal production on Vitosha, particularly in connection with metallurgical activities, as well as to the trade of charcoal. Other accounts describe the environmental consequences of these practices, including extensive deforestation and subsequent reforestation with selected tree species to stabilise eroded slopes. Drawing on this historical literature in combination with systematic land survey informed by charcoal-related toponymy, this study presents the first results of the pioneering survey of historical charcoal production sites on Vitosha. It further demonstrates the close interplay between present-day biodiversity patterns—such as the distribution of recent and old-growth forest cover—and evidence derived from written sources and field survey data.

2445. Wood charcoal production in round and rectangular upright kilns in southern Germany - a combination of dendroanthracology and written sources

Authors: Oliver Nelle (Baden-Württemberg State Office for Cultural Heritage)
Format: Oral

In south-west Germany, in the region of Baden-Württemberg, charcoal was produced in pits until late medieval times, and in round upright kilns thereafter. Now, thanks to LiDAR image analysis and ground proving, we found an ensemble of relics of round kilns together with rectangular kilns, in a forest near Ellwangen in the Ostalb region. The rectangular kiln type or Langmeiler is known from Scandinavia and Austria, but was so far not found in Baden-Württemberg. The charcoal assemblages are dominated by fir (Abies). In the region with a long iron mining and processing history, the need for charcoal was immense before the use of fossil coal. According to LiDAR data, thousands of charcoal production sites are still present and can be sampled for anthracological analysis. Tree-ring measurements are carried out to characterise the growing conditions of the trees, as well as date the time of usage of the sites. The operation of the kilns might be related to a big windfall event and the subsequent need to process the huge amount of fallen trees, as recorded in written sources of the 19th century.

683. Prehistoric textile production as possible evidence of forest management

Authors: Johanna Banck-Burgess (Textilarchaeology, Baden-Württemberg State Office for Cultural Heritage)
Format: Oral

Since the Neolithic period, settlers have lived continuously along the shores of lakes that are found in the Alpine lowland region. Due to the wetland conditions preservation of organic material is exceptional and textiles that have survived in the prehistoric wetland settlements are numerous and are providing evidence of the little understood importance of textiles in sedentary Neolithic lifestyles. Notably in the Hornstaadt IA settlement on Lake Constance in southwestern Germany, which seems to have been active between 3917 and 3909 B.C,, before it was destroyed by fire. The evidence from this settlement demonstrates the commonplace demand for textiles, which were practical and necessary for housekeeping, construction, food storage, fishing and mobility. As with other settlements of the same period, lime bast was predominantly the key material. Careful selection and processing of the raw materials used in the manufacture of these textile products is testimony to a high level of proficiency. Demand for lime bast probably far exceeded that which was available in the uncultivated environments surrounding of the settlements. There were probably several ways to meet the demand for raw materials, ranging from sourcing from further afield to adopting different forest management strategies. In this contribution the aim is to demonstrate that, in prehistoric times, textiles were directly linked to trees and therefore forestry. By providing an overview of the textile finds and their value and usage. Also to highlight some specific gaps relating to dendrology research.

1780. Between the Axe and the Crown: Resource Demand and Protection of Royal Woodland in the 17th-Century Białowieża Forest

Authors: Joanna Wawrzeniuk (Institute of Archeology, Cardinal Stefan Wyszyński University, Warsaw) – Bogumiła Jędrzejewska (Mammal Research Institute, Polish Academy of Sciences, Białowieża)
Format: Poster

Białowieża Primeval Forest (1,500 km2; located on the borderland of Poland and Belarus) has been the best-preserved woodland in the lowlands of temperate Europe and UNESCO's World Heritage Site. The status of a royal hunting domain of Polish kings and Lithuanian dukes from the late 14th to the late 18th century ensured the preservation of BPF's ecosystems and large game, including the European bison. In the 17th century, during the reign of the Vasa dynasty, the conflict between protection and exploitation of forest resources began to emerge. The measures undertaken by the monarchs to strengthen the protection of BPF included the construction of the new royal hunting manor in the center of the forest (as documented by archeological research), the strengthening of forest protection personnel to 281 people settled on the BPF's outskirts, and the issuing (in 1639) of the new chart of their rights and obligations ("Ordinatia of the Royal Forest of Białowieża"). Those measures were, however, moderately effective in the second half of the 17th century, after the period of devastating wars (1648-1667). The demand for income to the Crown Treasure and for economic recovery of the country justified the controlled exploitation of BPF based on contracts for forests products: potash, charcoal, and tar. It was only in the early 18th century that more stringent forest protection rules were reintroduced in BPF.

2395. Tracing the Historical Charcoal Production in Rudnik Mountain, Central Serbia: First Anthracological Results

Authors: Mila Andonova-Katsarski (Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences | Department of Archaeology, Sofia University "St. Kliment Ohridski") – Oliver Nelle (Tree-ring Lab, Baden-Württemberg State Office for Cultural Heritage) – Mirko Vranić (Faculty of Philosophy, University of Belgrade) – Aleksandra Fostikov (Institute of History Belgrade)
Format: Poster

This study presents preliminary results from anthracological material collected during a field survey of charcoal production sites conducted in 2025 on Rudnik Mountain, Šumadija District, Central Serbia. The Rudnik area has a long and well-documented history of metallurgical activity, extending back to the Roman, Medieval and Ottoman periods and up to the present. However, comparatively little is known about the wood charcoal resources that supported this industry. This knowledge gap provided the primary motivation for undertaking a targeted field survey as part of the COST action 22155 "EU-PoTaRCh" (Network for forest by-products charcoal, resin, tar, potash) and informed by historical and ethnographic sources. One of the surveyed localities, situated southeast of the village of Majdan, was identified as a former charcoal production area, as also indicated by the toponym Ćumurana (kömür for "charcoal"). The site features platforms interpreted as construction surfaces for round upright kilns that were likely used for charcoal manufacture. Trail trenching and sampling were carried out, charred wood remains - recovered and subjected to anthracological analysis. Preliminary results indicate a dominant exploitation of beech wood (Fagus sp.), represented by both large- and small-diameter material. Minor occurrences of willow (Salix sp.), poplar (Populus sp.) were also identified. These findings correspond to some of the contemporary toponymy of the region, which includes references to willow, as in Gornja Vrbava and Donja Vrbava, but also contrast to other, referring to Turkey oak (Quercus cerris), as in the locality Cerova, and birch (Betula sp.), as in Brezovica. This discrepancy opens a line of discussion regarding woodland exploitation strategies: whether low-altitude beech forests were preferentially selected for charcoal production due to the unavailability of oak resources, or whether oak became dominant through later reforestation following the exhaustion of beech woodlands.

249 MULTI-DISCIPLINARY, COLLABORATIVE APPROACHES TO THE EXCAVATION, ANALYSIS, AND CURATION OF BONE

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Katie Zejdlik (The Ohio State University) – Jonathan Bethard (University of South Florida) – Carlos Carvalho (The Ohio State University)
Keywords: Osteoarchaeology, Mortuary, Archaeological science, Collaboration
Format: Regular session

SESSION ABSTRACT

Archaeology is unique for its breadth of potential, interdisciplinary collaboration; a trait that makes archaeological inquiry innovative, despite its inherent focus on the past. From collaboration with descendant communities and local stakeholders to application of stable isotopes in interpretations of diet and mobility, best practice in archaeological research seeks experts that can contribute distinct but complementary knowledge to a project. This symposium aims to collect traditional and avant garde collaborative works between scholars from the sciences and humanities, as well as applied fields like medicine, dentistry, museum studies, and descendant relations to showcase the breadth of creative problem solving in archaeological method and interpretation. In an effort to remain broad in approach but narrow in scope, we invite contributions to this session that focus on human or animal bones and/or mortuary landscapes. Such investigations could include everything from soil composition on taphonomic modification to proteomics or oral history in site location. Papers must be multi-authored and include two, distinct areas of expertise. Expertise includes perspectives of local stakeholders and descendant community members. Projects can be from any geographical or temporal context.

CONTRIBUTION ABSTRACTS

1674. Indigenous Knowledge as Expertise

Authors: Nicholas Passalacqua – Katie Zejdlik – Rachael Mccrary (The Ohio State University)
Format: Oral

This project argues for a re-evaluation of popular understandings of expertise, to more fully and equitably appreciate various forms of knowledge as inherently valuable. Contextualizing history is crucial, and anthropologists and archaeologists have long bridged institutionalized knowledge and training with information from informants and interlocutors to limit cognitive bias and gain a greater understanding of other people's worldviews and lifeways. Recent developments within anthropology such as the Decolonization and Radical Humanism movements argue for a less-extractive, more cooperative approach to working with individuals outside of the academy. Both approaches call for reshaping the role of the "Other" from exploitation to collaboration, aspiring for shared stewardship through acts of community engagement; co-authoring work with non-traditional scholars; and attempting to build a more inclusive approach to understanding humanity. One form of cultural expertise is from descendant community members, which is often referred to as Indigenous Knowledge. While the concept of Indigenous Knowledge is well intentioned, we argue that artificially categorizing forms of knowledge as "indigenous" could produce/reinforce stereotypes and bias towards this type of knowledge, placing it as a lesser objective or informed type of knowing. Instead, we argue that Indigenous Knowledge is Specialized Tacit Knowledge, a term coined by sociologists Collins and Evans (2007) within their Periodic Table of Expertises. Specialized Tacit Knowledge is a form of expertise not simply acquired through traditional Western academic structures, but rather a unique form of knowledge gained only through community membership, acculturation, accumulated practice of skills and understanding to the point of intuition. We suggest that by reconsidering Indigenous Knowledge as a hard-earned form of expertise along a spectrum of other forms of expertise creates a more inclusive model of understanding the achievement of knowledge and skills, which in turn makes expertise a holistic concept applicable to everyone regardless of background.

2294. Descendant community expertise and the excavation, interpretation, and general functioning of a Transylvanian bioarcheology project

Authors: Katie Zejdlik (The Ohio State University) – Zsolt Nyárádi (Haáz Rezső Museum) – Jonathan Bethard – Renee Reinman (University of South Florida) – Carlos Carlos Da Silva Carvalho (The Ohio State University) – Cameron Matheson (North Carolina State University) – Stephen Batiuk (ArchaeoTek Canada, LLC | University of Toronto)
Format: Oral

Collaboration with descendent communities is not new in archaeology; however, the degree of interaction and status given to local knowledge varies. This presentation provides a decade long perspective on the unique contribution of descendent expertise through discussion of failures associated with ignoring local expertise and benefits of broad perspectives from museum professionals to pastors, business owners, and community members. ArchaeoTek Canada, LLC has been working with the Haáz Rezső Museum (Odorheiu Secuiesc, Romania) since 2013 to excavate and analyze the remains of medieval Szekler-Hungarian churches and their associated mortuary landscapes. Led by a member of the Szekler descendant community and in collaboration with mostly American academics and a global team of field students, the project has been a successful, collaborative experience demonstrating a multitude of outcomes otherwise unachievable without descendant community knowledge and the experience of living and working within the community. The Hungarian-Szeklers are a marginalized cultural group in Transylvania despite their presence there since AD 1000. Mythic and documented origin stories deeply connect them to the perpetually, politically contested historic region of Transylvania. Separated from their political motherland by the Treaty of Trianon (1919), the Szeklers have found themselves socially oppressed and marginalized by many in the Romanian government and larger society. Disagreement over occupation and "ownership" of Transylvania has resulted in biased academic literature and nationally edited archaeological reports. While our work provides tangible, scientific evidence of Szekler presence in Transylvania, no amount of reading would have filled-in the blanks of daily minutiae and emotions important to understanding the archaeological record. Living with the descendant community and experiencing the pride of heritage, skepticism of politics, and steps of survival has allowed access to otherwise unknowable practices and emotions. It also shows that bioarcheological projects should only exist when acting for the community rather than for itself.

1682. Materiality and Meaning: Understanding the Context of Beaded Headbands of Transylvanian Child Burials

Authors: Lauren Reinman – Jonathan Bethard (University of South Florida) – Katie Zejdlik (The Ohio State University) – Zsolt Nyaradi (Haáz Rezsö Múzeum)
Format: Oral

Excavations of Szekler-Hungarian churches dating from the 12th to the 17th century in Transylvania, Romania have recovered beaded head adornments from children's burials (ages 3-12). Preservation was highly variable though most head adornments were placed on the crown of the head as indicated by bone staining and occasionally preserved materials including remnants of cotton thread, copper-alloy threading, and colored glass beads. Intentional styling and adornment of female hair was an important practice among historic Hungarians as a form of gender identity, village identity, and economic and marital status. Beaded headbands, called pártas, were historically associated with young women as part of their wedding traditions. Pártas functioned as material markers of a socially recognized life stage connected to feminine identity and reflected culturally rigid gender expectations. The presence of beaded head adornments in children's burial contexts presents a contradiction, as these adornments were strongly linked to young, engaged women rather than children. Furthermore, sex cannot be estimated from child skeletons, so while it is logical to assume the children were females, there was no way to be certain. To contextualize the ascription of gender to children within mortuary practices, this study investigated the relationship between burial adornment and biological sex. 53 child burials containing beaded headdresses were selected from across five Szekler sites and were analyzed for biological sex using proteomic analysis of tooth enamel. Sex was assessed through the detection of amelogenin protein markers (AMELX and AMELY). By using archaeological findings, historical documentation of pártas, and the scientific sex estimations, an interdisciplinary approach provides new insights into how gendered identities were ascribed to children in death. The results highlight the complexity of gender ascription in medieval and early modern mortuary contexts and challenges assumptions that gendered material culture directly reflects biological sex and age, particularly in the burial of children.

2392. Bones, graves, artifacts. Dating a medieval church trough cemetery excavation in Transylvania, Romania

Authors: Zsolt Nyaradi (Haáz Rezső Museum) – Lauren Reinman (University of South Florida)
Format: Oral

Archaeological excavations of medieval churches in Eastern Transylvania—within the former Udvarhely Seat—have produced significant results. Traces of the earliest Szekler settlers from the turn of the 11th–12th centuries have been identified and bioarchaeological analyses, including aDNA analyses, have revealed new information about this period. In several early graves, unique items of female attire have been recovered, including hairpins. The chronology of these finds has been augmented based archaeological artifacts from Arpadian age churchyards. Hairpins used throughout the 5–9th centuries in Western-Europe, particularly in the Anglo-Saxon area, formed a hairdress fashion that spread across Christian Europe in the12th century. Considering the Transylvanian artifacts, copper alloy hairpins with gilded globular head often appear together with S-ending lock rings. These artifacts are strongly associated with Christian mentality and fashions connected with the 'westernisation' of Hungarian state institutions. These artifacts do not represent the heritage of foreign people. In the 12thcentury, archaeological signs of 'westernisation' appear in all segments of life in the Transylvanian Basin, indicating that besides the migrations, the Hungarian Kingdom was integrated into Western culture. In 2025, at Tordátfalva (Turdeni), hair-dress elements were identified. In Grave no. 30, 9 – 10 hairpins were recovered and a hair ring was uncovered in another burial. Skeletal analysis of Grave 30 estimated that this individual was an older adult female. Based on artifact typology, the graves were reliably dated to the 12th-century. Brick fragments were found with a good-quality, whitish-grey mortar rich in lime in the fill of the graves indicating an early phase of the church. For the time being, no concrete traces related to this first phase have been observed, since they lie within the interior of the present church. The excavation from Tordátfalva reveal important details about early stylistic elements in Szekler communities.

406. A New Look at an Old Collection: Recent Results Interdisciplinary Studies on the Eneolithic Necropolis of Vărăști, Romania

Authors: Aurélien Tafani (ArchaeoSciences Platform, Research Institute of the University of Bucharest) – Robert Tykot (Department of Anthropology, University of South Florida) – Christophe Snoeck (Research Unit: Analytical, Environmental & Geo-Chemistry, VUBl | Multidiscipliary Archaeology Research Institute, Vrije Universiteit Brussel) – Cătălin Lazăr (ArchaeoSciences Platform, Research Institute of the University of Bucharest) – Mihaela Culea ("Francisc J. Rainer" Institute of Anthropology)
Format: Oral

Until a few years ago, the Eneolithic necropolis of Vărăsti, explored between 1956 and 1965, represented the largest site of its kind in Romania, with over 120 graves unearthed. A catalogue of the graves was published by the archaeologist in charge of the excavations in 1995. However, in spite of its importance, it remained largely understudied under the 2010s, when more modern approaches were applied to the study of the remains. More recently, interdisciplinary studies, combined with the consultation of the original archives, have sought to deepen our understanding of this unique site, while raising some challenging questions about the material held in the collections. This paper will present the history of the research dedicated to this site, together with the new information revealed by modern techniques such as radiocarbon dating and strontium isotopes analysis, emphasizing the necessity of revisiting older collections with the newer techniques currently at the disposal of archaeologists.

2529. Social Differentiation in an Emerging Medieval City: an Osteobiography of a Potential Elite Burial from 10th century Ypres, Flanders

Authors: Martijn Jacobs (Archaeology, Environmental Changes and Geo-Chemistry, Vrije Universiteit Brussel | Social History of Capitalism, Vrije Universiteit Brussel) – Noah Gaens (Laboratory for Human Genetic Genealogy, Katholieke Universiteit Leuven) – Charlotte Van Riet – Lucy Koster – Patxi Pérez Ramallo (Archaeology, Environmental Changes and Geo-Chemistry, Vrije Universiteit Brussel | Social History of Capitalism, Vrije Universiteit Brussel) – Nandy Dolman (BAAC Vlaanderen Archeologie – Erfgoed, Evergem) – Christophe Snoeck (Archaeology, Environmental Changes and Geo-Chemistry, Vrije Universiteit Brussel) – Bart Lambert (Social History of Capitalism, Vrije Universiteit Brussel) – Maarten Larmuseau (Laboratory for Human Genetic Genealogy, Katholieke Universiteit Leuven) – Barbara Veselka (Archaeology, Environmental Changes and Geo-Chemistry, Vrije Universiteit Brussel)
Format: Oral

In 2022-2023, a large-scale archaeological excavation at Saint-Martin's Church in Ypres (West-Flanders, Belgium), uncovered nearly a thousand human skeletons, including the earliest medieval city-dwellers from the 10th century AD. Like other Flemish cities, Ypres underwent substantial urbanisation during the High and Late Middle Ages, becoming one of the largest urban centres of 13th-century Europe north of the Alps. The make-up of the city is still poorly understood and the large skeletal collection provides a unique opportunity to increase our understanding of early urbanisation processes. One burial in particular stands out: an adult male interred in an ironstone burial vault. His radiocarbon date (899-1032AD), suggests he lived prior to the oldest written record of Ypres from 1066AD, making him one of the first city-dwellers. An osteobiographical reconstruction was conducted of this individual, with the aim of exploring his life history and social position within an emerging urban context lacking contemporary historical documentation. He was subjected to a bioarchaeological study conducted by a multidisciplinary team, combining macroscopic osteological and palaeopathological analysis, palaeoradiology (CT&µCT), aDNA-analysis, forensic facial reconstruction and isotope analysis to detect potential patterns in mobility and diet. This paper will focus on the macroscopic osteological research carried out on the Ypres individual. This analysis revealed a combination of skeletal traits consistent with so-called horse rider's syndrome, suggesting prolonged and intensive horseback riding, a pattern associated with an elite lifestyle. The µCT-scans provided additional information on levels of activity and pathological anomalies, informing us further on the lived experiences of this individual. Together with complementary lines of evidence, this paper offers rare insight into potentially elite identity and lived experience in early medieval urban centres. The results contribute to broader discussions on social differentiation and the role of status in the emergence of medieval cities prior to the availability of written sources.

1467. When Fire Obscures Decay: The Problem of Identifying Bioerosion in Prehistoric Cremated Human Remains

Authors: Agata Haluszko (Institute of Archaeology, Maria Curie-Skłodowska University in Lublin | Archeolodzy.org Foundation, Świdnica) – Fabian Kanz (Center for Forensic Medicine, Medical University of Vienna) – Stefan Tangl (Karl Donath Laboratory, Medical University of Vienna | Austrian Cluster for Tissue Regeneration, Vienna)
Format: Oral

Bioerosion is commonly treated as an important taphonomic indicator of post-mortem processes and depositional environments in archaeological and forensic research, particularly in the study of human skeletal remains. The identification of bioerosion in cremains is methodologically problematic because thermal alteration modifies bone microstructure and may obscure or mimic microbial traces. This paper addresses recognising bioerosion in prehistoric cremated human remains through histological analysis of material dated to the second millennium BC from southern Poland, associated with the Tumulus and Trzciniec Cultural Circles and the early Lusatian Urnfield culture, within an interdisciplinary framework integrating archaeological, anthropological and histological expertise. The study, funded by the National Science Centre, Poland (grant no. 2023/48/C/HS3/00020), focuses on the visibility and interpretive reliability of microstructural features linked to bioerosion in cremated bone and on the relationship between thermally induced changes and microbial degradation. Particular attention is given to the extent to which heat-induced transformations may alter or mask earlier taphonomic signatures relevant to analysis of cremated bone assemblages. As a comparative reference, two human bone samples displaying clear bioerosion were experimentally burned and analysed histologically to provide a baseline for interpretation, considered alongside published data on bioerosion and thermally altered bone. The paper examines the interpretive potential of histological analysis for discussions of pre-cremation treatment of the body, including burning of previously inhumed remains, and reflections on the interval between death and cremation or burial. It also addresses the role of microstructural observations in refining interpretations of funerary practices and post-mortem treatment in prehistoric contexts, demonstrating the value of collaborative approaches to study and curation of cremated human skeletal material. Rather than proposing conclusions, the contribution outlines the main analytical difficulties and uncertainties associated with identifying bioerosion in cremated human bone and highlights the need for cautious taphonomic inference in prehistoric cremation contexts.

125. Interdisciplinary research into osteoporosis today and in the past using archaeological remains: studies on age-related nanostructural deterioration of bone

Authors: Simon Mays (Historic England | University of Southampton | University of Edinburgh) – Gabriela Gonzalez – Michael Romanov – Ruby Schwieger – Zeel Sheth – Adama Daou – Leslie Gracia – Selly Altangerel – Kawkab Tarique (DePaul University) – Stuart Stock (Northwestern University)
Format: Oral

Innovative, interdisciplinary archaeological research projects not only advance knowledge but help demonstrate to policy-makers

the value of curated archaeological archives at a time when these are coming under increasing external pressures. This may be especially so when the research focuses not only on archaeological issues but also bears upon matters of direct contemporary relevance. This presentation describes one such study. It uses archived Mediaeval human remains to investigate an aspect of osteoporosis. The research team includes scholars in archaeology and medical physics. It demonstrates how archaeological studies can potentially make a contribution to a rapidly developing area of basic biomedical research. Osteoporotic hip and other fractures are a growing cause of morbidity and mortality in ageing populations, and are an increasing financial burden for healthcare systems. Osteoporosis involves loss of bone density, and it is established that this can be measured in ancient skeletons. Nanostructural alterations have recently been identified as another aspect of age related deterioration of bone that may contribute to fragility and propensity to fracture in osteoporosis. The purpose of our work is to explore whether nanostructural ageing processes can be viably studied in excavated archaeological bone. We apply small and wide angle X-ray scattering using the Advanced Photon Source at Argonne National Laboratory, Illinois, to assess patterning in bone lattice parameters with age at death, and to measure the potential effects of diagenesis on results. Preliminary findings (N=33 burials) suggest some diagenetic alterations, but an expected physiological patterning in bone crystallites with age at death is clearly evident, supporting the potential value of archaeological studies. We end by considering the strengths and weaknesses of multidisciplinary research using archaeological archives of human remains for contributing to contemporary knowledge of diseases like osteoporosis and how archaeology and biomedicine might best engage to advance knowledge of disease.

2501. From Head to Sternal End: Investigating Intra-bone Isotopic Variations Across Human Rib-Bone Sections from Medieval Papdomb, Transylvania

Authors: Michael Atogu (University of South Florida) – Katie Zejdlik (The Ohio State University) – Zsolt Nyárádi (Department of Archaeology, Haáz Rezső Museum) – Jonathan Bethard (University of South Florida)
Format: Oral

Human rib bones are invaluable osteological elements for reconstructing past foodways, given their rapid turnover rates, and may reflect dietary inputs less than ten years prior to an individual's death. However, standard sampling protocols in bioarchaeological studies often assume isotopic homogeneity of the rib, potentially overlooking variations driven by differential remodelling rates between the trabecular-rich ends and the cortical shaft. This study investigates intra-bone isotopic fidelity through high-resolution analysis of δ13C and δ15N values in the rib-bone collagen from individuals at the site of Papdomb, located in the Szekler region of Transylvania. To rigorously assess the impact of sampling location on dietary interpretation, we generated 54 discrete collagen samples from 17 distinct ribs. A multi-section strategy that accounted for rib morphology and preservation. Two ribs were sampled at two locations (head and mid-shaft), ten ribs were sampled at three locations (head and two mid-shaft points), and five ribs were sampled at four locations (head, two mid-shaft points, and sternal end). By systematically comparing these distinct skeletal loci, this research aims to determine whether the specific section utilized for analysis influences the resulting isotopic signature. Isotopic data from this study will either corroborate the reliability of current opportunistic sampling methods or establish a critical need for standardized localization to ensure data comparability, ultimately seeking to refine the precision of isotopic reconstructions of medieval Transylvanian subsistence patterns.

1534. Leveraging multidisciplinary tools to reconstuct past dietary practices: a case study from the Szekler region of Transylvania

Authors: Jonathan Bethard (University of South Florida) – Katie Zejdlik (The Ohio State University) – Zsolt Nyárádi (Haáz Rezső Muzeum)
Format: Oral

Archaeologists, historians, biological anthropologists, and other scholars in the natural and life sciences have a rich history of collaboration in their collective efforts of understanding the past. In addition, archaeological researchers routinely utilize methodological tools developed outside of the discipline to investigate questions across time and geography. Recent scholarship has even demonstrated how biomolecular humanities enhance archaeology. For over four decades, archaeologists have applied tools developed in isotope geochemistry to make inferences about subsistence practices and human migratory patterns in temporal and geographical contexts around the world. These contributions have demonstrated how subsistence practices have changed over time and provide insight into how social organization influences the ways in which dietary practices impact people and their communities. This presentation will review how isotopic analyses have been applied to the dietary reconstruction of archaeological contexts in medieval and early modern Hungary and synthesize how tools from isotope geochemistry have been applied in the Szekler region of Transylvania. Dietary isotopic data generated from a large sample of several hundred individuals from numerous Szekler archaeological contexts will be presented and potential interpretations of these data will be explored.

1507. Reconstructing Diet in a Medieval Transylvanian Mining Town Through Stable Isotope Analysis

Authors: Priscilla Mollard (University of Massachusetts Amherst | Central Connecticut State University)
Format: Oral

Research at Piață Cetății, a 14th-17th century cemetery from Baia Mare, Romania, aims to shed light on the biosocial consequences of living in a medieval Transylvanian mining town. Maramureș county, where contemporary Baia Mare is located, was the metallurgical

epicenter of Transylvania for almost 3,000 years. During the medieval era, Baia Mare was one of the most important Transylvanian mining towns in the Kingdom of Hungary, enjoying special privileges and social freedoms denied non-mining towns. The Piață Cetății cemetery therefor represents an incredible opportunity to study the biological consequences of mining and what the social ramifications of those consequences were within the larger community, particularly when that community is studied in light of skeletal collections from contemporaneous non-mining contexts. Living in the 14th-17th century mining town, regardless of whether each individual was working directly in the mines, would have impacted the biological and social lives of all the inhabitants of the town, in one form or another. These impacts would have included not only injury or death in the mines, but also diseases contracted through contaminated drinking water, environmental illnesses stemming from contaminated air, or congenital disorders resulting from maternal exposure to heavy metals. The research presented here aims to discuss paleopathological findings from Piață Cetății and supplement those data with carbon and nitrogen dietary isotope data that will suggest whether the social privileges enjoyed by the mining town resulted variable dietary practices.

2340. Living at the Ice Edge: Bears, Sea Ice, and Human–Animal Landscapes in Neoglacial Alaska

Authors: Catherine West (Boston University, Department of Anthropology and Archaeology Program) – Lillian Parker – Brittany Bingham (University of Oklahoma | Laboratories of Molecular Anthropology and Microbiome Research) – Katherine Reedy (Idaho State University, Department of Anthropology) – Courtney Hofman (University of Oklahoma, Department of Anthropology | Laboratories of Molecular Anthropology and Microbiome Research)
Format: Oral

The Unalaska Sea Ice Project uses zooarchaeological evidence from the eastern Aleutian Islands of Alaska to examine the dynamics of Bering Sea ice over the last 5,000 years. On temperate Unalaska Island, the archaeological record suggests that the Neoglacial climate phase (ca. 4700 - 2500 rcyr BP) was significantly colder and the region likely supported sea ice and ice-dependent animals, which were hunted by people as they moved with the advancing ice edge. Here, we draw on applied zooarchaeology, stable isotope chemistry, and ancient DNA to identify polar and brown bears outside of their current range, to examine their demographics, to interpret human use of the bears, and to assess the potential source populations for these novel taxa. The extension of sea ice in the Neoglacial phase likely facilitated their presence around Unalaska Island and this provides clear evidence of changing sea ice dynamics and human-animal relationships in the past.

2254. Life and Death in Greco-Roman Aswan: Evidence from the Aga Khan Necropolis

Authors: Alice Tomaino ("La Sapienza" Università di Roma | Università degli Studi di Milano) – Lucie Biehler-Gomez – Marco Cummaudo – Cristina Cattaneo – Patrizia Piacentini (Università degli Studi di Milano)
Format: Oral

The aim of this presentation is to reconstruct the context of the Aga Khan necropolis, located on the wester bank of the Nile at Aswan (6th century BCE–2nd century CE), through a multidisciplinary approach integrating anthropological analysis and archaeological context. The spatial organization within the necropolis, as well as the variability in tomb size, structure, and funerary practices, reflects chronological and socio-economic differentiation which will be integrated with anthropological data. To date, thirty-eight tombs have been excavated; however, systematic anthropological analyses have been conducted in detail on selected burials: AGH026 and AGH038, located on the cliff-top plateau; and five tombs located in north-west sector of the necropolis, which AGH032, a large tomb with a possible cult structure; AGH034, AGH035, AGH036, and AGH037, situated within terraced structures. Several funerary units were identified across multiple stratigraphic levels, indicating repeated use and complex depositional histories. The necropolis is currently under excavation by the joint Egyptian-Italian Mission at West Aswan (EIMAWA), which has revealed heterogeneous preservation conditions within the tombs, ranging from highly commingled and fully skeletonized human remains to exceptionally well-preserved mummified individuals with intact wrappings, thus requiring the application of specific conservation and analytical protocols. The minimum number of individuals (MNI) varies substantially between tombs, ranging from approximately 10 to over 50 individuals, further emphasizing the diversity of funerary practices and population composition within the necropolis. Preliminary results show the presence of high percentages of non-adult individuals of different age groups, along with a predominance of female individuals. Various conditions were also identified, including degenerative joint diseases, as well as lesions consistent with infectious diseases, and traumatic injuries. The combined analysis of these data, together with the archaeological context, will enable a holistic investigation of the population buried in the Aswan necropolis.

2136. Worked to the Bone: An Investigation into Labour Division in a Transylvanian, Hungarian-Szekler Community (AD 1050-1800)

Authors: Carlos Da Silva Carvalho (The Ohio State University) – Jo Buckberry (University of Bradford) – Katie Zejdlik (The Ohio State University) – Jonathan Bethard (University of South Florida) – Zsolt Nyárádi (Haáz Rezső Museum)
Format: Oral

Activity-related skeletal change (ARSC) refers to changes in bone morphology due to mechanical stress. Certain increased activity markers, such as developmental defects (os acromiale, unfused acromion), robusticity (bone thickness relative to size), and entheseal change (location on bone where muscle attaches) have been noted on modern overarm throwing athletes and medieval archers. Further studies have demonstrated the effectiveness of ARSC in understanding historic division of labour, specialised activity and

changes in industry. The following presentation aims to produce the first insight into activities undertaken by medieval Szekler communities. Therefore, a sample from the Papdomb site (1050-1800AD) in Văleni (HU: Patakfalva), modern-day Romania was used (n = 178). To understand sex-based division of labour and time-based changes in activity, developmental defects, robusticity and entheseal changes were analysed. Statistical comparisons were made between males and females, in addition to pre and post 16th century groups. The results presented no significant difference in robusticity and entheseal changes (except M. pectoralis major) between males and females, suggesting both groups participated in equally mechanically strenuous activities. Also, no differences were observed between time periods, indicating a continuation in equally strenuous activities. Difference in the robusticity of the distal humerus between sexes in the post 16th century sample suggests a change in sex-based division of labour. Papdomb males presented high prevalence of os acromiale (right 14.29%, Left 11.11%) in line with what has been previously observed in archery-associated groups (9.2-12.5%). The Results were in line with what is expected from an agricultural society.

777. Temporal dynamics of cremation practices in Roman-period southwestern Slovakia: A bioarchaeological and chemometric approach

Authors: Kateřina Bučková (Department of AnDepartment of Anthropology, University of West Bohemia in Pilsen) – Anna Pankowská – Adriana Machová (Department of Anthropology, University of West Bohemia in Pilsen) – Katarína Hladíková (Slovak National Museum-Archaeological Museum) – Marek Hladík (Institute of Archaeology of the Academy of Sciences of the Czech Republic, Brno) – Pavla Kučerová (Department of Analytical Chemistry, Palacký University Olomouc)
Format: Poster

Cremation was the dominant funerary rite in southwestern Slovakia during the Roman Period (1st–4th centuries AD), yet the technological and ritual variability of this practice remains poorly understood. This study investigates how cremation practices were shaped by chronological developments and local social dynamics by comparing two Germanic burial sites with distinct temporal frameworks: Kostolná pri Dunaji (ca. 1st–2nd century AD) and Gbely–Kojatín (ca. 2nd–3rd/4th century AD). We link excavation documentation and curated museum collections with an integrated analytical workflow combining osteological and bioarchaeological assessment of cremated human remains, including anatomical representation, degree of fragmentation, and age-at-death estimation, with chemometric assessment of burning intensity using FTIR-ATR spectroscopy. This interdisciplinary approach enables evaluation of both inter-site contrasts and intra-site variability in cremation technology. Our results reveal striking differences between the two sites. At Kostolná pri Dunaji, cremation intensity varies considerably and shows a clear chronological pattern: earlier graves display lower burning intensity than later ones. This variation correlates with burial chronology, bone fragmentation, tissue type (compact versus spongy bone), and age at death. In contrast, cremated remains from Gbely–Kojatín exhibit consistently high burning intensity and greater technological standardisation. Overall, cremation at Kostolná pri Dunaji was less intense and more heterogeneous compared to Gbely–Kojatín. These findings highlight significant temporal changes and site-specific patterns in cremation practices within a relatively narrow geographic area. They suggest that variability in Roman-period funerary customs was shaped primarily by evolving social structures and the presence of internally differentiated groups, including individuals buried with weaponry. The study was supported by a grant SGS 2025 006 and by Slovak Research and Development Agency No. APVV-23-0299 and by the Strategy AV21 research programme “The Power of Objects: Materiality between Past and Future”.

2244. Traces of Fire in the Early Iron Age inhumation necropolis of Carlota (Beja, Lower Alentejo, Portugal)

Authors: Linda Melo (CIAS- University of Coimbra | Uniarq - University of Lisbon) – Rui Monge Soares (Uniarq - University of Lisbon) – Carlos Ferreira (Independent Researcher) – Rosa Mateos – José António Pereira (Novarqueologia)
Format: Poster

The Carlota archaeological site was identified during Cultural Heritage Impact Mitigation works conducted within the framework of the Alqueva Global Irrigation System and Multipurpose Development, specifically along the Pisão–Beja connection. The necropolis is located in the union of the parishes of Trigaches and São Brissos, in the municipality and district of Beja, southern Portugal. It lies within the Alentejo peneplain, a region characterized by predominantly flat topography. The site was excavated by a team from the company Novarqueologia Ltd. The archaeological site consists of a series of rectangular enclosures defined by ditches, attributed to the Early Iron Age. Three inhumation graves were identified, containing human osteological remains in a poor state of preservation. In addition, Grave 14 yielded a cremation deposit, comprising a ceramic vessel interpreted as a funerary urn, associated ceramic fragments, and two intentionally bent spearheads. The present work aims to present the results of the archaeological and anthropological study of this site including the excavation and the subsequent analysis of the human osteological remains recovered from the interior of the ceramic cremation vessel.

2618. Differential diagnosis of a calcified nodule recovered with a 16th century Szekler female in Transylvania

Authors: Jonathan Bethard (University of South Florida) – Lauren Reinman (University of South Florida) – Elizabeth Bews (University of Montana) – Katie Zejdlik (The Ohio State University) – Zsolt Nyárádi (Haáz Rezső Museum) – Carolina Mcennan (University of South Florida Morsani College of Medicine)
Format: Poster

Bioarchaeologists utilize numerous lines of evidence to reconstruct how people experienced and were affected by a variety of pathological conditions in the past. Additionally, bioarchaeologists leverage numerous methodological tools (e.g., digital radiography, microCT, histology) and engage in collaboration with clinicians to improve generating differential diagnoses from skeletal and dental tissues. In the case study presented here, we describe a calcified nodule recovered from the cervical vertebral region of 16th century young adult female (G482) from a Szekler village context in Transylvania. Though relatively common in modern clinical contexts, examples of soft tissue calcification in the cervical region are relatively rare in the bioarchaeological record. Numerous modalities were utilized to generate possible differential diagnoses of the calcified nodule. This case study provides a framework for how bioarchaeologists might best collaborate with clinicians in the investigation of calcified nodules recovered from bioarchaeological contexts. Additionally, this case study demonstrates the benefits of detailed documentation during both the excavation and laboratory phases of salvage archaeology.

250 GAME CHANGER. NARRATIVES OF BELONGING AND MOBILITY IN TERMS OF NEW METHODS AND TECHNOLOGIES

Theme: 7. Interaction, connectivity and mobility
Organisers: Martina Seifert (University of Hamburg) – Ewdoksia Papuci-Wladyka (Polish Centre of Mediterranean Archaeology in the University of Warsaw) – Nikola Babucic – Thorben Frieling (University of Hamburg) – Lukasz Miszk (Jagiellonian University in Krakow)
Keywords: narratives, theoretical conceptuaization, mobility, belonging, materiality, new technologies
Format: Regular session

SESSION ABSTRACT

The last few decades have shown how new technologies and methods are rapidly changing working methods in archaeology. Through the systematic development of analog and digital data, significantly larger amounts of information can be processed, visualized, and interpreted. There is no doubt, that this is transforming and creating entire research fields, e.g. in archaeometry, geophysics, or image sciences. However, to what extent do these technologies affect theoretical approaches and our perspectives on long-standing narratives? The emphasis of the session is on theoretical conceptualization. In light of the background outlined above, the session will address the question of how new methods and technologies produce, maintain and change established narratives of belonging and mobility in archaeology. We are looking for contributions that deal with the significance of materiality regarding transportable topographies, shared technological knowledge or image transfer in the aforementioned contexts and the diverse overlaps of socio-spatial practice and meaning. Interdisciplinary contributions from all disciplines of ancient studies discussing different geographical areas and architectures or objects from different periods are most welcome.

CONTRIBUTION ABSTRACTS

1382. Changing Methodologies and Theoretical Frameworks Prompting New Research Questions and Interpretations at the Sanctuary of Hera, Perachora

Authors: Susan Lupack (Macquarie University) – Barbora Weissova (Charles University) – Matthew Skuse (British School at Athens) – Sarah James (University of Colorado, Boulder) – Panagiota Kasimi (Ephoreia of the Antiquities of the Corinthia)
Format: Oral

The Perachora Peninsula Archaeological Project is working with the legacy data of two archaeologists whose views of the habitation site associated with the 8th–2nd century Sanctuary of Hera, Perachora, are diametrically opposed. The extent to which a researcher’s views – their theoretical framework – affects the interpretation of a past society is striking. Available methodologies also affect the type of data researchers collect, modifying the types of questions they even think to ask. Theoretical approaches and methodologies have always been intricately intertwined in the creation of archaeological knowledge; Perachora provides an exemplary case study. In the 1930s, the Heraion’s initial excavator, Payne, concluded that the habitation site was a substantial, fortified town, but used only the architectural remains to substantiate his evaluation, with the ceramics being characterised (by Dunbabin) with the statement: ‘Individual finds, as might be expected, were unimportant’. In contrast, Tomlinson, excavating in the 1960s, interpreted the site as a usually ‘quiet and deserted’ . . . ‘sporadic scatter of structures’. Tomlinson’s view has had lasting effects on the modern world’s narrative of the site, making it something of an archaeological backwater for decades. Significant changes to both theoretical frameworks and methodologies have increased our capacity for asking fresh research questions. Our project is investigating the intersection of the economic, political, and religious landscapes surrounding the sanctuary and, thereby, illuminating not only the identities of the people who lived within the town, but also those who travelled to worship at the sanctuary, traded with the townspeople, and traversed its lands on military expeditions. Our surface survey is providing context for the architectural remains which gave rise to prior archaeologists’ interpretations, while photogrammetry and Lidar are very literally broadening our view of the landscape’s use, prompting challenges to long-held interpretations of the sanctuary, its town, and its surrounding region.

2180. Does the game change the player or does player change the game? New technologies and old

narratives in Paphian archaeology

Authors: Lukasz Miszk (Jagiellonian University in Krakow)
Format: Oral

The technological revolution we are witnessing is profoundly changing what archaeology is today. This change in Cypriot archaeology is taking place within the context of the island history, from L. Palma di Cesnola's "work" to that of great Cypriot archaeologists V. Karageorghis, K. Nicolaou, S. Hadjisavvas and modern, international teams of archaeologists working today in Cypriot institutions and international expeditions. Cypriot archaeology is experiencing what archaeology around the world is going through. It is experiencing a phenomenon of a rapid technological change that is supposed to have a positive impact on the development of archaeology as a science. The Nea Paphos archaeological site is a perfect example of a witness where we can observe the change that has taken place in archaeology and the impact of this change on our ability to construct narratives about the past. This will be the starting point for a discussion about the idea of the session: whether it is the players who have changed the rules of the game or the game that has changed the players? In other words, based on past and present research conducted in Paphos, so changed by the rapid technology development, I would like to ask whether we are still able to construct narratives based on contemporary scientific findings, in the style of Karageorghis's "eternal Paphos", or perhaps the game has changed so much that we can talk, for example, about the very detailed issues i.e. archaeometry research on archaeological artefacts. And if the latter is true, can we provide the story in a way that is interesting enough to be socially acceptable? The key question, then, is how the change in the rules of the game affects our ability to describe, in a socially acceptable way, what mobility or belongings meant in ancient times.

1935. A Landscape in Flux: The Archaeology of Movement and Change at Helenopolis

Authors: Isil Akalan Gunduz (Hamburg University) – Serkan Gunduz (Bursa Uludag University)
Format: Oral

The Hersek Delta excavations, encompassing both terrestrial and submerged sites, are situated along the Sea of Marmara in modern-day Türkiye. The project is located at the narrowest section of the Kocaeli Gulf (the ancient Gulf of Nicomedia), which was once home to the prominent metropolis of Nicomedia. Strategically positioned on the primary Anatolian land route leading to Constantinople, the delta served as a vital maritime hub. Historically, the delta is the site of the ancient city of Helenopolis. Named after Empress Helena, mother of Constantine the Great, it is traditionally regarded as her birthplace. Systematic archaeological underwater research in this region commenced in 2017. Following the identification of extensive coastal and submerged cultural heritage, the initial survey transitioned into a comprehensive excavation program including both land and underwater excavations. Despite the historical fame of Helenopolis, reconstructing its urban layout has proven challenging due to a lack of surface remains. Furthermore, the region's history of seismic activity, tsunamis, and flooding has complicated the interpretation of geophysical data. This presentation examines how the technologies and methodologies employed in this research provide insight into centuries of mobility and movement within this volatile landscape, specifically examining its strategic role as a hub connecting Constantinople to the Anatolian interior through integrated maritime and terrestrial networks. Moreover, it explores how this strategic site served as a deliberate act of placemaking by the Byzantine Empire and the Crusaders, and how it transformed into different forms through repeated cycles of seismic destruction and systemic reconstruction.

264. Geophysical Maps in Circulation: Transportable Topographies across Teams, Platforms, and Heritage Contexts

Authors: Nikola Babucic (University of Hamburg)
Format: Oral

Geophysical prospection has become an established component of archaeological research, generating extensive datasets and high-resolution spatial visualizations. Beyond their methodological function, geophysical maps increasingly operate as autonomous archaeological objects that structure interpretation, comparison, and narrative formation. This paper conceptualizes geophysical maps as transportable topographies: materially and digitally mediated representations that detach archaeological space from its local context and render it mobile across different analytical, institutional, and discursive levels. Based on geophysical investigations in ancient urban landscapes as well as in rural settlement contexts of Roman border regions, the paper demonstrates how such maps reconfigure concepts of spatial belonging and connectivity. In urban contexts, large-scale ground-penetrating radar surveys and extensive magnetic mapping enable the reconstruction of infrastructural continuities and functional zoning beyond the limits of excavated areas, producing coherent urban narratives grounded in subsurface evidence. More generally, geophysical mapping reveals spatial, infrastructural, and functional relationships that remain invisible in excavation-based or find-poor contexts, thereby qualifying interpretations that primarily frame peripheral settlement areas as isolated or marginal. The paper argues that the mobility of geophysical maps—between research teams, digital research environments, and heritage management contexts—produces new forms of archaeological belonging. By establishing shared visual languages and comparable spatial units, these maps significantly influence how archaeological spaces are integrated into broader historical and regional narratives. Mobility, in this sense, refers not only to movements in the past but also to the circulation of spatial knowledge and interpretive frameworks in the present.

1284. Reading Old Maps with New Eyes: A Computer Vision Workflow for Extracting Burial Mounds

from Archival Topography

Authors: Angel Grigorov – Nadezhda Kecheva – Ivo Cholakov (National Archaeological Institute with Museum, Bulgarian Academy of Sciences) – Julia Tzvetkova (Sofia University "St. Kliment Ohridski") – Kalin Dimitrov (National Archaeological Institute with Museum, Bulgarian Academy of Sciences) – Lyubomir Angelov (Burgas Free University) – Veronika Gencheva – Ivet Kirilova (National Archaeological Institute with Museum, Bulgarian Academy of Sciences) – Lyubomir Nedyalkov (Freelancer) – Adela Sobotkova (Aarhus University)
Format: Oral

While mounds are primarily recognized as funerary sites, some of them likely held complex semantic meanings for ancient communities, serving as boundary markers of liminal zones and indicators of ancient movement practices along routes. Mid-20th-century topographic maps contain vital information about these features, yet they are often missing from modern digital registers. As intensive agriculture continues to erase these landscapes, archival documents frequently remain the only record of lost heritage. However, the manual digitization of thousands of map sheets is resource-intensive and often unfeasible. This presentation outlines the methodological framework of "AI ArchaeoTopia: Archaeology of Topographic Maps Using Artificial Intelligence", a newly launched research project financed by the Bulgarian National Science Fund (Contract КП-06-Н100/5, 10.12.2025). We propose a scalable workflow combining traditional cartographic processing with computer vision techniques. The workflow initiates with automated georeferencing and spatial validation, followed by the isolation of 'regions of interest' to build training datasets for two tasks: object detection for standardized symbols and semantic segmentation for topographic signatures. By converting AI-extracted symbols into standardized vector layers, the project aims to transform static cartographic features into a "transportable" and interoperable dataset. This enables new landscape-level analyses of mobility corridors, territorial organization, and long-term land use. Simultaneously, we address the technical challenges of legacy data (inconsistent print quality, overlapping layers) through a rigorous validation protocol using GNSS positioning and RTK-equipped UAVs. This validation is crucial not only for technical accuracy but for the historical narrative: by eliminating false positives, we actively shape which features remain in the "story" for reconstructing the past, ultimately integrating verified data into the GIS Archaeological Information System "Archaeological Map of Bulgaria".

36. Beyond Agriculture: Deconstructing Medieval Colonisation Narratives through GIS Analysis

Authors: Kamila Hanáková (Institute of Archaeology and Museology, Faculty of Arts Masaryk University)
Format: Oral

This paper utilizes GIS, LiDAR, and digital geological and topographic mapping to deconstruct established narratives of medieval colonisation. It argues that the settlement of previously uninhabited areas was not a spontaneous or purely agrarian process, but a systematic socio-spatial practice driven by the strategic exploitation of mineral resources. These digital approaches make it possible to identify a direct correlation between settlement patterns and lithological boundaries or dislocation zones—areas where geological disturbances facilitated the formation and accessibility of mineral deposits. This relationship is explored through a case study of the deserted medieval village of Mstěnice (Vysočina Region, Czechia). The results demonstrate that the development of settlement phases closely followed a lithological boundary associated with iron ore deposits. Within this framework, colonisation elites operated as strategic "investors", possessing the know-how for efficient resource exploitation, managing population mobility, and systematically planning the use of physical resources. A striking example of this geological strategy is the placement of the manorial estate directly above a pyrope garnet deposit, illustrating a rational choice that prioritised status and economic gain from mining over agricultural suitability (serpentinite bedrock). This settlement logic is not limited to Mstěnice but can be traced across the Czech lands (e.g. across the Czech-Moravian Highlands), with implications of international relevance. By combining spatial data with historical sources, this study provides a missing piece in understanding the logic of medieval colonisation. GIS-, LiDAR-, and digital topography-based analyses thus move beyond the reconstruction of settlement layouts, fundamentally reshaping our understanding of mobility, materiality, and socio-spatial practices, and offering a richer, multi-layered interpretation of medieval settlement narratives.

530. Heavy Metal Curses. Magical Lead Artifacts between Natural Science and Image Studies

Authors: Thorben Frieling (University of Hamburg)
Format: Oral

Scientific interest in magic and especially necromancy as the oracle of the dead in ancient Greece is based on more than a few decades of research, ideas and heated discussions. Focal points of interest were usually the architectural layout of sanctuaries, cult practices, and rituals. Some of these acts are archaeologically well documented and fall under the category of harmful curses or warding off curses. The backgrounds and roots behind these religious and eschatological believes can be – at least to an extend – answered mostly by consulting ancient literary sources describing acts of magic or necromancy, and the written artifacts themselves, first and foremost curse tablets and magical papyri. Iconographical and iconological examinations can attest for gaps that can't be explored by epigraphy alone. One medium that treads among both fields of epigraphy and image studies is a group of mostly leaden figurines in sepulchral contexts, buried either with the intend of harm or protection. These kolossoi function similarly to African and Caribbean voodoo dolls. Lead isotope analyses show that at least in Attica most of the lead used for these figures and curse tablets stems from Laurion and indicates that 1. lead was quite a cheap material and 2. its usage in magical and necromantic rituals became

the standard from around 400 BC. With cursing being very popular in 4th century Athens it begs the question if there were professional magic workshops or if the curse artifacts were homemade products.

2332. "Pocket Alexandria" - iconography on the MNP A79 (National Museum in Poznań) oil lamp through the lens of provenance studies

Authors: Marceli Dzięcielski (Adam Mickiewicz University)
Format: Oral

Oil lamps as archaeological sources have often been left "aside", especially when compared to other ceramic-made items, on which countless articles and books have been written. They are, however, just as capable of playing the role of medium when it comes to transferring information, worldviews, stories. MNP A79 is a particular example of this kind of item, when it comes to late Hellenistic–Early Roman periods. While lamps of the period often feature mythological figures or gladiators, this artifact's central disc represents a port. This picture has in the past been interpreted as Alexandria, including the artist's vision of the Eastern Port and the tomb of Alexander the Great. But what should the archaeologist see when looking at the lamp? Is the image an "accurate" representation of Alexandria and would knowing the story of the artifact answer this question? Through the example of this lamo, the study aims to give insight into how modern technology can offer new ways in which we can interpret artifacts. The paper utilises archival studies and XRF clay analysis (comparison with other clay objects) to present the item's biography. Knowing the lamp's "past", interpretations of the image on the disc will be put forward, using multiple methods of interpretation of art (e.g. semiotics of Peirce, post-colonial approach) to show how ancient viewers from different backgrounds and locations could have seen the representation. The study shows, that meaning of iconography on artifacts, even as "insignificant" as oil lamps, changes depending on the people who saw it. Provenance studies, including XRF, can help us trace where the item was made – but who saw it and how is a matter of narrative, which the scholar creates. New technologies add onto the possibilities in which we can interpret items, but cannot change the necessary humanistic approach of the scholar.

2206. Pottery and archaeometry: a breakthrough in the narrative about Paphos pottery

Authors: Ewdoksia Papuci-Wladyka (University of Warsaw)
Format: Oral

This paper aims to demonstrate how archaeometric research, which has developed significantly in recent years, has changed the narrative regarding pottery discovered in Cyprus. The key turning point is R. Jones's 1986 work, "Greek and Cypriot Pottery: a review of scientific studies." Since then, various research programs involving archaeometric analyses have developed. The approach to ceramic research is shifting from a traditional focus on typology and chronology to a multifaceted approach, with a primary focus on distinguishing local production from imported production, both from other areas of the island and beyond, as well as on reconstructing technological changes and chaînes opératoires. A specific "case study" will be pottery discovered during 60-year-old Polish excavations in the ancient city of Nea Paphos conducted in the area known as Maloutena where inter alia the Villa of Theseus and the House of Aion have been uncovered, and the Agora. The city, designated a UNESCO World Heritage Site, was the capital of Hellenistic and Roman Cyprus for several centuries. The study of pottery discovered in Paphos has undergone a major change in recent years thanks to the implementation of archaeometric techniques on a larger scale, which will be shown in this presentation.

2671. Technological study of Iron Age pottery from the Mpa'a site (Djohong, Adamawa-Cameroon): Macroscopic, microscopic and infrared spectroscopy analyses

Authors: Zoila Epossi (University of Yaounde1)
Format: Oral

The Mpa'a site is situated around 4.2 km from Djohong in the Adamawa Region of Cameroon. The site is an underground one characterised by the heterogeneity of artefacts on the surface from LSA, Neolithic, Iron Age and sub actual period [1]. This research is the first pilot study using an archaeometry approach to understand pottery production in Mpa'a and to contribute to the knowledge about the settlement of the people in the border of Adamawa region, a savannah area. The samples studied belong to the Iron Age period 2640 +/- 40 BP attested by the Radiocarbon dating. Using a combination of macroscopic, microscopic and infrared spectroscopy analyses, 21 ceramic fragments were studied, to reconstruct various steps of the chaîne opératoire, including paste recipes and firing parameters. The petrographic analysis confirms the presence of one main group among the samples analysed, indicating that they were made with the same raw materials and paste recipe. All samples contain coarse quartz and feldspar, with numerous opaque inclusions and small-sized quartz and mica in the clayey matrix. Most samples display a homogeneous reddish colour, indicating firing in a well-controlled oxidising atmosphere. Eight samples show a "sandwich structure", suggesting that the firing process did not last long enough to allow equal redox conditions, while one sample was grey, following from firing in a reducing atmosphere. The presence of phyllosilicate bands in the infrared spectroscopy spectra indicated that the sherds were fired below750°C [2]. This low firing temperature might be taken to suggest that firing was carried out in an open structure. These archaeometry results are consistent with the technology of ceramic in the forest area from the center of Cameroon and Congo according to the literature [3,4], indicating a shared pottery technology between the forest and savannah people during Iron Age period in Central Africa.

251 FROM CRADLES TO GRAVES: THE ARCHAEOLOGY AND ANTHROPOLOGY OF CHILDHOOD IN THE POST-MEDIEVAL PERIOD

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Csilla Líbor (Hungarian National Museum) – Maciej Gembicki (Adam Mickiewicz University in Poznan) – Hubert Lepionka (Podlaskie Museum in Białystok | Adam Mickiewicz University in Poznan) – Olga Dec (Adam Mickiewicz University in Poznan)
Keywords: children, postmedieval, bioarchaeology, modern age, paleopathology, childhood
Format: Regular session

SESSION ABSTRACT

Our session aims to highlight two crucial themes: the significance of children and the importance of archaeology over the past 500 years. Studying children offers a valuable opportunity to gain a broader understanding of past societies. The post-medieval period, in particular, is a relatively underexplored era within archaeological research, despite the wealth of observations from this time that can be utilized to illuminate our distant past. Information related to children is unquestionably a key component of this understanding. Examining non-adult burials and related archaeological evidence can significantly contribute to our insights into mourning practices and societal structures during this era, especially when multiple sources of data are available to inform our research. Burial sites from this period are especially important for researching diseases and health conditions, and we also wish to emphasize the interpretation of double or multiple burials. However, our session is not limited to the bioarchaeological analysis of burials; we also welcome presentations on archaeological artifacts and symbolic objects associated with children. Analyzing juvenile burials and related archaeological evidence can significantly contribute to our insights into mourning practices and societal structures during this era, particularly when multiple sources of data are available to inform our research. Topics: - Bioarchaeology - Paleopathology - Cemetery analysis - Archaeological sites and artifacts - Ethical questions.

CONTRIBUTION ABSTRACTS

1168. The Archaeology of Grief: Investigating Post-medieval Nonadult Burials in Hungary

Authors: Csilla Líbor (Hungarian National Museum)
Format: Oral

In Hungarian archaeology, a legislative boundary traditionally defines the year 1711 as the temporal limit of protection. Consequently, funerary heritage from the last three centuries—lacking formal legal status—is being lost at an alarming rate. This paper highlights the scientific importance of the Post-medieval period through the analysis of a unique nonadult burial assemblage excavated in Szécsény. The research focuses on the manifestation of grief and the social perception of childhood through the lens of funerary practices. While osteological remains provide direct biological data, the burial context—specifically the grave goods and the spatial arrangement of the deceased—reflects the emotional and social responses of the grieving community. A key element of this study is the analysis of nonadult's graves, where the presence of specific attire, such as delicate jewellery and traditional headdresses (párta), serves as a poignant indicator of the care, status, and identity afforded to deceased children. Furthermore, the presentation examines diverse modes of interment, including multiple burials and the symbolic co-placement of children and adults. By analyzing these spatial relationships and the material culture of the grave, the study aims to reconstruct how parental and communal grief were ritualized. Despite the high mortality rates of the era, these patterns suggest that the loss of a child was a profound trauma, processed through elaborate ritual expressions. This research contributes to the expanding European discourse on the archaeology of childhood and the emotional history of the Post-medieval period.

1011. Children from the Winthir Collection – A new documented skeletal assemblage of non-adults from post-medieval Central Europe

Authors: Janette Lee – Albert Zink – Michaela Harbeck (SNSB - State Collection for Anthropology Munich)
Format: Oral

Understanding childhood in the post-medieval period relies not only on archaeological burial evidence but also on documented skeletal collections that provide individual biological and contextual information. Such assemblages offer rare opportunities to investigate growth, health, disease, and social inequality among non-adult individuals within well-defined historical populations. This contribution introduces the newly established Winthir Collection, a documented skeletal assemblage from Munich-Neuhausen (Germany), recovered during rescue excavations of an abandoned cemetery extension and dating primarily to the late nineteenth century. The collection comprises 90 non-adult individuals with associated biological documentation, including 72 individuals (80%) younger than 12 years. As one of the first Central European documented skeletal collections of the post-medieval period containing a substantial number of well-preserved non-adult remains, the Winthir Collection represents an exceptional resource for the archaeology and anthropology of childhood. We highlight the collection's potential to advance bioarchaeological research on growth, health, and disease in childhood, as well as social differentiation within an urban nineteenth-century population. In addition, the documented nature of the assemblage enables population-specific calibration and evaluation of osteological methods

applied to non-adults. Recent work assessing sex estimation approaches in non-adult remains from the Winthir Collection will be presented, underscoring the importance of documented post-medieval reference samples for improving methodological reliability and deepening our understanding of children's lives and deaths in the recent past.

1366. An overview of early modern period child burials in Žumberak (Croatia) from the archaeological and anthropological perspectives

Authors: Sebastijan Stingl (Institute of Archaeology, Zagreb)
Format: Oral

In Žumberak, a small settlement in the Žumberak Mountains, there is a Roman Catholic parish Church of St Nicholas the Bishop, which was, according to historical sources, used by both Roman Catholics and Greek Catholics during the 17th century. The Eastern rite Catholics, refugees from the territories under Ottoman control, were settled in the Žumberak Mountains in the first half of the 16th century. Archaeological excavations were conducted at the site of St Nicolas the Bishop Church for several years, and so far, 333 graves have been explored, out of which 322 can be dated to the early modern period, predominantly to the 17th and 18th centuries. Two of them were discovered in the crypt, the only archaeologically excavated part of the interior, one outside of the cemetery wall, while the rest of them were in the churchyard. Out of those 322, 78 were child burials. This paper analyses the burial practices of these burials, and deals with their differences in comparison to the burials of adults, but also aims to differentiate the burials of children from Roman Catholic families and those belonging to the Greek Catholics. Additionally, through the analyses of the anthropological data, the aim is to reconstruct their short lives, primarily the way they were treated, with a focus on everyday labour, food distribution, and its quality.

1842. Traces of Status in Post-Medieval Children's Burials from the Church Crypts in Byszewo

Authors: Mikolaj Dobek (Nicolaus Copernicus University in Toruń)
Format: Oral

Church crypts are commonly associated with burial places of local elites, noble families who patronized the church, and members of the clergy. Research conducted over the past decade by Nicolaus Copernicus University in Toruń has demonstrated that the underground spaces of the church in Byszewo represent a unique site. Archival sources indicate that among more than one hundred individuals uncovered, representatives of the local peasantry were also buried there. This issue inspired the doctoral dissertation project "Intrapopulation social stratification and its manifestations in the light of archaeological and bioarchaeological research of the population buried in the Church of the Holy Trinity in Byszewo". The aim of the project is to determine whether analyses of human remains combined with the study of material culture can reveal indicators of affiliation with social groups of higher or lower social and economic status. An important stage of this research is the examination of numerous children's burials discovered in the Byszewo crypt. The presentation will outline the course of analyses conducted on a series of children's burials. The physical condition of the deceased children will be discussed based on bioarchaeological analysis, including, but not limited to, paleopathological and osteometric assessments. The accompanying grave goods (such as clothing, devotional items, and plant remains) will also be presented. On this basis, a preliminary interpretation of the results will be proposed, along with directions for further, more detailed micro-analyses. The initial results of the study of children's burials from Byszewo will demonstrate to what extent it is possible to identify indicators of social status during life in post-medieval archaeological material.

1883. Children at the Convent: an unusual "funerary space" identified at the 16th century former Convent of Graça, Lisbon (Portugal)

Authors: Linda Melo (CIAS- University of Coimbra | Uniarq - University of Lisbon) – Sandra Assis (CRIA- NOVA University of Lisbon | Egas Moniz School of Health & Science) – Carlos Ferreira (Independent Researcher)
Format: Oral

The analysis of burials context associated with convents and monasteries offers important insights into the health status, disease patterns, and lifestyles of enclosed male and female religious communities. In some cases, it also provides perspectives on socially privileged groups, sometimes interred in private chapels. The identification of burials of immature individuals is comparatively less frequent. This study presents and discusses the case of an undocumented, crypt-like funerary space, containing the remains of 27 immature individuals. The funerary context was identified in 2017, as part of the rehabilitation works carried out in the cloister area of the former Convent of Graça in Lisbon, built in the 16th century and with successive reconstruction works overtime. Archaeological excavation revealed evidence of three distinct phases of funerary occupation. The earliest phase is represented by primary inhumations of adults in coffins, suggesting a formally organised burial context. This was followed by an intermediate phase consisting of a funerary level containing the remains immature individuals, indicating a possible change in burial practices or the specific use of the space for juvenile interments. The latest phase is characterised by a large secondary deposit of approximately 500 disarticulated human bones, reflecting extensive post-depositional disturbance or deliberate reorganisation of human remains. This study focuses on the preliminary archaeological and anthropological results of the investigation, including stratigraphy, burial practices, bone preservation and biological profile of the individuals recovered, with particular emphasis on the immature sample, and its role for understanding mortality, funerary behaviour, and the use and reuse of space in the post-medieval period. These initial results contribute to a broader discussion of funerary variability within conventual contexts in Lisbon and highlight the research potential of this newly identified burial assemblage.

573. Untimely Deaths in the City. Child Burials in Early Modern Bucharest

Authors: Raluca-Iuliana Motei – Dan Pîrvulescu (Bucharest Municipality Museum)
Format: Oral

During the medieval and early modern periods in Wallachia, burial practices were regulated by the Orthodox Church, with interments permitted only inside churches or in their surrounding churchyards. In accordance with Christian norms, the deceased were buried in a shroud or coffin, laid supine with the head oriented to the east. This system remained in place until the mid-nineteenth century, when burial reforms required the relocation of cemeteries beyond the urban area. As a result, churchyard cemeteries were used continuously over several centuries, reflected by a high density of burials, superimposed graves, and frequent reinterments. Urban archaeological research in Bucharest, including excavations linked to infrastructure rehabilitation and the consolidation of religious edifices, has identified several cemeteries dating from the seventeenth to the mid-nineteenth century. Within these assemblages, children represent a substantial proportion of the buried population, making juvenile burials a key source for exploring childhood and vulnerability in a pre-modern urban context. The presence and distribution of non-adult burials provide insights into social responses to early death, mourning practices, and family structures. In several instances, double or multiple burials, including adult–child associations, may reflect close familial relationships or shared funerary treatment during periods of heightened mortality. Alongside these collective contexts, some individual child burials display care in the selection of coffins and funerary accessories, including jewellery, which may indicate the symbolic importance of children within their families. The frequent occurrence of infant and juvenile burials is consistent with the high mortality rates characteristic of medieval and early modern societies. Although indicators such as childhood malnutrition and anaemia point to difficult living conditions, the archaeological visibility of children in these cemeteries extends beyond biological evidence, offering insight into social practices and attitudes surrounding childhood and death in early modern Bucharest.

2549. Strangers in a strange land – investigating the health of 18th century immigrant children from Tartu, Estonia

Authors: Linda Vilumets (University of Tartu | Tallinn University)
Format: Oral

The beginning of the 18th century proved to be one of the most devastating periods in the history of Tartu (South Estonia). The town was destroyed during the Great Northern War (1700–1721) and forced to capitulate in the favour of the Russian Empire. As the slow recovery process began, many immigrants of Russian orthodox background also found home among the ruins. Historical data points to poor living conditions of this new population, which undoubtedly had the biggest effect on the well-being of the children. Lillemäe cemetery at the suburbs of Tartu was one of the burial places established and used throughout the 18th century. Archaeological excavations in 1987, 1991 and in 2025 have revealed over 650 burials, containing the remains of at least 180 non-adults. The latter offer a unique opportunity to investigate the health of children who spent their short lives in a strange and war-torn place. Preliminary results suggest that the newcomers did not adapt well to their surrounding environment and many children suffered from malnutrition. Compromised health was further illustrated by the presence of various forms of dental enamel hypoplasia, dental diseases and other miscellaneous conditions that also shed light on the childrearing practices. These results will be compared against data gathered from other previously analysed contemporary children, to interpret any differences in morbidity and mortality.

1787. Children from Dąbrówki in Podlasie, Poland – a preliminary analysis of child burials from an early modern cemetery

Authors: Joanna Wawrzeniuk (Institute of Archeology, Cardinal Stefan Wyszyński University, Warsaw)
Format: Oral

In the medieval period, a child was initially treated as a "small adult," while in later centuries it was perceived on the one hand as a sinful being and on the other as fragile, transient, and particularly marked by death. For this reason, the period of birth and early childhood was associated with numerous protective practices of a religious and magical nature. Baptism was of key importance and was often administered as soon as possible after birth, due to fears that a child might die without the sacrament. A serious problem was the burial of the deceased without baptism, often in fields or even beneath houses. Despite the still unsatisfactory state of research on late medieval and early modern cemeteries in the Polish lands, a high mortality rate among infants and young children is evident. It is estimated that nearly 50% of children did not survive to the age of five, with a significant proportion dying within the first year after birth. The causes were varied and included disease, the lack of effective medical care, malnutrition, and difficult sanitary conditions. Archaeological research conducted between 2019 and 2024 at a randomly discovered cemetery dating to the 16th–17th centuries in Dąbrówki, a locality situated on the borderland between the territories of the Crown of the Kingdom of Poland and Lithuania, revealed a specific character of funerary practices, in which nearly half of all recorded graves were burials of infants and children. Such a high proportion indicates significant mortality among the youngest members of early modern communities. Anthropological and spatial analysis of this category of burials, as well as the forms of funerary rituals, allows for a partial reconstruction of the demographic structure, living conditions, and funerary practices of the local community in the early modern period.

2109. Children and community: selected biological and cultural aspects of child burials in the Polish–Lithuanian Commonwealth (16th-18th century)

Authors: Hubert Lepionka (Faculty of Archaeology, Adam Mickiewcz University in Poznań | Podlaskie Museum in Bialystok) – Olga Dec (Faculty of Archaeology, Adam Mickiewcz University in Poznań) – Angelika Słodka (Independent Researcher)
Format: Oral

Child burials constitute one of the most challenging yet informative categories of funerary evidence in early modern archaeology and bioarchaeology. This paper examines the biological and cultural dimensions of child burials from the borderland of the Polish Crown and the Grand Duchy of Lithuania, based on anthropological and archaeological materials from the town of Tykocin, the small town of Nowy Dwór, and the rural communities of Knyszewicze, Harkawicze, Załuki, and Pieńki. Drawing on osteological analysis and burial context, the presentation discusses age-at-death structure, biological characteristics of the juvenile population, and variability in funerary treatment in relation to adult burial practices. Particular attention is paid to issues of funeral rites and deathways of child burials by comparing urban, small-town, and rural contexts. Lecture highlights the role of local traditions and borderland dynamics in shaping attitudes toward child death and burial. The study demonstrates that child burials offer crucial insights into social organisation, religious practice, and community boundaries in the early modern Polish–Lithuanian borderland.

2239. Skeletal Evidence of Early Life Stress in Children and Adolescents from Gać, Poland (17-18th c.)

Authors: Meghan Langlois (McMaster University) – Paige Lynch (University of North Texas) – Joanna Wysocka (Polish Academy of Sciences) – Erin Riley (University of Cambridge) – Maciej Gembicki (Adam Mickiewicz University) – Grace Holmes (University of Manitoba) – Marcin Krzepkowski (Regional Museum in Wągrowiec)
Format: Oral

Childhood health provides important insight into the lifeways and well-being of the community. This research provides an overview of mortality and health evidenced through macroscopic assessment of pathological lesions in the skeletal remains of children and adolescents (<18 years) from the early modern site of Gać, Poland (17-18th c.). The village of Gać dates to the 14th century, but radiocarbon dates reveal primary use of the cemetery in the 17-18th centuries. Archival evidence suggests the site was likely a Protestant burial ground, established separate from the Catholic cemetery, populated in part by migrants from Brandenburg and Pomerania. Individuals below 18 years of age (n=121) at time-of-death make up 53.5% of the demographic profile of the cemetery, indicating high childhood mortality. There is a high crude prevalence of non-specific stress lesions, including cribra orbitalia (25.3%), subperiosteal new bone formation (27.8%), and linear enamel hypoplasia (29.1%). The high prevalence of scurvy (7.5%) and caries (30.2%) provide additional evidence for nutritional stress. There are few fractures amongst children indicating activity, however, evidence of spinal joint disease was identified beginning in the early adolescent age category (10-14 years). Crude prevalence of joint disease is 21.4% among early adolescents and 25% in middle adolescents (15-17 years). The results of this analysis provide evidence that young people experienced significant physiological stress during early life. Greater Poland experienced a series of conflicts, famine, and disease epidemics in the early modern period, which likely resulted in the high prevalence of pathological lesions and mortality in younger individuals. Additionally, the presence of spinal joint disease in early adolescence indicates individuals likely participated in labour beginning at a young age. This research provides insight into rural, Protestant village life in early modern Poland, a currently understudied area of research.

2387. Child Mortuary Practices in the Early Modern Cemetery at Drawsko

Authors: Maciej Gembicki (Faculty of Archaeology, Adam Mickiewicz University)
Format: Oral

This paper examines the treatment of children in an early modern post-epidemic cemetery in Drawsko, Poland, excavated between 2008 and 2019 by the Slavia Foundation. The cemetery functioned for nearly 250 years as an auxiliary burial ground during periods of increased mortality, particularly in the 17th and 18th centuries. The analyzed assemblage comprises 556 skeletal burials. Subadults constitute a substantial proportion of the burial population, accounting for 42.5% of all interments, reflecting the severe demographic impact of epidemic disease on children. The cemetery is also characterized by a high frequency of apotropaic (anti-vampiric) practices, recorded in 21.76% of all graves. However, children are disproportionately underrepresented among such burials: only approximately 30% of apotropaic graves belong to subadult individuals. This pattern indicates that children, despite their numerical prominence in the cemetery, were less frequently perceived as a post-mortem threat requiring preventive intervention. While not excluded from apotropaic treatment, subadults were subject to these practices less often than adults, suggesting age-dependent interpretations of danger, agency, and liminality in death. These findings challenge simplified distinctions between "typical" and "atypical" burials and demonstrate that epidemic-related mortuary responses were selectively applied. The Drawsko cemetery provides important insight into how early modern rural communities conceptualized childhood, vulnerability, and the perceived power of the dead during periods of recurring epidemic crisis.

1946. Too Young to Die: Bioarchaeological Perspectives on Non-Adult Stress and Mortality in Post-Medieval Stenjevec (Zagreb)

Authors: Željka Bedic (Institute for Anthropological Research) – Maja Bunčić (Archaeological Museum in Zagreb)
Format: Oral

The skeletal remains from the Stenjevec cemetery in western Zagreb, spanning from the early Middle Ages to the 18th century, offer a unique opportunity for a diachronic analysis of childhood health in a transforming rural landscape. Non-adults represent approximately 26% of the total sample (N=160), providing a robust dataset for investigating shifts in mortality and morbidity over time. The primary focus of this study is the post-medieval population, whose health is reconstructed through the analysis of subadult stress indicators, metabolic diseases, and dental health. By examining markers such as linear enamel hypoplasia, cribra orbitalia and subperiosteal new bone formation, we track the physiological challenges faced by these children in comparison to earlier medieval phases of the cemetery. Special attention is paid to multiple burials containing women and children, exploring the biological and social implications of these shared graves. These contexts allow for a deeper investigation into maternal-infant health links and the environmental stressors that shaped the journey from cradle to grave in this historical community on the outskirts of Zagreb.

357. Flickers of life: Children of the Early Modern cemetery of the Dominican monastery in Bol, Croatia

Authors: Zrinka Premuzic (Faculty of Humanities and Social Sciences, University of Zagreb) – Mario Novak (Institute for Anthropological Research, Zagreb | Faculty of Humanities, University of Primorska, Koper) – Mario Caric (Institute for Anthropological Research, Zagreb) – Josip Burmaz – Dinko Tresić Pavičić (Kaducej Ltd., Split)
Format: Poster

The Early Modern cemetery located at the Dominican monastery and Church of Our Lady of Mercy in Bol, Croatia served the local community for a period of 355 years, from 1475 to 1830. Archaeological excavation in 2024 discovered 120 well-preserved graves, most of them single inhumations. The results of anthropological analysis of the skeletal material revealed that subadults represent 72,2% of the sample, a share unexpectedly high even for an archaeological population. Moreover, juveniles younger than 5 account for 84,6% of the subadult sample, indicating peak mortality for this age group. Paleopathological analysis showed pathological changes in only 5 individuals; this suggests mortality driven by either acute, rapidly progressing diseases or conditions that spare the skeletal elements. Preliminary stable isotopes analysis showed high nitrogen levels, indicating breastfeeding practices or prolonged episodes of physiological stress caused by malnutrition, infection or disease. Analysis of archaeological context (such as burial location, body position) showed that there was no difference in burial treatment between juvenile and adult individuals. This carries an implication of the social status: all children, even the youngest, were recognized as members of the community and granted some form of burial ritual. By combining anthropological and archaeological data, this analysis provided an insight into fragile lives of this community's most vulnerable members with a focus on health status as well as mortuary practices.

1132. (Un)Lived Lives: Bioarchaeology of Childhood, Death and Loss in a Cemetery from Rural Modern-Age Southern Romania

Authors: Franceska Ştirbu ("Vasile Pârvan" Institute of Archaeology) – Patricia Ebrașu (University of Bucharest) – Gabriel Vasile ("Vasile Pârvan" Institute of Archaeology) – Raluca Kogălniceanu (1 Decembrie 1918 University of Alba Iulia)
Format: Poster

The study draws on recent archaeological research conducted at "St. Nicholas Church", Iepurești site, situated in a rural area of southern Muntenia (= Greater Wallachia, Giurgiu County), a region that remains underrepresented in studies of post-medieval funerary practices. The site provides a valuable base for examining health, pathology, funerary behaviour, and social identity within a rural community of the Kingdom of Romania during the reign of Carol I, in the late 19th and early 20th centuries. The large number of subadults discovered during the excavation allows for the bioanthropological analysis of the demographic structure of the community, childhood mortality patterns, and growth and developmental stress. On the other side, from an archaeological point of view, patterns such as cemetery organization, grave typology, and variability in burial treatment, including the presence and composition of grave goods, may reflect forms of social differentiation as well as culturally adaptive responses to periods of social and economic change. Additionally, the investigation of osteopathological indicators, with particular attention to infectious, degenerative, and metabolic conditions, was essential in providing insight into living conditions and nutritional stress during the childhood years. Thus, by combining the two, the study offers valuable insight into modern-age rural life, the emotional dimensions of loss and the community's expressions of grief surrounding subadult burials, while emphasizing the importance of interdisciplinary perspectives in the reconstruction of complex historical and anthropological contexts. Lastly, other than reconstruction of past contexts, the study also concerns the present-day people of the Iepurești locality by contributing to the recovery and preservation of local heritage, as well as by fostering a deeper awareness of the cultural practices and identities that continue to shape this society today.

1482. Children of the Outskirts: A Bioanthropological Study of Non-Adult Individuals from the Ras Region (13th–18th Century)

Authors: Dragana Vulovic (Institute of Archaeology, Belgrade) – Vladan Vidosavljević (Ras Museum, Novi Pazar) – Uglješa

Vojvodić (Institute of Archaeology, Belgrade)
Format: Poster

In both modern and ancient populations, children represent the most vulnerable members of the community. Consequently, child mortality is regarded as the most sensitive indicator of population health and represents a key component in bioarchaeological interpretations of past societies. Due to rapid growth, their developmental processes can easily be disturbed. Environmental and socio-cultural risks, such as contaminated water, poor sanitation, indoor air pollution, inadequate food hygiene, etc., have always endangered children's health. In this regard, non-adult individuals play a crucial role in the reconstruction of the health status and living conditions of the ancient population, with special attention placed on neonatal mortality and mortality among children under five years of age. They are susceptible to various metabolic stresses caused by factors such as infectious diseases, inadequate nutrition, and parasitic infections that may leave a permanent record on bones and teeth. This presentation reports the results of a bioanthropological analysis of non-adult skeletal remains from the medieval necropolis of Dublje iznad Kuće (Novi Pazar, Serbia). Archaeological research indicates that the necropolis was used continuously from the 13th to the 18th century, spanning the medieval period and the era of Ottoman rule. The site served the population of a nearby rural settlement, which, although its exact location remains unconfirmed, was undoubtedly situated in the immediate vicinity of the episcopal Church of the Holy Apostles Peter and Paul in Ras, as well as the administrative center—the unfortified central square of Ras/Novi Pazar. Accordingly, the examination of skeletal remains of individuals up to the age of 17 (classified here as "non-adults") provides significant insight into the sustainability and resilience of the rural population living near these central hubs during the turbulent historical events in the Ras district.

1847. The Children of the Elisabethian Cemetery: An Interdisciplinary Study of Subadult Burials at Vienna's First Women's Hospital

Authors: Hannah Grabmayer (University of Vienna | Novetus GmbH) – Felix Kaufmann (Stadtarchiv Graz) – Eva Riedlsperger (University of Vienna) – Britta Van Tiel – Pontus Skoglund (The Francis Crick Institute) – Michaela Binder (Novetus GmbH)
Format: Poster

In 2018/19 archaeological excavations uncovered the cemetery of the first Viennese women's hospital of the Elisabethians, built in 1715 and used until 1784. The excavations revealed the well preserved, articulated skeletons of 355 individuals, who, according to historical records, were largely part of Vienna's lower social class. Around six percent (n=20) of the individuals were subadults under the age of 18. This study investigates why children were buried in the cemetery of a hospital that neither maintained a maternity ward nor explicitly admitted pediatric patients, and examines the illnesses from which they suffered. Archival sources including death and patient records are combined with bioarchaeological and biomolecular analyses, to explore the institutional and social mechanisms that led to the burial of children at this site and to reconstruct their pathological conditions. The children had an average age at death of 12 years, ranging from four to 17. DNA analysis of six individuals identified all as biologically female, indicating that the Elisabethian hospital not only distinguished between male and female adults, but did so for children as well. Historical sources show that some, despite their young age, were already working as maids and were admitted through networks of noble patronage, either by their employers or on recommendation. At the time of admission, most of the children were seriously ill. Cases of congenital syphilis, tuberculosis, and possible chronic mercury exposure were among the conditions observed. This study aims to contribute to a better understanding of childhood, illness, and social welfare in post-medieval Vienna period and to show how the integration of bioarchaeological and biomolecular data as well as archival sources can shed light on the lived experiences of girls who are otherwise rarely visible in historical sources.

1913. Adorned for Eternity: Child Burial Crowns in the Post-Medieval northwestern Croatia

Authors: Maja Bunčić (Archaeological Museum in Zagreb)
Format: Poster

This poster aims to present findings from a rescue excavation conducted at the parish church of Stenjevec in Zagreb, a site spanning the early medieval to the post-medieval period. Among the 171 burials recovered, two non-adult individuals (aged 6–7 and 11.5–12.5 years) were identified with significant remains of complex head attire in varying states of preservation. The presence of copper staining, bronze wire fragments, and beads on the crania provides tangible material evidence of the "dead-bridal" costume within a local rural context. Dated to the mid-17th century, these finds contribute to the growing corpus of child-specific mortuary rites documented across post-medieval Croatia and Central Europe. By analyzing these burial "crowns" or "wreaths," we explore how post-medieval societies navigated high childhood mortality through the construction of "idealized" identities. These adornments represent more than simple decoration; they signify the symbolic transformation of a lost life into an eternal, spiritual celebration, reflecting deep-seated beliefs regarding innocence and the afterlife.

252 CONNECTIONS BETWEEN THE CARPATHIAN–NORTHERN BALKAN REGION AND THE AEGEAN DURING THE BRONZE AGE IN LIGHT OF RECENT ARCHAEOLOGICAL DATA

Theme: 7. Interaction, connectivity and mobility
Organisers: Csaba Bodnár (Eötvös Loránd University) – Eszter Fejér (Institute of Archaeological Sciences, Eötvös Loránd University) – Filip Franković (Institute for Pre- and Protohistory, Heidelberg University) – Piotr Zeman (Institute of Archaeology and Ethnology of the Polish Academy of Sciences)
Keywords: Bronze Age, Aegean, Carpathian Basin, northern Balkans, mobility, interaction
Format: Regular session

SESSION ABSTRACT

Archaeological evidence for connectivity between societies in the Aegean and those in the northern Balkans and the Carpathian Basin during the Bronze Age has long attracted scholarly interest. Similarities in material culture suggesting interactions between these regions – though varying in intensity over time – have been recognized since the mid-20th century, and interpreted in diverse ways within different theoretical frameworks. The impact of Aegean contacts has often been viewed as a key factor in shaping the economic and social structures of Bronze Age Southeastern Europe; conversely, in certain periods, the role of northern elements has also been emphasized in the formation of Aegean societies. The aim of this session is to reconsider the current state of knowledge about these interconnections, drawing on recent advances in archaeological and scientific research in the Aegean on the one hand, and in the Carpathian Basin and the northern Balkans on the other. We invite papers that examine – whether through top-down narratives or from the bottom-up perpectives of local communites – the nature of contacts between the Aegean and the Carpathian–northern Balkan region, spanning from the Early to the Late Bronze Age, including the types and scales of interactions, their agents, mechanisms, geographical and material expressions. Contributions presenting new evidence for the movement of people, objects (finished products or raw materials), technologies, social practices (rituals, funerary behaviours, foodways, social institutions, etc.) and cosmological concepts from south to north or vice versa are all welcome. We especially encourage papers that address how encounters with 'foreign' southern/northern influences were received and appropriated within local social and cultural contexts, as well as research into the role played by intermediary communities in these transmission networks.

CONTRIBUTION ABSTRACTS

2762. Keynote: The Balkans in the Bronze Age: connected or disconnected?

Authors: Anthony Harding (University of Exeter)
Format: Oral

This session gives an unparalleled opportunity to discuss how connected the different parts of the Balkan peninsula were in the Bronze Age, and the contributors all address this rather critical question from a number of standpoints. Historically, the view has been that the advanced societies of the Aegean were on an altogether different cultural level from those further north. Recent discoveries have shown, however, that a much more nuanced interpretation is in order. Some writers (though not those contributing to this session) still favour a World Systems approach, which to my mind offers little agency to those in the "periphery". The progress of research, including palaeogenetics, remote sensing, and other technologies, means that in many areas we now have a much fuller understanding of local or regional groups in their own context. Studies of individual artefact types still have a role to play, however, though they must always be considered within the wider picture of their cultural background. Amber, for instance, which is the subject of at least two contributions, is now much better studied than it was when I undertook my PhD work. In this paper I shall review some of this recent work, comparing it with traditional narratives of the Balkan Bronze Age, with a particular focus on the changing evidence for long-distance connections throughout the peninsula.

2495. Early Bronze Age networks between the Carpathian Basin and the Aegean

Authors: Vajk Szeverenyi (University of Miskolc)
Format: Oral

Interregional interaction between the Carpathian Basin and the Balkans during the Early Bronze Age (3rd millennium BC) has been the subject of study for a long time. Nevertheless, new results can be expected through the application of new theoretical approaches that highlight new aspects of this interaction and provide new insights into social and cultural change. In this paper a series of objects and archaeological phenomena will be highlighted that provide evidence for various types of connections between the Carpathian Basin, Southeast Europe and the Eastern Mediterranean. This evidence will be analysed to demonstrate how new forms of material culture of ultimately foreign origin are adopted and reinterpreted according to local cultural logics. The paper will investigate how these cultural sets are recontextualized and used to create, maintain and reproduce new types of identities, social roles and personhood. These cultural changes seem to have been of utmost importance with regard to the later development of the Bronze Age in East Central Europe.

1662. Birds flying high... The Balkanic roots of the bird representations of the Bronze Age Carpathian Basin

Authors: Janos Dani (University of Szeged | Déri Museum)
Format: Oral

The Bronze Age in the Carpathian Basin is known to be rich in bird representations. The prevalence of various types of bird representations (rattles, askoi, bird-shaped vessels, bird depictions) in the Middle and Late Bronze Age clearly testifies to the existence of specific religious beliefs/practices. Two recently discovered, uniquely decorated askoi (Debrecen-Szepesi-telek and Orosháza-Gyopáros) allow us to date the similar, extremely rich Vučedol-decorated specimens to the so-called "Transitional period" (between the late Copper Age and the early Bronze Age), to approximately 2900-2600 calBC. But where do these stylized bird depictions originate, how did they find their way into the Carpathian Basin, and what connections do they have with the Balkans? What purpose did the earliest bird representations, the bird-shaped askoi serve? Is it possible to determine the exact species of these birds? What religious concepts and practices are associated with the Bronze Age bird representations? These questions (among others) are addressed in this research related to two recently discovered finds in eastern Hungary.

1219. Trading cosmological symbols? Bronze Age cosmological depictions and the southern relations

Authors: Emilia Pasztor (Türr István Museum)
Format: Oral

Several types of abstract signs are portrayed as sun symbols on the most diverse artistic works of the European Bronze Age. The finds in the Carpathian Basin are also abundant in these. There are also some, but hardly any, pictorial, storytelling images, and most of these seem to be cosmological in nature. These are considered the result of southern contacts. Symbols can make a belief system visible, and these visual symbols are communicated through the medium of iconography. Such symbols (as icons and emblems) could be exchanged between different cultures, travelling along international routes of communication that were used by traders. As the icons of a specific region, these religious beliefs were literally "exported." After a brief introduction on visual cosmological symbols, the presentation will investigate whether celestial/cosmological signs conveyed any meaning or information beyond simple similarity, and whether this can be revealed with the help of archaeology. Can it be established that some characteristic symbols really migrated from south to north, or perhaps in the opposite direction, or is it impossible to grasp a "birthplace" for them, because they owe their existence to general human cognitive processes? Did the Carpathian Basin serve only as an intermediary region, or did the people living here incorporate this information into their own communal culture, and their use became more than a simple decorative motif?

1167. From Hand to Hand: Bronze Age Two-Handled Cups between Anatolia, the Aegean, and the Carpathian Basin

Authors: Filip Frankovic (Heidelberg University) – Peter Pavúk (Charles University in Prague)
Format: Oral

In the second half of the third millennium BCE, various forms of two-handled cups began to appear in the ceramic assemblages of diverse communities across a wide area, extending from West Anatolia and the Aegean in the south to the southern part of the Carpathian Basin in the north. By the second millennium BCE, two-handled cups had become one of the most recognisable ceramic forms in Southeast Europe. Consequently, they have played a central role in the construction of local typo-chronological frameworks and in interpretative narratives concerning connections between the northern and southern parts of the region. Questions surrounding their appearance, development, and eventual disappearance are therefore closely tied to broader debates on social, cultural, and political change in Southeast Europe from the late third to the end of the second millennium BCE. Despite their significance, attempts to synthesise evidence across Southeast Europe remain limited. This lack of comprehensive research is particularly striking in the case of the Aegean and Anatolia—regions frequently regarded as the point of origin of the phenomenon. As a result, four interrelated research problems remain insufficiently explored: (1) terminological inconsistencies; (2) local typo-chronological developments and interregional synchronisms; (3) the origins of the phenomenon; and (4) regional variation in use and the socio-cultural meanings attributed to two-handled cups. This paper addresses typo-chronological developments, interregional synchronisms, and possible origins of the two-handled cup phenomenon. Rather than providing an exhaustive synthesis, it aims to (1) identify broad patterns in the distribution of specific two-handled cup types between the Danube and the Aegean; (2) examine correlations that may point to causal relationships; and (3) outline directions for future research.

2633. The Maros Group and Aegean Connectivity: Local Communities in Bronze Age Networks

Authors: Orsolya Gyurka (Móra Ferenc Museum | Babeș-Bolyai University, Cluj-Napoca)
Format: Oral

Archaeological research has long highlighted the importance of interregional connectivity between the Aegean, the northern Balkans and the Carpathian Basin during the Bronze Age, emphasizing the circulation of materials, technologies and social ideas across these regions. The Maros Group, an Early and Middle Bronze Age cultural complex situated in south-eastern Hungary, western Romania and northern Serbia, occupied a strategically significant position within these interaction networks, particularly along the Maros (Mureș/Moriš) and Tisza (Tisa) river corridors. This paper explores the role of Maros Group communities within broader Aegean–Carpathian networks from a bottom-up perspective, focusing on how external influences were received, negotiated, and embedded in local social and cultural contexts. Archaeological evidence indicates sustained long-distance connectivity. Amber finds attest to participation in continent-spanning exchange systems, while Columbella shells in settlements and cemeteries provide direct evidence for contacts reaching the Mediterranean. At the level of social display, similarities in bone and gold decorative motifs from elite burials suggest that Maros communities adopted status symbols reflecting patterns observed in contemporary Aegean material culture. Newly uncovered material further refines our understanding of these connections. A recently discovered stone artefact, resembling a double axe from a Middle Bronze Age inhumation grave in the Szeged–Szőreg-C cemetery (Hungary), provides a compelling example of an Aegean symbolic form that was appropriated and reinterpreted within a local funerary and social context. By integrating established datasets with new finds, this contribution complements our understanding of the nature, mechanisms, and social meanings of interactions between the Aegean and south-eastern Hungary.

2023. Local, regional, long-distance? Trade networks in the Tumulus period through raw material analyses from Maklár (NE Hungary)

Authors: Ákos Mengyán (University of Miskolc | Hungarian National Museum Public Collection Centre) – Zita Hrabák (University of Szeged | Hungarian National Museum Public Collection Centre) – Bernadett Bajnóczi (HUN-REN Research Centre for Astronomy and Earth Sciences) – Veronika Szilágyi – Zsolt Kasztovszky (Budapest Neutron Centre, HUN-REN Centre for Energy Research) – Ferenc Kristály (University of Miskolc)
Format: Oral

In Northeastern Hungary, two partly excavated cemeteries are known on the northern Great Hungarian Plain in the municipality of Maklár, both dated to the Tumulus period, between 1600/1500 and 1300/1200 cal BC. The sites are Maklár-Koszpérium (121 burials) and Maklár-Nagyrét II (210 graves). Solely cremation burials were identified in the cemeteries, including both urn graves and scattered cremation graves. Most burials contained multiple vessels, creating diverse sets of ceramics. Furthermore, thirty-four blue glass beads in the Nagyrét II, and two stone axes were found, one from each cemetery. This research focuses on the composition and provenance of ceramics, glass beads and stone axes, in order to shed light on trade networks and traditions of the Maklár communities. The raw material procurement and tempering practices of the ceramic assemblages were studied by thin-section petrography. The main aim was to define the technological traits of pottery production and to identify similarities and differences in the production process. The stone axes with shaft-hole were investigated by non-destructive prompt gamma activation analysis (PGAA) and X-ray diffraction (XRD) analysis. Stone axes are rare in burial context, and their composition indicate regional and imported raw material use. In addition, the blue glass beads were analysed by SEM-EDS and LA-ICP-MS. Blue glass beads appeared in larger quantity around 1500 BC in Central Europe, including the Carpathian Basin. The trace element composition of the Central European blue glass beads suggests Mesopotamian and Egyptian origin. The provenance of the Maklár glass support this theory and suggest complex long-distance trade networks between Central Europe and the Eastern Mediterranean, in which the Aegean societies could have played an important role.

1891. Burial Rite between the Central Balkan and North Aegean World during Early and Middle Bronze Age

Authors: Aleksandar Kapuran (Principal research fellow)
Format: Oral

During the 3rd and first half of the 2nd Millennium BC, it is possible to notice certain parallels in burial rites between the communities that settled the northern parts of the Aegean and the Central Balkan territory. During the 3rd millennium BC, these parallels were first manifested among the prominent representatives of the communities, while in later periods, especially during the first half of the 2nd millennium BC, we believe that a certain equality in the funeral ritual appeared. Since a few Early Bronze Age graves have been found on the territory of the Central Balkans, an incomparable number of necropolises and solitary burials have been discovered during the Middle Bronze Age, so that it is now possible to establish a clearer insight into the burial practices of populations buried in large necropolises, especially in the moutanious regions of the Iron Gates Hinterland, and also in the plains in the south of the Carpathian Basin. Due to the fact that a certain number of necropolises in Serbia and Greece have not been published in an adequate volume to date, we believe that the time has come to look at certain aspects of burials and the influences they were subject to from a new perspective.

1142. Funerary kits, high-res c14 and a late Middle Bronze Age Danubian epidemic, as contextual data for southeast European contacts

Authors: Tibor Daróczi (Institutul de Arheologie "Vasile Pârvan" al Academiei Române | Facultatea de Istorie, Universitatea din București)
Format: Oral

This presentation explores the archaeologically visible contact between Middle Bronze Age communities on the Danube and the emerging Mycenaean world during the late Middle Helladic period. To understand this connectivity, we argue for a strong, causal correlation between three key elements: a disruptive wave of disease, high-precision radiocarbon chronologies, and the comparative

analysis of funerary kits. First, we propose that a scientifically under-discussed epidemic on the Danube served as the primary engine driving major social, demographic, and cultural changes on the threshold of the Late Bronze Age. While published multi-proxy evidence for this epidemic is currently limited, modeling it provides a clear catalyst for the sudden movement of populations and ideas. Second, by synchronising new high-precision radiocarbon chronologies, we can map the direct consequences of this disruption. This synchronisation reveals the specific directionality of exchanges in goods, people, and concepts between the Danube and the Aegean. Finally, the presentation will argue that these demographical and chronological shifts are materialised in the archaeological record through dozens of similar funerary kits found in both regions, dating to the first half of the second millennium BCE. A comparative analysis of these kits indicates converging burial customs and a shared projected self-image. Consequently, these funerary kits highlight the circulation of similar beliefs—and likely people—acting as the medium through which shifting populations negotiated their identities after being set into motion by the initial wave of disease.

963. The Middle Bronze Age site of Slivnitsa, Bulgaria: at the crossroads of Northern and Southern Balkans

Authors: Denitsa Ilieva (Sofia university St. Kliment Ohridski) – Yana Mutafchieva (National Archaeological Institute with Museum Bulgarian Academy of Sciences) – Veselina Dimitrova (Independent researcher)
Format: Oral

Over the past decade, our understanding of Bronze Age development in Central Western Bulgaria has expanded significantly, largely due to the increasing number of rescue archaeological investigations conducted in connection with major infrastructure projects across the region. Yet, the Middle Bronze Age remains comparatively understudied, with limited systematic research and few long-term, comprehensive excavations. In this context, the recently investigated site of Slivnitsa, still largely unfamiliar to the scholarly community, provides a rare and valuable case study, offering new insights into a poorly documented phase of regional prehistory. Situated at a strategically significant location in the central Balkans, the site provides a crucial perspective for reassessing broader settlement patterns, transformations in material culture, and the nature of cross-regional interactions during this period. Of particular importance are the data on pottery production, which reveal the diverse cooking practices of the site's inhabitants. While the ceramic assemblage displays a distinct local character, it simultaneously bears clear traces of cultural influence from both the northern and southern Balkans, positioning Slivnitsa at a dynamic crossroads of overlapping traditions and practices.

1032. The amber road: The earliest evidences of amber in context of territory of present-day Bulgaria

Authors: Petar Minkov (National Institute of Archaeology-Bulgarian Academy of Sciences)
Format: Oral

This study focuses on presenting the preliminary results of a salvage archaeological excavations in the area of the city of Ruse, located in northeastern Bulgaria on the shore of Danube river. The present presentation subject are the amber beads found in Late Bronze Age necropolis, which has been partially excavated so far. The structure of the graves consists of shallow simple pits, the burial rite is inhumation, and the position of the buried is hocker, with the head to the east. The most significant discovery in the necropolis is undoubtedly a necklace consisting of nine amber beads, which have already been restored. They were found on the chest of the individual. The significance of this discovery is that amber has been found for the first time in an archaeological context from the Late Bronze Age in modern-day Bulgaria. Until now, the only known example of amber from Bulgarian lands was on the cross-shaped bronze base from one of the gold lids in the world-famous Vulchitrun gold treasure, which was found in an unknown archaeological context. The proximity of the necropolis to the Danube River raises a number of questions about the origin and route by which the amber came to be found in modern Bulgarian territory. The cultural determination of the necropolis is associated with the Noua-Coslogeni-Sabatinovka complex. This allows us to make an initial assumption that this discovery can be linked to the bearers of this cultural network. Preliminary analysis of the amber indicates that its potential raw material origin can be localized in the Baltic Sea area, where the highest concentration of natural amber deposits in Europe are located.

2330. The End of the Bronze Age. The Case of Plovdiv, Bulgaria

Authors: Elena Bozhinova (Plovdiv Regional Archaeological Museum)
Format: Oral

The modern city of Plovdiv has inherited its role as an administrative and economic center from earlier historical periods. Although there were intervals during which the site was abandoned, the final phase of the Late Bronze Age and the transition to the Early Iron Age appear to have been a time of prosperity. Recent excavations have revealed well-stratified features that make it possible to distinguish separate chronological phases within the final stage of the Late Bronze Age and the beginning of the Early Iron Age. One phase, characterized by specific pottery forms and simple decoration consisting of shallow incised lines, has been identified and dated to the late 13th and early 12th centuries BC. This phase precedes or partially overlaps with the fluted ware horizon that characterizes the transitional period in Thrace. At the same time, a cremation burial from the village of Manole provides clear evidence for the presence of foreigners, as it contained pottery atypical of the Thracian Plain but characteristic of the Incrusted Pottery culture of the far northwest. This migration should be synchronized with the arrival of newcomers from Thrace in Troy VIIb. A subsequent chronological phase is marked by the first appearance of stamped decoration, dated to the 12th century BC. Some pottery vessels are exceptionally elaborate and attest to the importation of at least new ideas, the origin of which remains to be established. The innovations in pottery decoration at the Plovdiv settlement outline directions of contact and influence. Situated

in the heart of Thrace, at the crossroads connecting north and south as well as west and east, the developments in Plovdiv reflect broader processes across Thrace and, together with evidence for migration, reveal a dynamic situation in the final phase of the Bronze Age and the transition to the Iron Age.

1767. Mycenae and the Carpathians. Similarities in social valorization of architecture

Authors: Liviu Marta (County Museum Satu Mare)
Format: Oral

New research on fortifications and bronze hoards in the Carpathian Basin strengthens the picture of similarities with Mediterranean civilizations, once again reopening the question of the region's links with Mycenaean civilization. These links are evident in the case of the monumental building currently under investigation at Sântana. They become more elusive, however, if we try to compare the way the Sântana building was used and the settlement's layout (planimetry) in shaping social relations. Such an assessment is complemented by the archaeological data provided by recent research at the settlement of Căuaş. The agglomeration of approx. 1300-1400 buildings did not allow the provision of agricultural resources within some households with included lots. This situation denotes an overcoming of the sense of immediate subsistence, characteristic of the independent family spirit.The architectural message shows that the direction of movement in the settlement takes place between the access points and an area free of construction, an area that the route of communication paths highlights as a central space of social life. The large number of amulets and ritually destroyed objects discovered in the fortified settlements at Căuaş and Sântana provides evidence regarding the use of routes within these settlements. The use of bronze objects as symbols has been highlighted by studies over the last three decades on the role of such objects in hoards from the Carpathian Basin. The symbolic value of the objects from the fortified settlements at Căuaş and Sântana reveals the meaning of movement from the entrance gates to the inner enclosures. The symbolism of the amulets—linked to the rituals and processions in which they were used—together with the architecture, points to profound similarities between Mycenaean civilization and the civilization between the Tisza and the Apuseni Mountains. To what extent can their use in constructing comparable social mechanisms be assessed?

2170. Old stories from the local view of the southern Carpathian Basin: new finds and contexts

Authors: Daria Ložnjak Dizdar (Institute of Archaeology, Zagreb)
Format: Oral

The southern Carpathian Basin played a role in narratives related to the events of 1200 BC. In most cases, this role was interpreted from an Aegean perspective or a broader Central European perspective. The regional perspective was unanimously presented through a culture-historical approach in the second half of the 20th century, wherein changes in material culture were interpreted as a consequence of migrations. Recent reviews have addressed these questions by combining both perspectives, thereby adding a new dimension to the interpretation of contacts between the Carpathian Basin and the Balkans with the Aegean. Newer works have presented topics concerning settlements, weapons, and metallurgical analyses with an emphasis on local and regional development. This paper will examine the state of research through the distribution of specific objects – fibulae, swords, and defensive equipment – that were used as material evidence of connections between the Carpathian Basin and the Aegean. Newly researched contexts (graves and hoards) as well as absolute dates will be presented as a contribution to the understanding of the 13th and 12th centuries BC in the southern Carpathian Basin.

2190. The "cutting-edge" perspective – utilitarian implements and transregional interactions between the Aegean and the Carpathian Basin

Authors: Eszter Fejer (Eötvös Loránd University)
Format: Oral

This paper addresses the question of long-distance relations between the Aegean and the Carpathian Basin as reflected by some utilitarian implements, and examines the significance of both the presence and the absence of such connections. The primary materials considered for this study are everyday cutting implements: metal sickles and knives. The study investigates the distribution of various types, the movement of individual objects and techniques from the perspective of the Carpathian Basin throughout the Middle and Late Bronze Age (ca. 16th–8th centuries BC), encompassing developments from the earliest bronze to the earliest iron variants. Sickles constitutes one of the most common categories of bronze artefacts in the Carpathian region. Particularly during the formative stage of their development, they share numerous formal and functional traits with knives. While the majority of bronze types point to strong connections with the western regions of Central Europe, a limited number of finds indicate southern interactions as well. This paper will evaluate these latter objects within their chronological and cultural contexts, aiming to outline differences in the communication networks involved, and in the value and function attributed to these artefacts. By the end of the Bronze Age, the earliest iron artefacts appear in the Carpathian Basin, with iron knives occupying a significant position. The emergence of iron technology in this region has long been the subject of scholarly debate, and several authors have emphasized the role of Aegean workshops in this process. Through a critical reassessment of the Late Bronze Age iron assemblage, this paper examines whether the evidence provided by these knives lends support to such hypotheses.

2578. Bronze socketed axes from Corinth? – Balkan–Aegean interactions in the post-palatial and Early

Iron Age: evidence from metal objects

Authors: Csaba Bodnár (Eötvös Loránd University, Budapest) – András Márton (Chercheur associé, CRBC, Brest)
Format: Oral

This paper focuses on three bronze socketed axes that entered the collection of the Museum of Fine Arts, Budapest, as part of the former collection of Béla Gerster (1850–1923), chief engineer of the Corinth Canal. According to the records of the Hungarian collector, they originate from the Corinthian Isthmus. The provenance information provided by Gerster appears reliable, and it is reasonable to assume that, similarly to the other items in his collection, these bronze objects were also acquired in Greece. The particular significance of the three axes lies in the fact that, to our knowledge, no comparable specimens have thus far been recovered from the Aegean region. Their closest parallels are attested in the northern Balkans and the Carpathian Basin and are dated to the Late Bronze Age of those regions (12th–9th centuries BCE). In this paper, we examine the morphological and technological characteristics of the objects, including traces indicative of use and possible secondary manipulation. We also review the spatial distribution of their analogies and their archaeological contexts. The appearance of northern, non-Mediterranean type metal objects in mainland Greece during the late and post-Mycenaean period is a documented, although relatively rare phenomenon, often interpreted by previous research within broader historical narratives. In the second part of the presentation, we briefly survey the material culture evidence for long-distance Balkan-Aegean interactions during this period. Focusing primarily on metal finds, we examine the nature of these contacts and address how these 'foreign' northern objects were received and integrated within the local contexts of post-palatial Bronze Age and Early Iron Age Greek communities.

1317. Keynote: Endnote to the session

Authors: Joseph Maran (Heidelberg University)
Format: Oral

Until recently, there has been a strong tendency in scholarship to attribute social and economic changes in the Bronze Age of the northern Balkans and the Carpathian Basin to external influences. In this context, the Aegean has repeatedly played a central role, as it was often argued that second millennium BCE Aegean palatial societies exerted a direct influence on historical developments in Eastern Central and Southeastern Europe. In recent decades, however, alternatives to this "Aegeo-centric" approach have become increasingly evident. In particular, the diffusionist-evolutionist standpoint—that cultural innovations must always have originated in strongly hierarchically structured, bureaucratic societies and then spread unilinearly from there into so-called "peripheries"—has proven untenable. On closer inspection, it becomes clear that the spread of innovations is better understood in terms of a "dialogical principle" and the co-production of knowledge. This is based on the fact that innovations across the entire region between the Carpathian Basin and the Aegean neither spread unilinearly nor did they remain unchanged in the course of their transfer. Instead, they were subject to processes of "translation", in which, by adapting them to local contexts, new forms of material culture and knowledge were created, which in turn could become the subject of exchange relationships. This process of merging the "global" with the "local" has been called "glocalization". During the Bronze Age certain periods of intensified interaction stand out in the zone between the northern Balkans and the Aegean. One of these is the Cetina phenomenon at the very beginning of the Bronze Age, a second one the time of the Shaft Grave period in southern Greece, and a third during the time of the Urnfield period in the 13th and 12th centuries BCE.

253 "IMAGING THE IMAGINABLE": VIRTUAL AND INTERDISCIPLINARY APPROACHES TO RECONSTRUCTING PHYSICAL ACTIVITY IN THE PAST

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Fotios Alexandros Karakostis (University of Tübingen | Senckenberg Research Institute | University of Basel) – Chrysa Tsimopoulou (Democritus University of Thrace) – Pablo González Fernández (University of Granada) – Laura Watson (Senckenberg Research Institute and Natural History Museum) – Pia Lorenz (Universität zu Köln)
Keywords: 3D imaging, Virtual Anthropology, Physical Activity, Behavioral Evolution, Biomechanics, Bone functional adaptation
Format: Regular session

SESSION ABSTRACT

Reconstructing habitual behavior in the past is a central objective of archaeological sciences. In recent decades, the accelerating wave of technological innovation has transformed the tools available to archaeologists, opening new avenues for studying the human past from perspectives that were previously inaccessible. Relying on high-resolution 3D imaging techniques, novel virtual morphometric methods have been developed to reconstruct habitual physical activity based on the morphological study of bone. These approaches have provided a valuable new foundation for exploring critical aspects of past life, such as patterns of labor division and socioeconomic differentiation, without being limited by material access or the constraints of traditional anthropological methods. In this session, we aim to establish a dialogue on virtual approaches used to reconstruct physical behavior from skeletal morphology, spanning prehistoric to historical contexts. We welcome general, case-specific, and methodological contributions, with particular encouragement for cross-disciplinary approaches that integrate diverse types of archaeological evidence, such as biomechanical modeling, 3D functional morphology, isotopic analyses, and histological techniques, among others. By highlighting innovative methodologies, this session seeks to assess the future directions of interdisciplinary research on activity reconstruction and its contribution to understanding past human behavior and biocultural evolution.

CONTRIBUTION ABSTRACTS

1551. Reconstructing past physical behaviour with computational anatomy and virtual anthropology

Authors: Antonio Profico (Department of Biology - University of Pisa)
Format: Oral

Bone is a dynamic tissue that records mechanical and environmental signals throughout life. In archaeological contexts, the analysis of postcranial skeletal elements provides a valuable opportunity to reconstruct past loading history and patterns of activity. Traditionally, biological anthropologists extract single cross-sections from long bones, most commonly at the midshaft, to calculate shape descriptors and biomechanical parameters. Over the last decades, these approaches have increasingly benefited from the application of digital and computational methods. Within the framework of virtual anthropology, skeletal remains are studied through high-resolution 3D models, while computational workflows allow the reproducible extraction of quantitative variables from long bones. In this context, morphomap is an R package specifically developed for the analysis of long bone morphology. Digital models of long bones are analysed by extracting equiangular semilandmarks on multiple cross-sections along the entire diaphysis, which can be used for geometric morphometric analyses, the reconstruction of biomechanical parameters, and the generation of cortical thickness maps. In this communication, I present recent updates to morphomap that extend its analytical capabilities. These include support for the analysis of solid 3D models, the comprehensive investigation of skeletal asymmetry through the comparison of antimeric bones, and the joint analysis of multiple bones belonging to the same individuals. Together, these developments enhance the potential of morphomap for integrative and reproducible studies of long bone structure in archaeological and anthropological research.

1316. Virtual Approaches to Developmental Integration and Biomechanical Adaptation of the Wrist–Metacarpal Complex

Authors: Azahara Salazar Fernández – Rebeca García González (Laboratory of Human Evolution. University of Burgos) – José Miguel Carretero Díaz (Laboratory of Human Evolution. University of Burgos | UCM-ISCIII Center for Research on Human Evolution and Behavior) – Laura Rodríguez (Laboratory of Human Evolution. University of Burgos | Department of Biodiversity and Environmental Management, University of León)
Format: Oral

The bones of the wrist and metacarpal complex constitute a key anatomical region due to their complex developmental patterns and their fundamental role in load transmission and biomechanical adaptation of the hand. Despite their functional importance, most studies of hand development rely on radiographic data, whereas information derived from dry bone material remains scarce. This limitation restricts the integration of ontogenetic and biomechanical effects in skeletal identification within both clinical and archaeological contexts. This study examines shape changes in the wrist–metacarpal complex in non-adult individuals by analyzing spatial relationships among its components using virtual approaches. The main objective is to assess how individual bones develop in relation to the complex as a whole. Carpal bones contribute to wrist mobility, force absorption, and stability, while metacarpals connect the wrist to the phalanges, shape the palm, and enable grasping and manipulation. Together, these elements form an integrated functional unit critical to hand function. Three-dimensional geometric morphometrics was applied to a sample of 3D-scanned skeletal elements, including 80 metacarpals and 222 carpal bones from the Dental Age Collection of San Pablo, housed at the Human Evolution Laboratory (Burgos, Spain). All metacarpals and carpal bones are homogeneously represented, except for the pisiform. Results show that coordinated changes in the articular surfaces of the carpal bones produce clear age-related shape variation, associated with the progressive reduction of growth cartilage. In contrast, developmental changes in the metacarpals are primarily expressed through modifications in diaphyseal curvature and metaphyseal morphology. This study provides the first three-dimensional analysis of dry bone material from the wrist–metacarpal complex in non-adult individuals. The findings offer new insights into skeletal maturity assessment and functional anatomy, with potential applications in clinical research, physical anthropology, and as a comparative framework for paleoanthropological and primate studies.

489. An Indicator of Activity or Inactivity? Exploring the Etiology of Osteoarthritis in Archaeology

Authors: Elizabeth Nist (Harvard University) – Fotios Alexandros Karakostis (University of Tuebingen | Senckenberg Research Institute | University of Basel)
Format: Oral

Osteoarthritis (OA) is one of the most observed skeletal pathologies in the archaeological record. In bioarchaeology, increased incidence and severity of OA are often interpreted as indicators of strenuous lifestyles, based on the assumption that OA is a degenerative disorder associated with habitual physical activity. However, this simplistic 'wear and tear' model is inconsistent with current

medical understanding of OA, and recent experimental research suggests that inactivity may also contribute to OA pathogenesis. Additionally, archaeological studies often downplay the role of systemic factors known to influence OA, such as age, sex, and body mass. In this study, we used an integrative approach combining the Validated Entheses-based Reconstruction of Activity (VERA) 2.0 method with archaeologically visible skeletal traits to examine relationships among activity, systemic factors, and OA, and to evaluate the validity of using OA as a tool for activity reconstruction. We analyzed skeletons from a rural 13th–15th century population from Grevenmacher, Luxembourg. We examined five joint surfaces across the skeleton using principal component analyses to explore the relationship between OA traits (eburnation, osteophytes, lipping, and porosity) and systemic factors (age, sex, and body mass). In a subsample of distal first metacarpals and distal first metatarsals, we then analyzed virtual 3D entheseal surface areas of opponens pollicis and tibialis anterior in relation to OA traits and systemic factors to investigate the association between OA and activity. Overall, our results reject a straightforward association between OA and activity and do not fully support either the 'wear and tear' or 'inactivity' hypotheses. We therefore caution against using OA for activity reconstruction until its relationship with activity can be further understood.

1030. An integrative multi-proxy approach to settlement type and status in Roman northern Greece: mandibular function, stable isotopes, and mortuary context

Authors: Chrysa Tsimopoulou – Elissavet Ganiatsou – Asterios Aidonis (Laboratory of Biological Anthropology, Democritus University of Thrace | Institute of Applied Bioarchaeological Research, Democritus University of Thrace) – Eleni Kalliga (Laboratory of Biological Anthropology, Democritus University of Thrace) – Tania Protopsalti (Ephorate of Antiquities of city of Thessaloniki, Ministry of Culture Greece) – Christina Ziota (Ephorate of Antiquities of Florina, Ministry of Culture Greece) – Vasileios Nannis (Laboratory of Biological Anthropology, Democritus University of Thrace) – Fotios Karakostis (Paleoanthropology, University of Tübingen | Senckenberg Research Institute Tübingen | Integrative Prehistory and Archaeological Science, University of Basel) – Christina Papageorgopoulou (Laboratory of Biological Anthropology, Democritus University of Thrace | Institute of Applied Bioarchaeological Research, Democritus University of Thrace)
Format: Oral

Roman-period connectivity networks ("Roman globalization") reshaped local economies and food systems, but their effects were not always even across settlement types and social strata. In this context, urban and rural communities, and individuals of different status within them, may have experienced distinct dietary regimes and food-processing practices, with following consequences for masticatory loading and mandibular functional adaptation. Using an integrative framework that combines mandibular functional adaptations, stable isotopes, and mortuary evidence, we evaluate how diet, urbanization, and status intersect at two Roman-period sites in northern Greece (1st–4th century AD). Our sample includes a total of 118 individuals coming from urban Thessaloniki (n=65, 30 females/ 35 males), capital of Provincia Macedonia, and rural Mavropigi (n=63, 32 females/ 31 males) in Eordaea region of western Macedonia, Greece. Mandibular functional signals are assessed through three complementary proxies: 3D mandibular shape, cross-sectional geometric properties at the M1–M2 junction, and quantification of masticatory entheseal expression. Adult diet is reconstructed using carbon ($\delta^{13}C$), nitrogen ($\delta^{15}N$) and sulphur ($\delta34S$) stable isotope values from femoral bone collagen, while mortuary practices are used as archaeological indicators of social differentiation. Preliminary results indicate larger and more robust mandibular morphology in Thessaloniki, consistent with higher masticatory demands, whereas Mavropigi displays lower robusticity, suggesting reduced mechanical loading. By integrating isotopic and mortuary data, we evaluate whether these differences reflect settlement-dependent food systems, status-related access to softer or more intensively processed foods, or a combination of both, offering a more refined alternative to a simple urban-rural dichotomy.

2500. Virtual reconstruction of Australopithecus afarensis hand digits

Authors: Miguel López Cano (National Museum of Natural Sciences of Madrid | Universidad Complutense of Madrid) – Markus Bastir (National Museum of Natural Sciences of Madrid) – John Rowan (University of Cambridge) – Christopher Campisano (Arizona State University) – Ignacio Lazagabaster (Centro Nacional de Investigación sobre Evolución Humana CENIEH | University of Liverpool)
Format: Oral

The human lineage is characterized by a major transition in hand use, from a primarily locomotor role to increasingly dexterous manipulation, closely associated with the emergence of habitual bipedalism. It is widely accepted that all Plio-Pleistocene hominin species engaged in tool-related behaviours to some extent. However, hand remains with secure taxonomic attribution are rare in the hominin fossil record, limiting our understanding of the evolution of manual functional capabilities. The hominin hand assemblage from Hadar, attributed to Australopithecus afarensis, represents the most complete collection of Plio-Pleistocene hand bones recovered to date from a single east African site (Bush et al. 1982), yet it still lacks a comprehensive, up-to-date revision. The hand morphology of A. afarensis is critical for understanding subsequent evolutionary developments in hominin manual function, both because of its antiquity, close in time to the earliest known stone tools (Lomekwian), and because A. afarensis remains one of the most likely stocks from which the genus Homo arised. Moreover, Hadar provides one of the best-sampled hominin assemblages, making A. afarensis among the species for which paleobiological and paleoecological context is best understood (Kimbel and Delezene, 2009). In this study, we serially reconstruct and analyse all available proximal and intermediate phalanges from Hadar using 3D geometric morphometrics (3DGM), with particular attention to grip capabilities and its functional implications. These specimens are compared with phalanges from other African Plio-Pleistocene hominins, including KNM-ER 101000 (Paranthropus

boisei; Mongle et al. 2025), KNM-WT 15000 (Homo erectus; Walker and Leakey 1993), MH 2 (Australopithecus sediba; Kivell et al. 2018), UW 101 (Homo naledi, Kivell et al. 2011; 2015), in order to better understand the evolution of manual functional anatomy, considering taxonomic and temporal variation among African Plio-Pleistocene hominins.

654. "Taphonomic or not?" Evaluation of the use of taphonomically altered entheses in attempts to reconstruct physical activity in past populations

Authors: Manolis Papadakis (University of Tübingen) – Jane Buikstra (School of Human Evolution and Social Change, Arizona State University | American School of Classical Studies at Athens) – Fotios Alexandros Karakostis (University of Tübingen | Senckenberg Research Institute | University of Basel)
Format: Oral

Reconstructing physical activity from skeletal remains in ancient populations has been an important objective of bioarchaeological research. One of the methods used is the examination of modifications to the muscle attachment areas, commonly known as entheses. For evaluating such changes, both visual scoring methods lacking experimental validation and experimentally validated virtual 3D anthropological approaches have been used. The former approach commonly disregards taphonomically altered entheses as "non-informative", thereby reducing sample sizes and affecting the study's reliability. By contrast, virtual approaches, such as the Validated Entheses-based Reconstruction of Activity (VERA), enable the selection of precise areas of interest, where the investigators can decide whether or not they would include the remaining portion of the enthesis. Consequently, the damage should be recorded in the dataset, and the effect of taphonomic damage on the results can be assessed. This paper proposes a methodological protocol applied to poorly preserved skeletal remains from the Phaleron burial ground, dated to the Greek Archaic Period, including groups of normative and non-normative burials. Two datasets were generated: one included the poorly preserved entheses, and the other excluded only those preserved at <50%. Differences between the two datasets were evaluated, together with the effect of the interaction between preservation and burial group on the measured entheseal changes. No major differences between the datasets' results were observed, and the interaction between preservation and burial group was non-significant. This research serves as a promising pilot study for applying this statistical protocol to similarly fragmented entheses in future research, proposing the inclusion, rather than the exclusion of fragmented entheses in activity reconstruction studies.

470. Lower limb activity reconstruction of the Bronze Age human remains from Cape Trafalgar (Spain) using the VERA method and CSG

Authors: Pablo González Fernández (University of Granada) – Fotios Alexandros Karakostis (University of Tübingen | Senckenberg Research Institute | University of Basel) – Marta Díaz Zorita-Bonilla (University of Granada | University of Tübingen)
Format: Oral

In this paper, we present the bioarchaeological results from Bronze Age human skeletal remains excavated at Cape Trafalgar (Cádiz, Spain). These remains offer an opportunity to gain better insight into the physical activities of Bronze Age communities from southern Iberia. Based on archaeological literature and the assumption of a farming lifestyle, this analysis challenges previous assumptions. Our initial hypothesis was that the population buried at Cape Trafalgar had a diet based on agricultural products (crops and livestock) and exhibited low levels of long-distance mobility and walking activity, consistent with a sedentary agricultural lifestyle. To address this hypothesis, we applied the Validated Entheses-based Reconstruction of Activity method (VERA 1.0) and Cross-Sectional Geometry (CSG) analyses to foot bones (proximal hallux phalanges) from the Bronze Age Cape Trafalgar necropolis. These data were compared with an extensive sample of sedentary individuals and habitual walkers to assess walking intensity. This study represents the first application of the VERA method to the lower limbs. Our main findings indicate that these individuals likely experienced high levels of lower limb activity, as evidenced by relatively larger extensor entheseal sizes when compared with the sample of habitual walkers. Secondary findings suggest that footwear does not appear to play a significant role in bone morphology changes associated with lower limb physical activity. The significance of this study lies in both the new information it provides and the introduction of a novel application of the VERA 1.0 method for investigating lower limb physical activity in Prehistoric populations.

605. Functional Biomapping — Decoding Past Physiological Behaviour and Adaptation in Early Bronze Age Individuals from Drasenhofen, Lower Austria

Authors: Sofie-Kristin Schendzielorz – Katharina Rebay-Salisbury (Austrian Archaeological Institute, Austrian Academy of Sciences | University of Vienna) – Fotios Alexandros Karakostis (University of Tübingen | Senckenberg Research Institute) – Fabian Kanz (Department of Forensic Medicine, Medical University Vienna)
Format: Oral

Biomechanical strains induced by daily activity have been shown to manifest individually due to the skeleton's adaptation capabilities and anatomical functionality. This pilot study investigates the external and internal 3D morphology of muscle attachment (entheseal) sites, aiming to reconstruct habitual activities based on selected entheses of the upper limb region, in 18 individuals from the Early Bronze Age cemetery site of Drasenhofen, Lower Austria (2000–1650 BC). This project will rely on 3D semi-automated analyses involving the Validated Entheses-based Reconstruction of Activity 2.0 (VERA 2.0) and 3D solid cross-sectional

bone analysis (morphomap). This approach will focus on assessing both habitual muscle loading and associated biomechanical strength. By performing statistical analyses on the external topography of selected entheseal sites, along with shape data captured as semi-landmarks across multiple sections, cortical thickness maps, and calculated biomechanical parameters, a comprehensive picture of activity marker distribution and bilateral observations can be generated. Based on this preliminary analysis, a catalogue of change-related entheseal patterns will be developed, providing a foundational overview of the range and expression of entheseal changes observed within the sample. The multidimensional approach of visually biomapping these entheseal changes can help to understand the relation between external and internal adaptation processes in the entheseal sites and facilitate future comparisons with other bioarchaeological materials. Exploring the single entheses as integral components within the body's larger movement apparatus will enhance further research into the connection between muscle synergies and tools and provide a substantial contribution to the field of reconstructing habitual physical activity in the past. Current limitations arising from the lack of demographic information and comparative data will be addressed through further methodological testing and a comparative validation study using modern human remains with well-documented occupancy histories.

1870. "Skeletons of Society": A Multivariate Assessment of Differences in Labour Intensity across Socio-Economic Status in Medieval Grevenmacher, Luxembourg

Authors: Pia Lorenz (University of Cologne) – Fotios Karakostis (University of Tübingen | Senckenberg Research Institute | University of Basel)
Format: Oral

Throughout medieval Europe, the spatial relationship of an individual's burial spot to the respective graveyard's church building is commonly regarded as indicative of social standing, thus presenting an excellent proxy for investigations of biological factors by socio-economic status (SES). In this study, we investigate the potential correlations between habitual movement and SES in a well-preserved population from the Catholic graveyard of Grevenmacher, Luxembourg (14th-15th century) using a multivariate approach, namely the Validated Entheses-based Reconstruction of Activity method (VERA 1.0). While previous studies presented results consistent with correlations between bone morphology, diet, and SES through visual scoring and isotopic analyses, there was no unambiguous evidence for a connection between labour intensity and status. We tackle this gap in research by attempting to reconstruct physical activity patterns based on entheseal surface measurements taken digitally from selected muscle attachment sites of the upper limb. Once we establish such entheseal patterns, we integrate the distance to the church (DTC) variable and eventually the stable isotope values (δ15N) related to diet into the analysis, i.e., principal component analysis (PCA). Merging these various lines of evidence in one PCA is an innovative way to gain insight into SES in bioarchaeological contexts and can be easily combined with other methods. Our findings corroborate historical sources regarding differences in labour between higher- and lower-SES individuals. Lower-SES individuals exhibit patterns related to high-intensity activities, whereas higher-SES individuals engaged in less strenuous physical labour. Our results also support the previous isotope study, which linked a protein-rich diet, represented by a higher δ15N concentration, to decreased distance from the church using discrete categories. Conversely, with increased DTC and lower protein values, the entheses display a gradual upward shift in musculoskeletal stress.

1612. The impact of biological factors and mandibular form on masticatory muscle attachment morphology

Authors: Chrysa Tsimopoulou – Christina Papageorgopoulou (Laboratory of Biological Anthropology, Democritus University of Thrace | Institute of Applied Bioarchaeological Research, Democritus University of Thrace) – Fotios Karakostis (Paleoanthropology, University of Tübingen | Senckenberg Research Institute, Tübingen | Integrative Prehistory and Archaeological Science, University of Basel)
Format: Poster

Mandibular shape is often used to infer behavior and diet, yet the muscle attachment (entheseal) sites, the only direct osteological correlates of soft tissue, remain underexplored. As entheses can remodel throughout an individual's lifetime, they can register habitual masticatory loading, whereas general mandibular shape largely reflects broader intergenerational adaptations. This study explores mandibular entheseal expression in relation to biological, morphological, and functional factors to assess how variation reflects biomechanical adaptation and its potential as an indicator of diet and mastication intensity in past populations. We analyzed 82 3D mandibles from an open clinical dataset (39 females, 43 males; 17.7–65.5 years old) from the materials presented in Chalazoniti et al. (2024). A multi-proxy framework combined geometric morphometrics, cross-sectional geometry at M1–M2, and high-resolution 3D quantification of the medial gonial angle using the "Validated Entheses-based Reconstruction of Activity 2.0" (VERA2.0) method, alongside 3D surface topography metrics via the molaR R package. Results show no association of entheseal elevation with biological age, side, or missing teeth. Entheseal variation, as a response variable in multiple regression analyses, was mostly explained by variation in mandibular shape (PC3 - changes in ramus/posterior body), with a consistent biological sex effect (higher in males). Size and cross-sectional area were high in bivariate tests but insignificant once sex and shape were modeled (adj. $R^2 = 0.55$). Two-block Partial Least Squares, focusing on gonial angle geometry, confirmed robust shape-enthesis covariation ($r = 0.67$), with similar within-sex magnitudes. These findings indicate that mandibular entheses capture habitual loading primarily via functional shape covariation, not size alone (the primary sexual dimorphic trait). Our findings suggest that extending VERA 2.0 to the mandibular muscle attachments and integrating it with 3D morphometrics and cross-sectional indices provides a reproducible and biologically interpretable framework for inferring habitual mastication and associated dietary trends in past populations.

2334. Labor and Life: Applying the VERA 2.0 method on the Deltoid Tuberosity of the Phaleron Cemetery

Skeletal Individuals

Authors: Morgan Bendzinski – Bethany Turner-Livermore (Georgia State University) – Susan Kirkpatrick-Smith (Kennesaw State University) – Louis Ruprecht (Georgia State University)
Format: Poster

For decades, bioarchaeologists have inferred activity patterns in past populations through the study of entheseal changes. This paper reports on entheseal changes of skeletal individuals from the Phaleron Bioarcheological Project. This cemetery is located in Athens, approximately 4 km southeast of the Acropolis and was in use from 700 through 480 BCE. It primarily contained individuals of lower socioeconomic status affected by structural violence, and some individuals associated with performed violence labeled as the delta group. This study aims to investigate patterns in entheseal changes to deepen our knowledge of labor and social conditions during a politically reformative period of Archaic Athens. Specifically, this study employs the Vera 2.0 method on noninvasive scans of the deltoid tuberosity of the humeri combined with statistical analysis and theoretical frameworks. These analyses aim to evaluate patterns in activity related entheseal changes between age groups as well as between the delta group and non-delta group.

254 ARCHAEOLOGICAL OBJECTS IN MOTION: UN/BELONGING, RE/INTEGRATION, DIS/PLACEMENT

Theme: 7. Interaction, connectivity and mobility
Organisers: Leticia Rodriguez (University of Houston) – Camille Acosta (University of California, Irvine) – Anna Vangelatou (University of Cambridge)
Keywords: object studies, migration, integration, transcultural, circulation, multi-temporal
Format: Regular session

SESSION ABSTRACT

Recent work on the archaeology of migration has fruitfully adopted interdisciplinary and contemporary methodological approaches to the study of human movement in the ancient world. This session seeks to complement this often data-driven research by exploring object-centered transculturalisms and biographies of ancient material culture in motion: i.e., un/belongings, re/integrations, and dis/placements deeply entangled with and/or reflective of various 'migratory' processes, as understood through objects, practices and human agents of circulations past, present, and future. How are such movements visually commemorated, or materially documented (and re-documented) in and across the ancient world? In what ways do 'immigrant' objects resignify, reinforce, alter, and interact with established cultural and religious landscapes, in ancient and modern contexts alike? With regard to the afterlives of ancient objects in later periods, the historical canon in material culture studies has focused heavily on early modern artisanal production, reproduction and newfound global circulations, while 19th-century histories of commerce and materiality in relation to antiquity remain relatively understudied. Therefore, we invite papers that address these questions (and more) in regions spanning the ancient Mediterranean world, broadly defined; proposals might include the examination of ancient objects created by or for migrant communities, objects that have themselves become émigrés through networks of movement, or case studies on the integration, incorporation and/or reevaluation of (previously) 'foreign' artefacts in academic and museological discourses. These examples are only meant to be suggestive, however, and papers on related questions of material culture in motion are also most welcome.

CONTRIBUTION ABSTRACTS

888. A war trophy for sale: "Law Code of Hammurabi, King of Babylon" on the move

Authors: Zeynep Akture (Izmir Institute of Technology)
Format: Oral

The collection of artefact replicas at the UN headquarters in NYC include a "Law Code of Hammurabi, King of Babylon" cast that is presented as "the oldest written legal codes". This proposal traces the reference object's three lifecycles to highlight usefulness of object biographies for grasping conjectural change in cultural history. The first lifecycle corresponds to the initial stele's production by regulating preexisting practices and texts, and its archaeologically documented reproductions now exhibited in some European museums. The object (now in the Louvre) was unearthed in 1901-2 in the Elamite capital Susa in Iran whereto it was brought as a war trophy in response to Hammurabi's sack of Susa, and fragmented during Susa's later destruction by Ashurbanipal to avenge sufferings of the Mesopotamian peoples at the hands of the Elamites, marking the end of the cycle. The second lifecycle started with this French rediscovery and continued with casts in slightly different sizes and materials gifted to museums in Europe and USA with diverse narratives of display. Some of these casts were on long-terms loans in or acquired by other institutions, repaired or served as the originals for other casts. During its third lifecycle, this international significance shifted to the national, exemplified by Iraq's gifting the UN cast, also produced by the Louvre workshops, immediately before the war between the object's countries of origin and discovery, during the vice-presidency of Saddam Hussein who later included the stele among his propaganda material. This cycle overlaps with the object's becoming a museum giftshop and internet sale item, in life-sized and smaller physical

and recent digital copies. The concluding discussion highlights the need for different theoretical frameworks and methodologies to scrutinize these three lifecycles, in demonstration of the value object biographies have for academic studies of changing power structures and relations through material culture.

177. The Sargon Stele at Kition: Imperial Materiality, Mobility, and Recontextualization

Authors: Yu Song (New York University)
Format: Oral

The so-called Sargon Stele from Kition (modern Larnaca, Cyprus) offers a compelling case study for examining ancient objects in motion and their shifting regimes of belonging. Erected under the Assyrian king Sargon II (721–705 BCE), the basalt stele, which bears royal imagery and inscription, was installed far beyond Assyria's territorial core, in a maritime settlement shaped by long-distance exchange and cultural plurality. This paper approaches the stele through an object-biographical framework, tracing its displacement, emplacement, and re-integration across ancient and modern contexts. Rather than reading the monument solely as a static marker of imperial domination, I argue that its presence at Kition reflects a dynamic process of transcultural negotiation. Situated in a port environment embedded in Phoenician and Cypriot networks, the stele functioned as a mobile expression of imperial authority that required translation into local visual, political, and ritual landscapes. As such, it exemplifies how "immigrant" objects could simultaneously assert foreign power and acquire new meanings within host communities. The paper further considers the stele's modern afterlife, its excavation, scholarly debates over attribution and function, and museum display, as a second phase of displacement that reshaped its interpretive framing. By foregrounding the Sargon Stele as a materially and conceptually mobile object, this study contributes to broader discussions on un/belonging, re/integration, and dis/placement in ancient imperial systems and their modern archaeological narratives.

627. A Sardian "Ritual Dinner" in the Black Sea? Un/Belonging, Re/Integration, and the Construction of Identity in Late Archaic Olbia Pontica

Authors: Kari Fossum (Bryn Mawr College)
Format: Oral

Recent archaeological work in Olbia Pontica has included the excavation of a late Archaic building complex in the city's so-called southwestern "suburb," identified by its excavators as a sanctuary. Among the finds from this complex is an assemblage comprising a fragmentary grey-glazed oinochoe, an iron knife blade, a small bronze dolphin, and the skeleton of a puppy. Left unremarked upon in the preliminary publication is the existence of an important body of comparanda: the "ritual dinner" sets from (Lydian) Sardis which characteristically include oinochoai, iron knives, and puppy skeletons and have suggested to some scholars adherence to Carian customs. The presence of an assemblage evincing both Lydian and Carian connections yet including a new element, the bronze dolphin, takes on special significance in Olbia, a "colony" traditionally associated with the Ionian city of Miletos and sharing the same patron deity and symbol, Apollo Delphinios and the dolphin, in light of the literary and archaeological evidence indicating the fundamental entanglement of these notionally discrete cultural groups (Lydians, Carians, and Ionians). In my paper, I approach this assemblage as a manifestation of the displacement of these entanglements from central- and southwestern Anatolia to the Black Sea. By first considering the origins and meanings of its constituent objects, then the significance of its extramural deposition, and finally contextualizing the practices which it signifies within the broader Olbian cultural and religious ecosystem, I demonstrate what this assemblage may contribute to our understanding of the enactment of un/belonging, re/integration, and the construction of new individual and community identities in a diverse immigrant community.

2713. Achaemenids in the Air: The Case of a (non) Circulating Incense Burner in the Menil Collection

Authors: Leticia Rodriguez (University of Houston)
Format: Oral

An Achaemenid Persian incense burner in the Menil Collection (Houston, Texas), is one of numerous ancient objects acquired by John and Dominique de Menil between the 1960s and 1970s. The object (dated 550-331 BCE), at home in the Achaemenid Persian court, is of the kind of elite paraphernalia that would have been gifted to Persian imperial officials or brought by them to the satrapies, and also replicated in local workshops. This paper considers the potential circulation of this object within its ancient context, and subsequent entanglements with local Anatolian visualities and cultural practices; who would have had the perceptual software to decode the object's social function as understood through its form, materiality and iconographic elements, and how were these qualities translated in visually dynamic Anatolian communities? In its modern context, the paper examines how such a work, which was once associated with the ruling elite and whose circulation had the potential power to resignify or alter 'established' forms of expression, now exists in stasis, its networks of movement frozen, and proposes a museological reevaluation of the object that reintegrates it into its archaeological and art historical context.

1358. Untangling migration and material culture: the case of immigrant burials in Classical Athens

Authors: Camille Acosta (University of California, Irvine)
Format: Oral

Although migration has been a constant throughout human history, the relationship between migrants and their material culture is not always straightforward, posing an interpretive challenge to archaeologists. Objects—and their associated typologies—are studied and categorized using labels that imply a direct connection between material culture and ethnic identity. Funerary archaeology, in particular, often interprets graves along these lines: the presence of seemingly "foreign" grave goods and practices are generally taken as evidence that the deceased is a migrant. In the case of Classical Athens (5th-4th century BCE), several gravestones name the deceased as an immigrant, yet none of the burials they marked contain objects from the place of origin listed on the inscription. Rather than simply taking these graves as evidence that immigrants were "assimilated" into Athenian society, they will be used as an opportunity to unpack the interpretive assumptions that underlie the archaeology of migration and to move towards an approach that considers intersectional aspects of identity beyond ethnicity, such as gender, age, and status along with the specific historical circumstances of the migration event.

2627. Displacement of Roman Glassware and Its Reintegration in Chinese Elite Tombs

Authors: Junjie Zhou (Shanghai International Studies University)
Format: Oral

Glass artifacts had a long history in the Mediterranean as luxuries until the mid-first century BCE when artisans in Roman Syria invented the technique of glassblowing. This invention enabled the mass production of glassware and therefore made it accessible to the common people. Meanwhile, maritime trade routes connecting the Mediterranean and the Indian Subcontinent facilitated the migration of Roman glassware as far as coastal China. This paper will present two case studies of Roman glassware displaced in Chinese elite tombs and reintegrated as prestige burial goods. The Shuangshan Tomb of a member of the Chinese imperial family included a Roman mosaic ribbed bowl alongside jade objects. Such mosaic glass imitated the material properties of luxury murrhine and functioned as an emulation of prestige goods in the Roman context, while in the Chinese context, it was received as a prestige good in its own right. In addition, the inclusion of a Roman blown cup in the Laohudun Tomb alongside a genuine jade disc illustrates its displacement from utilitarian origins and reintegration in a transcultural funerary context. Ignorant of their original cultural context in the Mediterranean, Chinese elites in the first two centuries CE endowed new meaning to the imported Roman glassware and adapted it to the repertoire of prestige burial goods.

658. Antiquities in Motion: Charles Newton, Market Clusters, and Steam Transit from the Aegean to the British Museum, 1861-1885

Authors: Anna Vangelatou (University of Cambridge | The British Museum)
Format: Oral

This paper explores the spatial, cultural, and socio-economic conditions of artefact mobility in the nineteenth-century Eastern Mediterranean. Centred on the 1870s, it extends the session's temporal scope into the nineteenth century to examine the circulation of archaeological objects within the expanding European art market. How did antiquities surfacing in the trade find their way into the British Museum at a moment of heightened infrastructural, diplomatic, and financial integration? The analysis centres on the curatorial activities of Charles Newton, Keeper of Greek and Roman Antiquities at the British Museum (1861–85). His reports and correspondence with suppliers illuminate the complex procedures by which artefacts were discovered, commercialised, transported, and absorbed into institutional and private collections. The analysis follows the archaeological pursuits of a group of dealers and associates in Rhodes. In the Aegean maritime, Greek-Ottoman borderland, artefact mobility was steered by steam navigation, notably the Messageries Maritimes line, which connected ports such as Rhodes to Alexandria, Smyrna, Constantinople, Piraeus, and Marseille. These routes operated in tandem with postal services carrying parcels, letters, contracts, and invoices. Itineraries compressed distance and bolstered connectivity but also exposed antiquities to customs and storage scrutiny. Consulates, credit and telegraphic networks facilitated transactions, yet local legislation, export restrictions, and mounting challenges to extraterritorial arrangements restrained movement. Thus, far from a coherent supply chain, the recycling of tangible heritage in the region was negotiated through a dialectic of technological breakthroughs and disruption. Methodologically, the paper combines archival and object-centred research in the Department of Greece and Rome at the British Museum with press coverage, diplomatic records, and cartographic material from the British Library and the Greek Parliament and Foreign Ministry Archives. In doing so, it places administrative files in dialogue with physical and 'archived' objects and historical maps.

255 THE RESONANCE OF VIKING AGE CONNECTIVITY BETWEEN NORTHERN EUROPE AND NORTH AMERICA INTO THE EARLY MODERN PERIOD

Theme: 7. Interaction, connectivity and mobility
Organisers: Paul Ledger – Véronique Forbes – Bryn Tapper (Memorial University of Newfoundland and Labrador) – Linus Girdland-Flink (University of Aberdeen)
Keywords: Viking Age, Connectivity, Indigenous, Canada, Northern Europe, Basque
Format: Regular session

SESSION ABSTRACT

Newfoundland and the Atlantic provinces of Canada bordering the Gulf of St Lawrence were the theatre of the earliest European explorations of North America. From the 11th century, these lands and the networks of Northern Europe were connected through Norse settlements stretching across the North Atlantic, from the northern British Isles in the east to L'Anse aux Meadows in the Strait of Belle Isle in the west. The duration of this engagement, and degree of integration into the trading and exchange networks of diverse Indigenous Arctic and ancestral First Nations around the Gulf of St Lawrence is debated. Even more contentious is the possibility that medieval-era networks between northern Europe and northeastern North America never entirely ceased. Iceland's rich documentary tradition, which first recorded these potential interactions, hints at sustained linkages into the 14th century (e.g. reference to a sailing from Markland in AD 1347). Archaeological evidence, comprising North American wood in fourteenth century contexts, at the Norse cathedral in Greenland's Eastern Settlement, together with indications that Norse knowledge of North America circulated in Mediterranean Europe (e.g. Cronica Universalis) until at least the time of the Black Death, support this idea. History is silent until the late 15th to early 16th century and the voyages of agents (e.g. Cabot, Corte-Real, Cartier) of the monarchs of western Europe. Yet, early cartography of Newfoundland and Labrador suggests an enduring transatlantic engagement led in the first instance by the Basques, best documented at Red Bay from AD 1530, a site located 63 km northwest of 11th century Norse settlement. In this session, we seek to explore the idea of a persistent North Atlantic connectivity linking North America and northern Europe from the late Viking Age until the early-modern period. We invite papers discussing any aspect of archaeology that contributes to this theme.

CONTRIBUTION ABSTRACTS

2780. Vegetation history over the last millennium in the North Atlantic (Iceland, Greenland, Canada): respective impacts of humans' settlements, fires, wildlife

Authors: Emilie Gauthier (Université Marie et Louis Pasteur, Chrono-environnement | Institut Universitaire de France - IUF) – Elia Roulé (Université Marie et Louis Pasteur, Chrono-environnement) – Natasha Roy (Geotop, Université du Québec à Montréal) – Mathilde Ducloiset (Université Marie et Louis Pasteur, Chrono-environnement)
Format: Oral

At the beginning of the 9th century, the Norse took advantage of their seafaring abilities and favorable climatic conditions to settle the islands of the North Atlantic, reaching Canada in the 11th century. Norse farmers brought agropastoralism to Iceland and Greenland and established long-distance trade with Scandinavia. However, their ventures were not entirely successful, as they ultimately failed in Greenland and Canada. Nevertheless, there is little evidence to suggest that they completely ceased visiting these remote areas. In this presentation, we provide an overview of the history of vegetation in Iceland, Greenland, and the east coast of Canada to define the types of environments in which the Norse settled and the impact these settlements had over the last millennium. While Iceland was uninhabited at the time of colonisation, this was not the case in Greenland and Canada. It is therefore interesting to compare the respective impacts of the European and Thule/Inuit populations in Greenland and Newfoundland, extending the study area to the Labrador Coast and the Saint-Pierre et Miquelon archipelago. The sedimentary sequences collected and analysed come from lakes and peat deposits, and the results show that human impact is not always easy to demonstrate and that some changes could also be linked, to fire events and the presence of wild herbivores.

2159. Towards a New Chronology of Norse Greenland

Authors: Fanny Sikström – Margot Kuitems – Sean Desjardins – John Du Plessis – Benjamin Allport – Michael Dee (University of Groningen)
Format: Oral

By the end of the first millennium, Norse expansion had reached its greatest extent, approaching the edge of their known world. As part of this expansion, Norse settlers established settlements in Greenland. Greenland offered not only uninhabited land but also valuable commodities for the European market, ensuring strong connections could be maintained with Northern Europe. The Norse occupation of Greenland has been the subject of extensive dating efforts by various researchers over the years. Consequently, an enormous number of relevant radiocarbon dates are now available. However, these data have yet to provide definitive answers to the question of whether the years recorded in historical documents correspond to the actual timing of events. This leaves lingering doubts about the precise chronology of key developments, such as the Norse settlement and eventual abandonment of Greenland. Specifically, the arrival of the Norse in Greenland is still commonly regarded as having occurred at the times described in the sagas. Although no direct evidence yet contradicts these accounts, the broad and imprecise radiocarbon dates that have previously been acquired complicate efforts to validate or refute the saga-based chronology. Thus, in order to refine this framework, we have obtained radiocarbon samples from a range of specifically targeted locations. These include the earliest contexts at the earliest sites, such as Ø29a, recognised as the location of Brattahlid, where Erik the Red founded his farmstead during the first phase of settlement. Taking these new results together with legacy datasets, and combining them in Bayesian models, it should be possible to delineate the chronology of Norse activity in Greenland with generation-scale precision.

2656. 'Images of contact': Indigenous petroglyphs and early European encounters on the Maritime Peninsula

Authors: Bryn Tapper (Memorial University of Newfoundland and Labrador)
Format: Oral

Interpretations of petroglyphs depicting European sailing vessels found at rock art sites in southwestern Nova Scotia and coastal Maine suggest early contact between Indigenous peoples and Europeans, from at least the early 17th century, and possibly earlier. Though few in number, these images provide valuable evidence of cross-cultural encounters and offer insights into Indigenous responses to European exploration and trade. The idea of a pre-Columbian Norse presence in North America has captured public imagination since the late 19th century, and has, on occasion, prompted speculative interpretations of Indigenous rock art. Some have suggested that certain petroglyphs found on the Maritime Peninsula reflect Norse contact, influence, or even authorship; ideas that have endured in some circles of popular discourse but which often detract from the significance of Indigenous cultural practices and achievements. This paper critically examines the petroglyphs within their broader archaeological contexts, situating them within the material culture and lifeways of Algonquian-speaking peoples, such as the Mi'kmaq, from the Late Woodland period onward and across the boundary of European Contact.

799. America in Milan: The 'Cronica Universalis' by Galvaneus de la Flamma and Marckalada

Authors: Federica Favero (Università degli Studi di Bergamo)
Format: Oral

The Milanese Dominican friar Galvaneus de la Flamma (1283 - 1344?), in the third book of his 'Cronica universalis', in a long geographical digression mentions a land further west than Greenland which he calls 'Marckalada' (or 'Marchalanda'). This land is nothing other than Markland which appears in Vínland sagas (such as, for example, the Eiríks saga and the Grœnlendinga saga), a location on the north-eastern coast of America. Galvaneus was not familiar with those sagas or Northern European Latin sources that mentioned Markland (for example, the 'Gesta Hammaburgensis ecclesiae pontificum' by Adam of Bremen) and – as far as we know – he never travelled outside Northern Italy. We must therefore assume that he learned about Marckalada in Genoa, city he frequented first for study reasons and then, perhaps, for issues related to the Dominican order. Sailors and merchants of Genoa, in fact, had contact with Northern Europe, place of origin of such information.

2194. Palaeoenvironments, human impact and a long Viking Age at L'Anse aux Meadows

Authors: Paul Ledger – Véronique Forbes (Memorial University of Newfoundland and Labrador)
Format: Oral

In so far as is known, the Viking Age reached it western geographic frontier at L'Anse aux Meadows (LAM) in northern Newfoundland. In the 1960s, the discovery of the collapsed, and heavily eroded, remains of eight Icelandic turf structures at LAM illustrated to the world that the Medieval Icelandic stories of Norse voyages beyond Greenland in the eleventh century were records of real events. In 1978, UNESCO accordingly listed LAM as representing "…a significant achievement in the history of human migration and discovery … [and] the earliest evidence of Europeans in North America". An integral part of the extensive archaeological excavations at this iconic site were a series of studies of the palaeoenvironmental context of human occupation. In all cases these studies concluded that there was no evidence of environmental change coincident with Norse landnám (settlement). These findings are in stark contrast to those from extensive palaeoecological work elsewhere in the North Atlantic islands where Norse landnám resulted in a repeated suite of environmental changes. The reported absence of environmental impact at LAM has, to some extent, engendered and supported a narrative of Norse activity in Newfoundland as being short-lived. Here we examine these ideas in light of a review of legacy data and renewed archaeological and palaeoenvironmental research conducted at LAM over the past eight years.

2369. Evaluating the potential for biomolecular archaeology at L'Anse aux Meadows

Authors: Linus Girdland Flink (University of Aberdeen) – Véronique Forbes (Memorial University of Newfoundland and Labrador) – Anders Götherström (Department of Archaeology and Classical Studies, Stockholm University | Centre for Palaeogenetics, Stockholm University) – Emrah Kırdök (Department of Biotechnology, Mersin University) – Paul Ledger (Memorial University of Newfoundland and Labrador) – Anna Linderholm (Centre for Palaeogenetics, Stockholm University | Department of Geological Sciences, Stockholm University)
Format: Oral

L'Anse aux Meadows (LAM), the only confirmed Norse site in North America, is situated within a heterogeneous sedimentary sequence that includes peat, cultural deposits, glacial deposits, and organically enriched anthropogenic horizons, reflecting varying degrees of human activity and natural accumulation. Here, we present the initial results of comprehensive shotgun DNA metagenomic screening of ~15 sediment samples from a peat sequence intimately associated with the Norse archaeological remains, providing a first insight into biomolecular preservation at the site. Our results indicate that endogenous DNA signals persist within multiple stratigraphic horizons, suggesting that favourable preservation conditions may extend across both peat-dominated and more mineral-rich contexts elsewhere at the site. Building on these results we identify how future biomolecular analyses at LAM can be

extended and optimised by explicitly considering variability in molecular taphonomy across sediment types. We also consider how broader biomolecular analysis, including proteins and lipids, may enhance our understanding of lifeways and the wider connectivity of the Norse inhabiting the site.

1546. Peatland excavations at L'Anse aux Meadows (Newfoundland, Canada) reveal there's more to its Viking Age story than meets the eye

Authors: Véronique Forbes – Paul Ledger (Memorial University of Newfoundland and Labrador)
Format: Oral

L'Anse aux Meadows (LAM), in northern Newfoundland, remains to this day the only site with indubitable physical proof of a Norse presence west of Greenland, nearly five centuries before Columbus. Over the course of fieldwork directed by Norwegian archaeologist Anne Stine Ingstad from 1961 to 1967, eight 'Icelandic-style' turf structures, a bronze ringed cloak pin, a spindle whorl, the fragment of a bone needle and evidence of iron working were recovered at LAM. In the 1970s, extensive excavations commissioned by Parks Canada revisited the same turf structures and opened up large areas, including in the wetland just to the west of the Norse ruins. This led to the recovery of a glass bead, numerous wooden objects of uncertain function, as well as two nuts and a fragment of wood from the butternut tree (Juglans cinerea), a species exotic to Newfoundland. The combined results of excavations undertaken in the 1960s and 1970s have since been interpreted as evidence that the Norse occupied the site for a brief period from c. A.D. 1000 and used it as a basecamp for exploration and boat repair. Half a century later, fieldwork targeting the peat bog east of the Norse ruins has led to a series of unexpected findings that suggest there is much yet to be uncovered about this unique UNESCO World Heritage Site. This paper presents the story of the 'Biocultural and Archaeological Legacies at L'Anse aux Meadows' project and the largest, most detailed (and surprising) archaeological datasets obtained from LAM since the 1970s.

256 COLLAPSE, MOBILITY, AND RENEWAL: RETHINKING THE CHALCOLITHIC–BRONZE AGE TRANSITION IN SOUTHEASTERN EUROPE AND THE BLACK SEA REGION

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Ana García-Vázquez (ArchaeoScience Platform. Research Institute of the University of Bucharest) – Robert Hofmann (Institute of Prehistoric and Protohistoric Archaeology, University of Kiel) – Liudmyla Shatilo (Institute of Archaeology of the National Academy of Science of Ukraine)
Keywords: Chalcolithic–Bronze Age transition, Southeastern Europe, bioarchaeology, interdisciplinary archaeology, population dynamics
Format: Regular session

SESSION ABSTRACT

From the end of the 5th millennium BC through the 4th millennium BC, the transition from the Late Neolithic and Chalcolithic to the Early Bronze Age in Southeastern Europe and around the Black Sea marks one of the most dynamic and debated periods in Eurasian prehistory. Across this geographical area, a dramatic decline in the density of archaeological evidence occurred: long-lived settlements were abandoned, new types of material culture appeared, and population movements—both local and long-distance—reshaped social and economic networks. This session aims to explore what triggered these transformations and how they unfolded in different regions. We invite contributions employing a wide range of analytical, contextual, and interpretative approaches to investigate this crucial turning point: refined chronologies through radiocarbon dating; bioarchaeological, isotopic, and ancient DNA data to trace population mobility, diet, and provenance; studies of ceramic residues and environmental proxies (pollen, sediments, fauna) to reconstruct subsistence strategies and landscape change; as well as archaeological, zooarchaeological, and anthropological perspectives addressing material culture, settlement patterns, and social organisation. By integrating these diverse datasets, the session seeks to address fundamental questions: Was there a demographic replacement, or rather an adaptation of existing groups to new cultural paradigms and economic lifeways? What role did climate fluctuations play in settlement reorganisation and mobility? And how can interdisciplinary research help to build a more nuanced picture of this transformative era? The Romanian contribution to this session was supported by a grant from the Romanian Ministry of Education and Research, CNCS-UEFISCDI, project number PN-IV-P1-PCE-2023-1899 (BioArhSteppe).

CONTRIBUTION ABSTRACTS

2675. Outline of the Late Neolithic–Chalcolithic transition chronology in the southwestern outskirts of the Carpathian Basin

Authors: Katarina Botić (Institute of Archaeology, Zagreb)
Format: Oral

The geographic region between the Danube River in the east and the Alps in the west was marked by significant changes at the end of the 5th millennium cal BC: the abandonment of most Late Neolithic tells, the formation of settlements in new areas, the reorganization of settlement structures, a significant change and diversification of material culture remains, etc. However, in some micro-areas, the Late Neolithic tradition persisted simultaneously with the emerging Chalcolithic traditions that gradually substituted previous ones, or at least that is what can be concluded based on the available radiocarbon dates from previously published works. After re-evaluating published radiocarbon evidence and previously formally modeled chronologies, these data are used as an outline for a regional formally modeled chronology, supplemented by data on individual contexts and settlement structures. The result is a more robust chronology that is comparable to chronologies in geographically close areas and that more closely defines this specific transitional period. This work is supported by the project "Transformation of Identities in the Past" (TIPS), funded by the European Union – NextGenerationEU.

2156. South-Eastern and Eastern Europe on the threshold to the 4th millennium BCE: The end of an era or regional changes?

Authors: Robert Hofmann (Kiel University) – Liudmyla Shatilo (Institute of Archaeology of the National Academy of Science of Ukraine)
Format: Oral

The period between about 4200 and 3900 BCE is perceived in Southeast and Eastern European archaeology as one of the dramatic turning points and "one of the most fascinating and still unsolved problems of Balkan prehistory". During this period, Tell settlements were abandoned in the eastern Balkans, and a dramatic decline in archaeological evidence (e.g., settlements, graves, metal) was recorded across large parts of Southeast Europe, interpreted as indicators of collapse, population decline, or increased mobility. On the other hand, synchronous with the "collapse" in the Balkans, we see the beginning of a boom in highly populated Trypillia megasites in the region northwest of the Black Sea, and we see similarly dramatic changes at much earlier dates in the western Balkans and the Pannonian Plain, for example (e.g. 5500, 4500 BCE). Based on an analysis of settlement patterns, population trends, graves, and material culture, we therefore intend to address the question of the qualitative and quantitative extent to which the aforementioned transformations at the dawn of the 4th millennium BC can be distinguished from earlier phases of transformation, and to identify what we can and cannot yet say about this period of European prehistory.

1101. First encounters: the early 4th millennium site of Orlovets in Central North Bulgaria

Authors: Nadezhda Todorova (Sofia University St. Kliment Ohridski) – Vanya Petrova (National Institute of Archaeology with Museum)
Format: Oral

Intensive rescue excavations carried out recently in northern Bulgaria have brought to light a number of previously unknown sites bearing evidence of occupation from the first half of the 4th millennium BC. Alongside the increased opportunities for more precise radiocarbon dating and interdisciplinary analyses, the newly accumulated data enable a more comprehensive and refined approach to studying the complex phenomena that followed the collapse of Late Chalcolithic societies and the abandonment of tell settlements across the Eastern Balkans at the end of the 5th millennium BC. This contribution presents the main results from one of these newly excavated sites: Orlovets-Papaz Cheshma, which is located in the central part of the Lower Danube plain. The fourth millennium occupation of the site has been radiocarbon dated to c. 3970–3800 cal BC. Field research has yielded indications of more or less permanent occupation, as evidenced by pit dwellings equipped with fire installations and multiple reconstructions. Analysis of plant macroremains and fauna highlights subsistence strategies and economic activities related to farming and hunting and gathering. Of major relevance to the session's topic is the analysis of pottery. A small but significant proportion of the assemblage consists of shell-tempered ware featuring 'wickelschnur' and combed decoration, as well as organic-tempered ware. The technology and stylistic-morphological features of these wares differ significantly from the local Chalcolithic tradition, bearing a strong resemblance to the so-called Type C pottery of the Cucuteni B1-2 complexes, which is often attributed to contacts with pastoral communities from the North Pontic steppe zone. Though isolated 'steppe' elements occur at other sites as well, Orlovets represents the most substantial and so far, unparalleled account of the penetration of this foreign pottery style south of the Danube, thus raising the question of the nature, timing, and impact of these contacts.

2043. Last Man Standing? Biomolecular Evidence from Grave M1/1962 at the Gumelnița Site

Authors: Ana García-Vázquez (ArchaeoScience Platform. Research Institute of the University of Bucharest) – Alexandra-Gabriela Gheorghe (The Genomics Research and Development Institute | Faculty of Biology, University of Bucharest) – Mihaela Culea ("Francisc J. Rainer" Institute of Anthropology, Romanian Academy) – Mircea Iliescu (The Genomics Research and Development Institute | Research Institute of the University of Bucharest) – Valentin Radu (National Museum of Romanian History | ArchaeoScience Platform. Research Institute of the University of Bucharest) – Cătălin Lazăr (ArchaeoScience Platform. Research Institute of the University of Bucharest)
Format: Oral

Grave M1 was one of three burials excavated in 1962 at the Gumelnița site and attributed to the Kodjadermen–Gumelnița–Karanovo VI (KGK VI) horizon. It shows no atypical funerary treatment: the individual was buried in a left-crouched position, but no grave

goods were present. Anthropological analysis identified M1 as an adult male (30–35 years), with mild degenerative changes (osteophytes on two thoracic vertebral bodies and the distal epiphysis of the left fibula) and no evidence of developmental stress. Ancient DNA confirms male sex and indicates clustering with other KGK VI individuals. Mobility proxies (87Sr/86Sr and δ18O) indicate a local origin and limited movement during life. The most revealing results concern diet and chronology. Rib collagen δ13C and δ15N values (reflecting late-life diet) place M1/1962 within the female isotopic range (the only male in that group). At this site, women show mean δ15N values c. 1.5‰ lower than men, with statistically distinct means. This pattern appears more consistent with higher average male protein intake than with culturally driven dietary separation between sexes. Bayesian dietary modelling indicates a plant-forward diet (domestic plants 48 ± 26%), reduced terrestrial animal input (24 ± 21%), and a substantial freshwater component (molluscs 19 ± 15%; fish 9 ± 11%). Radiocarbon dating places M1/1962 at the end of KGK VI and provides the youngest date at the site. Calibration yields 3974 ± 51 cal BC, whereas correction for the freshwater reservoir effect shifts the estimate to 3799 ± 117 cal BC, overlapping c. 3900 cal BC (5.9 ka; Bond Event 4). M1/1962 may therefore represent either one of the last KGK VI individuals, potentially affected by climate-related pressure on crops and livestock, as reflected in his lower δ15N values, or an early member of the still-cryptic Cernavodă I population.

279. Animal management in the Lower Danube during the Late Chalcolithic: case study of the Săveni site, Romania (4th millennium BC)

Authors: Valentin Radu (University of Bucharest, ICUB, Bucharest | National History Museum of Romania, Bucharest) – Adrian Bălășescu ("Vasile Pârvan" Institute of Archaeology, Romanian Academy) – Alexander Wilkinson (Leiden University Faculty of Archaeology – World Archaeology) – Florin Vlad (Ialomita County Museum)
Format: Oral

The Cernavodă was considered the first cultural manifestation of the North Pontic steppe populations that arrived in the Balkans. It evolved in three phases throughout the 4th millennium BC. Its first phase covered an area across the Prut-Dniester interfluve, regions both sides of the Danube, Muntenia, and Dobrogea. The archaeological site at Săveni, located in the lower area of one of the Danube's tributaries (Ialomița), is the only Cernavodă I site currently being researched, which allowed a pertinent analysis of their animal management. To investigate animal husbandry strategies, archaeozoological analysis, and stable isotopes (δ13C, δ15N) were conducted. The prevalence of domestic fauna, cattle, sheep, and goats is observed, which attested that the dominant activity was animal husbandry. Cattle were exploited in a mixed way, both for milk and meat production. Sheep and goats were mainly milk suppliers and had secondary uses for meat or possibly wool. Pigs are rare, which would support a greater mobility of the Cernavodă I, because of the manoeuvrability needed to feed abundant amounts of horned mammals on good pastures. Hunting, of large (red deer and horse), and very large game (auroch), supplemented diet. Compared to the other Cernavodă I settlements in southeastern Romania, Săveni is characterized by the high frequency of large horned mammals in the animal paleoeconomy. At the beginning of the 4th millennium BC, after climatic cooling at the end of the Eneolithic, we observe regionally more diverse herding strategies for cattle, sheep, and goats compared to the previous Gumelnița culture from stable isotopes. This work was supported by a grant of the Romanian Ministry of Education and Research, CNCS - UEFISCDI, project number PN-IV-P1-PCE-2023-1899. Stable isotope analysis was funded and conducted at the University of York – BioArCh.

1625. Steppe inspirations in the Balkan mortuary practices IV-III millennia BC

Authors: Piotr Wlodarczak (Institute of Archaeology and Ethnology Polish Academy of Sciences) – Stefan Alexandrov (National Archaeological Institute with Museum, Bulgarian Academy of Sciences)
Format: Oral

In the second half of the 4th millennium BC, the barrow burial rite appeared in various regions of Bulgaria. It manifested in different forms in NW Bulgaria, NE Bulgaria, and Upper Thrace. Throughout, it was characterised by the incorporation of steppe elements and features associated with local communities of the Early Bronze Age. A distinct steppe influence predates the burial horizon of the Early Yamna stage. New fieldwork, isotope analyses, and ancient DNA studies enable a better understanding of this development. On one hand, they reveal a long-term migration trend of steppe groups; on the other, a notable contribution of local populations to the formation of Early Bronze Age societies in the northern Balkan zone. Similar processes are observed in the settlement areas of the Cernavodă, Coțofeni, and Ezero cultures. Both barrows and flat cemeteries are present, and both sites feature comparable burials with similar grave goods. The migration of the Early Yamna community at the turn of the 4th and 3rd millennia BC is not a major breakthrough but a continuation of previously started trends.

1602. The Early Bronze Age children's graves in burial mounds in the Upper Thracian Plain, Bulgaria

Authors: Todor Valchev (Regional historical museum - Yambol)
Format: Oral

The end of the 4th and the first half of the 3rd millennium BC is one of the most dynamic and interesting periods in Balkan prehistory. It is a time of migration, transfer of technological know-how and cultural influences. During this period, the migrating communities of the Yamnaya culture came to the territory of today's Bulgaria. The newcomers crossed the Stara Planina Mountain and reached the valleys of the Tundzha River and the Sazliyka River. With them appeared new ways of representing the prestige in prehistoric society. Some of them are the burial mounds and the spiral hair rings made of silver. The archaeological excavations show that during the Bronze Age there was a hierarchical society including at least two social groups – free men and women and "elite" – chiefs, priests, and warlords. During this period, personal skills were very important and supported the accumulation of authority and prestige, but this is also the time when the first "genealogies" began to appear and a high social status "by birth" was established. The last is represented by the primary graves of children with silver hair-rings in the burial mounds, which are also the aim of the present report.

308. From Cucuteni-Trypillia to something else: a premise of the beginning of the Early Bronze Age, marked by socio-cultural transformations

Authors: Ghenadie Sîrbu (Institute of Cultural Heritage, Chisinau)
Format: Oral

The transition from the Chalcolithic/Eneolithic to the Bronze Age in Southeastern Europe and the Black Sea region represents not a uniform progression but a complex mosaic of collapse, marked by demographic decline, settlement abandonment, and cultural discontinuity. Recent archaeological, paleoenvironmental, and bioarcheological evidence, however, invites a more nuanced interpretation. Moving beyond traditional culture-historical frameworks that emphasize abrupt discontinuities and invasion hypotheses, this paper propose to re-examines this pivotal period through an integrated lens of collapse, mobility, resilience, and social reorganization. Drawing on settlement patterns, material culture transformations, subsistence strategies, and emerging data on human mobility, the study argues that population movements and adaptive responses played a central role in reshaping regional societies. The paper proposes that transition was characterized by the dissolution of old hierarchies and the emergence of new, resilient forms of connectivity and identity. Key processes include the diffusion and hybridization of knowledge (notably, tin-bronze metallurgy), increased pastoral mobility, and the formation of new interaction zones that bridged the steppe, the fertile plains, and the Aegean. Ultimately, this study reframes the Chalcolithic/Eneolithic – Bronze Age transition not as a simple "dark age" but as a dynamic period of creative destruction, in which new forms of social complexity, exchange networks, and technological innovation emerged. By situating Southeastern Europe and the Black Sea region within broader Eurasian dynamics, this reassessment highlights the transition as a formative process that laid the foundations for Early Bronze Age.

1681. Population mobility in the North Pontic steppe in 4300-3300 BCE

Authors: Alexey Nikitin (Grand Valley State University)
Format: Oral

This paper examines population mobility in the North Pontic steppe during a millennium of profound transformation that preceded the emergence of Early Bronze Age steppe societies. Integrating archaeological evidence with recent paleogenetic, radiocarbon, and stable isotope data, the paper explores how mobility, interaction, and demographic restructuring shaped the Eneolithic–Bronze Age transition in the region from which the "steppezation" of Old Europe was launched. Genome-wide data from the North Pontic region reveal increasing population heterogeneity, reflecting sustained gene flow from the Caucasus–Lower Volga zone and integration with farming communities of Trypillia and coastal Balkans, as well as with hunter-forager groups of the Dnipro Valley. The emerging pattern suggests that mobility was not a singular migratory episode but a long-term structural feature of regional lifeways. Rather than large-scale population replacement, the evidence points to repeated cycles of movement, integration, and social reorganization. By incorporating genetic and isotope data into a broader archaeological framework, this paper argues that increased connectivity resulting from technological advancements accompanied by ideological shifts and coupled with demographic fragmentation and differentiation at the end of the Atlantic Climatic Optimum (ca. 3600 BCE) created the conditions from which the Yamna phenomenon emerged as a consolidating force.

1896. Closing a tell before "collapse": Stratigraphy, Bayesian ^{14}C modelling, and the 5.9 ka BP event at Chiselet tell site (Romania)

Authors: Catalin Alexandru Lazar (University of Bucharest) – Johannes Müller (Kiel University) – Stefan Dreibrodt (Landesamt für Denkmalpflege Baden-Württemberg Bestätigte) – Theodor Ignat (Bucharest Municipality Museum | University of Bucharest) – Robert Hofmann (Kiel University)
Format: Poster

Accounts of the end of Neolithic/Chalcolithic tell settlements are still too often reduced to "abandonment" or "destruction", with little attention to what people did in the terminal sequences and how those actions relate to climate variability, mobility, and the emergence of post-tell lifeways. This contribution reframes the end of the tell life-cycle as an observable, diachronic set of practices that we treat analytically as a closure (closer) horizon rather than as an undifferentiated "collapse". Our case study is the Chiselet tell in the Lower Danube plain (Romania), a key KGK VI settlement with a long occupational sequence. We hypothesize that the closure horizon(s) reflect structured behaviours—cleaning, levelling, selective deposition, and building abandonment—whose tempo and meaning are not evident from architecture or typology alone. To investigate this, we integrate: 1. High-resolution stratigraphic correlation distinguishing (i) closure deposits from final Gumelnița occupation (A2-B1 phases), (ii) an overlying burnt dwelling, and (iii) later intrusive features like a Cernavodă I burial; 2. A targeted AMS ^{14}C program on short-lived samples, modelled in a Bayesian framework to test anteriority, contemporaneity, or succession between final house use, closure formation, and Cernavodă burial; 3. Ceramic attribution under taphonomic control, comparing closure-phase ceramics with diagnostic A2/B1 material, and assessing

whether Cernavodă-like traits reflect mixing, curated deposits, or real overlap. We then place the resulting site-level model against regional signals: (i) the 5.9 ka impact, and (ii) the radiocarbon-inferred contraction of KGK VI settlement density after ~4350 calBC peak. Importantly, a nearby floodplain record documents a temporary episode of local land abandonment around same time and a subsequent low-intensity land-use phase associated archaeologically with Cernavodă groups.Treating "closure" as a measurable depositional regime with testable timing aims to distinguish abrupt collapse from phased reorganisation, and to identify whether mobility and "renewal" begin before, during, or after tell abandonment.

2575. A Preliminary Archaeogenomic Investigation of High-Resolution genomic data from the Late Neolithic and Early Bronze Age in Romania

Authors: Britta Van Tiel – Eirini Skourtanioti – Christopher Barrington – Jessie Jay – Monica Kelly – Pontus Skoglund (The Francis Crick Institute) – Anca Popescu – Gabriel Vasile – Adina Boroneant (Vasile Pârvan Institute of Archaeology)
Format: Poster

The dynamic transformations during the Late Neolithic to Early Bronze Age transition in Romania and more broadly Southeastern Europe have long been the source of scholarly interest. Specifically, questions surrounding demographic replacements or adaption of existing populations to new lifeways has been a source of lively discourse. In this ever-evolving discussion, the introduction of ancient DNA has been one source of biomolecular data supplementing interpretations of the material culture and providing an additional perspective in the demographic replacement versus local adaptation debate. As one of the broader goals of the Ancient European Genomes project, a new research initiative from the Skoglund Ancient Genomics Laboratory, we are aiming to provide new genetic insights into ancient individuals and communities in Romania and more broadly Southeastern Europe. While the dataset is still being developed to be able to undertake these analyses at a broader scale we have been undertaking preliminary analyses on newly sequenced genetic data from the late Neolithic through to Early Bronze Age individuals across Romania. This has entailed exploring patterns of genetic relatedness between individuals within sites and examining their genetic affinities with published contemporaneous data. These results presented in this poster provide new insights into the connections between these individuals from sites across Romania, as well as within the broader context of Southeastern Europe.

258 PROFESSIONAL ARCHAEOLOGY, ETHICS AND SOCIETY: EVOLVING PERSPECTIVES

Theme: 2. Crossing the divide. Archaeology and the open world
Organisers: Alessandro Garrisi (Associazione Nazionale Archeologi) – Athina Chroni (Hellenic Ministry of Education, Religious Affairs and Sports)
Keywords: Profession, Ethic, Society, AI, Community
Format: Regular session

SESSION ABSTRACT

The practice of professional archaeology has developed along distinct paths in different European countries, but all face similar challenges in preserving cultural heritage and the conditions of those who work in the field. Ethics plays a critical role in ensuring high-quality archaeological work. However, when economic pressures compromise the quality of work, cultural heritage and the community to which that heritage belongs pay the price. Archaeological work encompasses much more than simply collecting data: archaeologists interpret the past for contemporary audiences, shape cultural policies, and help communities engage with their heritage. However, the field now faces the dual challenge of developing new ways to communicate the value of archaeology to stakeholders while establishing clear ethical guidelines for professional practice. This session, continuing reflections begun at Belgrade 2025, explores the ethical challenges in contemporary European professional archaeology, examining in particular: - The impact of economic pressures on the quality of archaeological work and professional standards; - Ethical considerations in relationships between archaeologists, developers, authorities, and local communities; - Professional responsibilities in public engagement and cultural heritage management; - Ethical implications of integrating artificial intelligence into archaeological work; - Implementation and compliance with ethical codes in archaeological practice. By comparing practices across Europe, this session aims to define the core principles of professional archaeology and establish guidelines for maintaining ethical standards while ensuring sustainable professional practice. In many countries there is a real conflict between urban and infrastructure development from one part and archaeological research from the other part. This happens daily almost everywhere in Europe. Only through highly specific work, varying from country to country due to differing regulations, can we plan to approach the coming years with the prospect of strengthening our ability to defend cultural heritage and hand it down intact and usable for future generations.

CONTRIBUTION ABSTRACTS

640. Ethics under Pressure: Gendered Precarity, Harassment, and Professional Standards in Spanish Archaeology

Authors: Giulia Uccheddu (Instituto de Productos Naturales y Agrobiología IPNA-CSIC | Universidad de La Laguna)
Format: Oral

Despite formal commitments to equality, professional archaeology in Spain continues to reproduce gendered hierarchies in job security, leadership, fieldwork authority, and professional recognition. Situated within European heritage-management settings increasingly shaped by development-led and project-based archaeology, gender inequality is framed here as a core ethical and professional challenge affecting safeguarding, standards of practice, and the sustainability of archaeological careers. Mixed-methods evidence is presented on how archaeologists perceive and experience inequality across key employment sectors (universities, the CSIC—Consejo Superior de Investigaciones Científicas—and other research bodies, commercial archaeology, museums, and public administration). The dataset combines an online survey conducted between March and April 2024 (n = 408) with 27 semi-structured interviews carried out in 2024, integrating descriptive statistics, gender-disaggregated comparisons, and thematic analysis. Survey responses converge on a shared diagnosis of persistent inequality in working conditions and career progression, including the limited representation of women in leadership roles and widely reported experiences and observations of gender discrimination. Harassment—sexual, psychological, and verbal—emerges as a recurrent feature of professional life, with fieldwork frequently described as a high-risk setting due to proximity, isolation, blurred boundaries, and hierarchical dependency. Work–life balance is identified as the most severe structural barrier, underscoring how care responsibilities and "ideal worker" expectations (continuous availability, mobility, uninterrupted productivity) shape career trajectories and exits from the profession. Interview accounts clarify key mechanisms: precarious employment increases the perceived costs of reporting harm, intensifies reputational vulnerability, and normalizes sexist workplace repertoires that undermine credibility and authority.

1505. Professional Archaeology Across Borders: Internationalization, Standards and Ethical Challenges

Authors: Marcella Giorgio (Associazione Nazionale Archeologi)
Format: Oral

In an increasingly globalized economic and professional context, archaeology is also undergoing processes of internationalization. If, in economic terms, internationalization refers to the adaptation of an activity or service for use beyond its original market or regulatory environment, in archaeology this can be understood as the growing tendency of professionals and companies to operate across national borders as part of ordinary professional practice. Such transnational practice requires not only technical competence, but also a deep knowledge of different legal frameworks, professional standards, and ethical responsibilities, in order to ensure the quality of archaeological work and the protection of cultural heritage. What ethical challenges emerge when archaeology becomes fully professionalized and increasingly mobile across national boundaries? In the European context, where formal borders are limited and professional mobility is encouraged, archaeologists and archaeological companies are not always adequately prepared to build sustainable and ethically sound transnational professional networks. Several factors play a key role in shaping effective and responsible professional mobility in archaeology, including university and post-university training, national legislations, working methodologies, documentation standards, and ethical frameworks. This contribution aims to identify both the critical issues and the potential opportunities inherent in the internationalization of archaeology, highlighting its ethical implications for professional practice, heritage protection, and the relationship between archaeology and society in contemporary Europe.

1748. Between Legislation and Ethical Codes: A Comparative Experience Among Italy, France, and Greece

Authors: Aglaia Margani (Associazione nazionale Archeologi)
Format: Oral

In our last meeting, we conducted an overview of professional ethics in Europe, touching upon various significant topics such as: the duty of ensuring clear and transparent communication of excavation data; the dissemination of good working practices within safe and non-discriminatory work environments; the spread of a fair culture of compensation appropriate to one's work duty; The vital role of well-structured professional associations and codes of conduct in protecting archaeologists within every sovereign state. This time, we will examine in detail the main characteristics of current legislation in Italy, France, and Greece regarding the protection of archaeological heritage, and how these states have organized themselves to also protect the archaeological profession. Alongside the activities of regulatory bodies, the work of legally recognized professional associations (or similar) is essential, acting as de facto safeguards for each state. These insights will be useful for outlining guidelines to be adopted in Europe, while also providing examples of best practices in the sector—such as public and participatory archaeology projects. Through the correct application of preventive archaeology, these projects successfully involve citizens, returning to them a protected and accessible archaeological heritage that would otherwise remain unknown (focusing on the application of regulations, fair professional compensation, and the quality of the professionals involved). It is fundamental to safeguard archaeological professionals in order to protect our archaeological heritage and return it to the community in the most appropriate and effective manner.

952. Navigating challenges in stakeholder relationships: Lessons learned from Nationally Significant

Infrastructure Projects (NSIPs)

Authors: Calliope Owens (Arcadis)
Format: Oral

As cultural heritage consultants within a multi-disciplinary business, we regularly navigate complex stakeholder relationships through the variety of projects in which we work. This paper presents a case study of our involvement in a recent Nationally Significant Infrastructure Project (NSIP) and explores the ethical and societal dimensions of managing relationships between consultants and land agents, landowners, tenants, businesses, opposition groups, and the wider public. A central part of this discussion is the prevalence of local opposition to governmental-backed change, that can clash with broader societal progress and sustainability goals to meet Net Zero pledges. The paper investigates how fears and resistance to development that are rooted in concerns over disruption, cultural heritage loss, and perceived threat to local identity, were managed through transparent communication, ethical decision-making, and inclusive public engagement strategies. The paper also examines the 'lessons learned' from both explicit (e.g. direct negotiations, written agreements) and implicit (e.g. Health and Safety Plans, Stop Work Authorities) approaches, and how these helped build trust, resilience, confidence, and a positive reputational outcome between parties. By reflecting on these experiences, the paper offers recommendations for strengthening ethical standards and community engagement in professional archaeology, ensuring that stakeholder engagement not only supports project delivery, but also upholds the values of cultural heritage stewardship and social value. These insights hope to contribute to the ongoing conversation about ethics, society, and sustainable progress in archaeology alongside climate-focused NSIPs.

24. Collaborative and Community-Engaged Archaeology: A View from the United States

Authors: Charles Bello (Independent researcher)
Format: Oral

Collaborative and Community-Engaged Archaeology (or any of the new terms that come into play on a regular basis) continues to be an important and relevant topic in our profession, involving an ever increasing (and often innovative) range of activities. This paper addresses the commitment of conducting research and historic preservation in effective partnership with multiple stakeholders as a matter of fairness, ethics, and as a way to create robust and useful final products. Archaeological endeavors affect Indigenous peoples, local residents, and descendant communities in many ways. It is clear that successful projects establish broad-scale community rapport—caring, listening, and being honest—effectively building trust and relationships. Obviously, it is critical to understand and to acknowledge ideological differences between archaeologists and the wider community, especially concerning potential intersections of the material & spiritual worlds. There are many archaeologists/heritage preservations groups working across the world who are committed to conducting research (and other types of historic preservation projects) with a unique spectrum of stakeholders. It is also evident that we all share a common awareness of the usefulness of community involvement and are achieving productive results and are taking the time to record our work.

1399. The Bronze Age Eastern Mediterranean cultural network: GIS for theory and practice crossroads, public engagement and cultural heritage management reconciliation

Authors: Athina Chroni – Vassilia Karathanassi (National Technical University of Athens)
Format: Oral

Cultural heritage plays a crucial role in the strategic and effective management of the urban as well as of the natural environment, serving as a key catalyst for sustainable socio-economic and cultural development. Standards and principles are now laid out in the New Urban Agenda-the UN Habitat III 2016, recognizing the impact of archaeological and architectural heritage on sustainable urban development, as well as on the social well-being of different groups of people. The Mediterranean constitutes a maritime area of intensive navigation throughout time, favoring the movement of goods, also peoples' contacts, finally, accelerating cultural exchanges. In this context the western coastline of Messenia Prefecture, southwest Greece, integrated in the broader east Mediterranean trade routes network of antiquity, nowadays a highly fragile ecosystem, also one of the most attractive landscapes worldwide, thus facing rapid tourism challenges, ending up in increased disaster risks, both for the cultural as well as for the environmental assets, constitutes the related case-study in the perspective of a holistic cultural heritage management. Accordingly, an interdisciplinary methodology within the scientific field of digital humanities has been applied for digitizing archaeological sites and revealing the related cultural networks, as well as cultural buffer zones, finally highlighting the relevant ancient trade routes, whether sea or land routes. In this framework, geoinformatics proved to be the most effective methodology in the perspective of an effective strategic planning on the part of the State apparatus, whether for private or public works, taking also into consideration charters, European directives and good practices, already applied worldwide, thus fulfilling the notion of applied archaeology. Final milestone, involving the civil community, under the perspective of public archaeology and supporting mild tourism practices.

1417. Applied archaeology: geoinformatics for a holistic documentation of the Mycenaean cemetery at Kambi, Zakynthos island, Greece

Authors: Athina Chroni (National Technical University of Athens) – Christina Merkouri (Ephor-Ephorate of Antiquities of West Attika- Hellenic Ministry of Culture)
Format: Poster

The deployment and application of digital technologies in the field of cultural heritage, i.e., the scientific field of digital humanities, renders possible nowadays the holistic management of archaeological sites and finds for developing and enriching databases, definitely taking into consideration the related legislative framework, as well as charters, European directives and good practices already applied worldwide. Relevant case study the Mycenaean cemetery at Kambi, Zakynthos island, Greece, the southernmost island of the Ionian Sea, integrated in a significant prehistoric sea route, connecting the East with the West, specifically a sea route of communication and transfer of ideas and goods, thus connecting the south and east of the Helladic area with the west, precisely lower Italy and Sicily. The cemetery, located on the island hitherto, consists of 15 slab pit graves carved in the natural limestone rock, dating back to the late Mycenaean period (1400-1190 BC), thus rendering a provincial character to the site, as this type of graves appear, in the main Mycenaean centers, during the early Mycenaean period (1600-1500 BC). Applying geoinformatics for the holistic documentation of the burial site contributed effectively in integrating the site in the wider trade routes network of east Mediterranean Sea, highlighting also regional cultural sub-networks. Furthermore, in visualizing the field and laboratory work results, potentially opening up to the local community, in the context of an inclusive cultural heritage management, that is, towards a public archaeology proposal.

259 POTTERY AND MEDITERRANEAN CONNECTIVITY - PRODUCTION, TRADE, USE, AND CULTURAL AGENCY OF CERAMICS AROUND THE MEDITERRANEAN IN CLASSICAL ANTIQUITY

Theme: 1. Widening perspectives in material culture studies
Organisers: Daniel Andrade (NOVA University of Lisbon) – Paula Plaza Conesa – Raquel Guimarães (University of Barcelona)
Keywords: Ancient pottery, Cultural exchange, Material Agency, Ancient Trade and Economy, Classical Archaeology, Roman, Hellenistic and Punic Pottery
Format: Regular session

SESSION ABSTRACT

Pottery was one of the most pervasive and dynamic materials in Classical Antiquity, connecting people, places, and practices across the Mediterranean. Far from static artefacts, ceramic vessels were embedded in complex networks of production, circulation, and use that both reflected and actively shaped the social and cultural worlds of antiquity. This session invites contributions that explore pottery as an active medium of cultural expression and interaction, a material through which communities negotiated identities, exchanged ideas, and shared imaginaries across the Roman, Punic, and Hellenistic worlds. We welcome papers addressing any stage in the social biography of ceramics: from production and trade to primary and secondary uses, iconography, and the role of material agency in shaping human behaviour and cultural meaning. Particular consideration will be given to research that integrates aspects such as ceramic quantification, archaeometric approaches, and typological precision. We ask, in particular, how technological choices, stylistic traditions, and modes of consumption influence and respond to the shared cultural matrix of the ancient Mediterranean world? In what ways did ceramics mediate between local practices and broader, interconnected cultural frameworks? By bringing together theoretical and contextual perspectives, this session aims to foster a dialogue on pottery as both a product and a producer of Classical culture, a material agent in the creation of Mediterranean connectivity, memory, and identity.

CONTRIBUTION ABSTRACTS

82. When More Is Not Just More: Expanding Ceramic Corpora and the Reassessment of Attic Pottery Consumption in Populonia

Authors: Martino Maioli (Independent researcher)
Format: Oral

Over the last fifty years, the study of Attic pottery has increasingly relied on quantitative approaches to refine chronological, typological, and historical interpretations. Yet the relationship between the size of ceramic corpora and the stability of interpretive models remains only partially explored. This paper addresses a central methodological question: to what extent does the growth of a ceramic dataset actually transform our understanding of ancient consumption patterns? The contribution is based on the case study of Attic figured pottery from Populonia (northern Etruria), originally published as a doctoral corpus in 2021. Subsequent research conducted in museum storerooms and archival collections has led to the identification of over one hundred additional Attic vessels and fragments. This has substantially expanded the dataset within a short time span. Rather than presenting these materials descriptively, the paper uses the enlarged corpus as a heuristic tool to reassess the interpretive framework previously proposed. The analysis focuses on a limited number of key indicators—dominant vessel forms, chronological distribution, and the relative balance between black-figure and red-figure pottery. This allows a direct comparison between earlier and updated datasets. The results show that while certain trends are reinforced by the increased quantity of material, others prove to be more unstable

than initially assumed. The paper argues that expanding ceramic corpora should not be understood as a linear progression toward greater interpretive certainty. Instead, quantitative growth exposes the provisional nature of ceramic "editions" and encourages a more reflexive and dynamic approach to the analysis of Attic pottery consumption in the ancient Greek world.

550. Adoption and Reinterpretation of Attic Pottery in Iberian Societies. A Reflection on a Case of Cultural Appropriation and Transformation

Authors: Jorge Hernández Egea (University of Granada)
Format: Oral

This study addresses the significance and role of Greek pottery in the processes and strategies of cultural exchange and influence among the various Mediterranean societies. This study investigates the utilitarian, economic, identity-related, cultural and symbolic significance that Attic pottery acquired outside its original context of production, as well as the responses it generated and its consequences in the various communities of the east and south of the Iberian Peninsula in the 5th-4th centuries BC. In this context, pottery acts as a mediator and carrier of cultural patterns and systems, which is reflected in local production through the adoption and selection of certain elements and characteristics. Underlying this process is an intentional decision to distance oneself from the original model and to differentiate oneself, without renouncing the dynamics of integration and connectivity that insert Iberian communities into a shared Mediterranean identity. Similarly, the importance of the contemporary Mediterranean historical context of the chronological period covered by the study is highlighted, as well as commercial dynamics, as an interpretative framework for understanding the processes described.

302. Local Black-Gloss Productions and New Institutional Economics: Combining Archaeometric and New Institutional Economic Approaches

Authors: Giancarlo Martini (Durham University)
Format: Oral

While the employment of archaeometric studies to investigate the economy of fine-wares in antiquity has increased drastically, a coherent approach to understanding the diachronic changes in the fine-ware economy is still lacking. New Institutional Economics (NIE) provides a flexible and realistic perspective for understanding choices made by economic actors with bounded rationality in the fine-ware economy. NIE holds that there are costs associated with using the market mechanism for trade; these transaction costs are determined by formal and informal institutions in a society. The value of a NIE approach for studying fine wares can be illustrated well by local/regional black gloss (BG) productions in Italy during the Republican period . A geochemical study of BG samples from stratified contexts suggests the number of producers supplying a local market with BG wares at a given time. It also shows the diachronic change in number of producers. Because the communities of Italy were incorporated into the Roman state at different times and with varying legal statuses, there were different transaction costs associated with using the market mechanism in each community. The transaction cost associated with the exchange of BG wares varied on the basis of institutional constraint on economic behavior in each community. The change in number of BG producers supplying a market reflects decision making on the part of economic actors in the face of changes in transaction cost. This combined archaeometric-NIE approach has not been applied to the production history of BG ceramics, though it has been posited as an explanation for the shift from BG to terra sigillata production in Italy in the first century BC (Hawkins, 2012). Application of this approach to local BG production histories will highlight the interplay between economic development and political integration during the Roman expansion in Italy.

942. Taming „Hyperborea" through wine. Connectivity, imitation and acculturation, from Eastern Mediterranean to the Lower Danube

Authors: Dragos Mandescu (National Museum of Transilvanian History / Arges County Museum)
Format: Oral

Throughout the Late Iron Age, the Eastern Mediterranean wine was one of the most desired and appreciated in the Getic tribes of the Lower Danube. The peak was reached by the wine of Rhodes, which in the 2nd century BC imposed itself on the local market as the absolute leader in competition with the other centers. Fragments of Rhodian transport amphorae (less often even whole vessels) are not absent from almost every settlement in the Getic land crossed by the Danube (southeastern Romania and northeastern Bulgaria). The great river also represented the main axis of transport and penetration of wine, from the direction of the Black Sea. Together with wine, the consumption model after the Hellenistic Mediterranean one took root in the local society, new social customs were adopted and new ceramic categories and pottery sets intended for the commensal consumption of wine appeared and proliferated. With a great capacity for imitating and adapting in its own style the foreign prestige forms, the Getic culture adopted not only the late Hellenistic ceramics intended for wine consumption, but also Rhodian-style amphorae, imitating even the process of stamping the handles of these amphorae. Judging by the evidence that is increasingly multiplying in some important Getic centers (Popești, Cetățeni, Gorna Orjahovica), one can even speak of a local wine production and distribution, an industry that emerged and developed very likely by professionals (winemakers and potters) familiar with the Greek environment. The paper aggregates the evidence regarding Aegean wine as a civilizing agency of Getic society, with an emphasis on locally produced amphorae after the Rhodian pattern and on their imitation stamps. This work was supported by a grant of the Romania Ministry of Research, Innovation and Digitization, CNCS-UEFISCDI, project number PN-IV-P1-PCE-2023-0153, within PNCDI IV.

2242. Food Consumption in an Insular Context. Amphora Evidence from Roman Pollentia (Balearic Islands)

Authors: Raquel Guimarães (Equip de Recerca Arqueològica i Arqueomètrica de la Universitat de Barcelona | Institut d'Arqueologia de la Universitat de Barcelona | Universitat de Barcelona | Centro de Humanidades CHAM) – Paula Plaza Conesa (Equip de Recerca Arqueològica i Arqueomètrica de la Universitat de Barcelona | Institut d'Arqueologia de la Universitat de Barcelona | Universitat de Barcelona) – Patrizia Siclari (Independent Archaeologist) – Miguel Ángel Cau Ontiveros (Equip de Recerca Arqueològica i Arqueomètrica de la Universitat de Barcelona | Institut d'Arqueologia de la Universitat de Barcelona | Universitat de Barcelona | Institució Catalana de Recerca i Estudis Avançats | Chercheur associé, Aix-Marseille Univ, CNRS, CCJ) – Esther Chávez-Álvarez (Universidad de La Laguna | Grupo de Investigación Arqueología, Historia y Patrimonio) – Catalina Mas Florit (Equip de Recerca Arqueològica i Arqueomètrica de la Universitat de Barcelona | Institut d'Arqueologia de la Universitat de Barcelona | Universitat de Barcelona)
Format: Oral

Research on imperial foodways has often focused on large-scale dynamics and long-distance connections, prioritising major production areas and redistribution centres. While this approach has, no doubt, been essential for understanding the functioning of ancient economies, it tends to leave less room for smaller communities and for how they engaged with supply systems on a more local scale. This paper proposes to address this issue through the case study of Pollentia (Alcudia, Mallorca) using amphora assemblages from Early Imperial contexts to explore patterns of food consumption within an insular context. The analysis is based on a range of urban and port contexts and focuses on the circulation of wine, fish-based products and olive oil as a way of exploring broader patterns of supply and consumption over time. Rather than treating Pollentia as an isolated case, the paper examines how these assemblages can be used to discuss different scales of connectivity within an insular setting, and to reflect on the relationship between local practices and wider exchange networks. By looking at amphorae from the point of view of consumption rather than production, this paper uses foodways as a way of thinking about how imperial connectivity played out at a local scale. In Pollentia, integration into imperial networks did not necessarily result in uniform or standardised patterns of consumption. Imported goods were taken up in ways that reflect insularity, local resources and practical choices, rather than any straightforward adoption of wider Mediterranean models. Rather than drawing firm conclusions, this paper aims to use the case of Pollentia to reflect on how amphora assemblages can be used to approach questions of local consumption and connectivity in insular contexts.

1845. From clay selection to painted surfaces: Iberian ceramic production at Fontscaldes (Valls, Catalonia)

Authors: Judith Peix Visiedo – Joan Canela Gràcia (Institut Català d'Arqueologia Clàssica) – Maria Carme Belarte (Institució Catalana de Recerca i Estudis Avançats | Institut Català d'Arqueologia Clàssica) – Anna Tsoupra – José Mirão (HERCULES Laboratory-University of Évora | In2Past-University of Évora) – Jaume Buxeda I Garrigós (Universitat de Barcelona | GRACPE)
Format: Oral

This study presents the first comprehensive technological analysis of the Iberian ceramic workshop of Fontscaldes (Valls, Catalonia), dated to the first half of the 2nd century BC and considered one of the most important production centres in the north-eastern Iberian Peninsula. The research combines the archaeometric characterisation of raw materials, ceramic pastes and painted decorations. Local clay sources were analysed by X-ray diffraction (XRD) and thermogravimetric analysis (TGA) to assess their mineralogical composition, thermal behaviour and phase transformations during firing. A total of 40 ceramic individuals, including amphorae and red-painted fine wares such as plates and kalathoi, were chemically characterised by X-ray fluorescence (XRF) and mineralogically by X-ray diffraction (XRD), allowing the definition of compositional reference groups and the reconstruction of firing conditions. The results indicate that both amphorae and fine wares were produced using the same paste base, pointing to a shared technological tradition and the absence of functional differentiation in raw material selection and paste preparation. In contrast, the painted decorations exhibit greater technical variability. Decorative motifs were investigated by scanning electron microscopy (SEM) and micro-XRD, revealing different application techniques while consistently identifying iron-based pigments systematically associated with manganese. Overall, this integrated approach provides new insights into the organisation of ceramic production at Fontscaldes, linking raw material procurement, paste preparation and decorative practices within a single workshop. The results contribute to a better understanding of Iberian ceramic production systems and offer a reference framework for future archaeometric studies of fine wares and their circulation.

1084. Persistence and Choice: Roman Painted Pottery of Indigenous Tradition in a High Imperial Rural Settlement in Central Hispania

Authors: Lidia Vargas (Universidad Autónoma de Madrid)
Format: Oral

This contribution aims to analyze the ceramic assemblage from the rural Roman site of Camino de Baracalde, located in the center of Hispania, and occupied between the late 1st century AD and the mid-3rd century AD. The identification of a residential structure associated with several pits and two large refuse deposits containing abundant pottery provides a suitable context for examining patterns of tableware consumption and supply in a rural High Imperial setting. The ceramic evidence reveals the coexistence of

imported fine wares —commonly interpreted as indicators of standardization and integration within imperial distribution networks— alongside Roman painted pottery of indigenous tradition, linked to long-term local practices, within the same assemblage. This association raises a key interpretative question concerning the selective maintenance of local ceramic traditions within rural contexts fully embedded in Roman economic and cultural systems. By focusing on this ceramic assemblage, the proposal offers reflections on processes of adaptation, selection and cultural resistance in rural consumption practices. It proposes a non-linear interpretation of ceramic change, beyond models that explain change only through the replacement of local pottery by imported wares. In this way, it contributes to current debates on regional production and pottery circulation in Roman rural contexts of Hispania.

935. Advances in the study of roman coarse wares from the Sisapo mining district: an archaeometric approach

Authors: Maria Rosa Pina Buron – Mar Zarzalejos Prieto (Universidad Nacional de Educacion a Distancia)
Format: Oral

The territory of the ancient town of Sisapo (La Bienvenida, Ciudad Real, Spain), located on the northern slope of the Sierra Morena, included one of the most renowned mining districts in Hispania, a major supplier of cinnabar ore, silver, and lead to the Roman Empire, as reported by Strabo and Pliny the Elder. The large-scale exploitation of the Sisapo mines, which began in the mid-2nd century BCE, led to dense occupation of the territory and an influx of people and goods that accelerated the process of Romanization in this region of the Iberian Peninsula. The study of pottery assemblages from both residential and productive contexts constitutes one of the main goals of our research project on the production and circulation of goods in this territory during the Roman period (ProCir PID2023-146940OBI00, Ministry of Science, Government of Spain). In this presentation, we will discuss the results of a comparative archaeometric analysis of coarse wares—cooking, transport and storage vessels—from selected contexts dating from the 2nd century BCE to the 2nd century CE, in which locally produced items of indigenous tradition, Italic imports, and regional imitations of the latter can be distinguished. The characterization of the pottery helps shed light on the logistics of these settlements.

1632. Decorated Italic Terra Sigillata from the Roman City of Pollentia (Mallorca, Balearic Islands)

Authors: Paula Plaza Conesa – Catalina Mas Florit (Equip de Recerca Arqueològica i Arqueomètrica de la Universitat de Barcelona | Institut d'Arqueologia de la Universitat de Barcelona | Universitat de Barcelona) – Miguel Ángel Cau Ontiveros (Equip de Recerca Arqueològica i Arqueomètrica de la Universitat de Barcelona | Institut d'Arqueologia de la Universitat de Barcelona | Universitat de Barcelona | Institució Catalana de Recerca i Estudis Avançats | Chercheur associé, Aix-Marseille Univ, CNRS, CCJ) – Esther Chávez-Álvarez (Grupo de Investigación Arqueología, Historia y Patrimonio | Universidad de La Laguna) – Raquel GuimarãEs GuimarãEs (Equip de Recerca Arqueològica i Arqueomètrica de la Universitat de Barcelona | Institut d'Arqueologia de la Universitat de Barcelona | Universitat de Barcelona | Centro de Humanidades CHAM)
Format: Oral

This paper examines an assemblage of decorated Italic terra sigillata recovered from the Roman city of Pollentia, founded following the Balearic campaign of Q. Caecilius Metellus in 123 BC and strategically located between the bays of Pollença and Alcúdia. This location facilitated its integration into western Mediterranean trade networks, making its Late Republican and Early Imperial ceramic record a particularly suitable context for investigating the circulation of Italic wares in a provincial setting. Italic terra sigillata has a long-standing scholarly tradition within classical ceramology, primarily focused on typological approaches; however, the systematic and comparative analysis of relief-decorated wares remains a relatively underdeveloped line of research. Drawing on the Pollentia assemblage, this study adopts a dual analytical framework. On the one hand, patterns of workshop affiliation and commercial distribution are examined through the identification of the decorative punzoni used on individual vessels, understood as a methodological procedure of regular application, albeit one that must be employed with greater caution than stamped signatures. This line of analysis allows for the attribution of fragments to specific workshops and, in certain cases, provides insight into the activity of individual officinatores. On the other hand, the paper addresses the study of figurative repertoires from an iconographic and intermedial perspective, considering the compositional complexity of vessels whose imagery is constructed through motifs shared with other visual media of the classical world. Two case studies are presented to illustrate this second approach: a cup decorated with an erotic scene, whose interpretation is refined in light of iconographic parallels, and a singular vessel characterised by a previously undocumented combination of decorative punzoni, as well as by the presence of a possibly altered nominal stamp, attributable to the final phase of the workshop of Perennius.

949. Between Tradition and Transformation: Pottery Production after the Roman Conquest in Northwestern Hispania

Authors: Alicia Hernández-Tórtoles (Spanish National Research Council - CSIC | National University of Distance Education - UNED)
Format: Oral

This paper studies regional dimensions of pottery production in the northwestern Iberian Peninsula, starting with the outcomes of the previous research in contexts from the Late Iron Age through the Early Roman period (1st-2nd centuries AD). During the Late Iron Age, pottery production operated through local/regional networks linking artisans and communities, embedded within

agrarian economies and small-scale settlement systems. It facilitated the circulation of goods, technical knowledge, and stylistic traditions, resulting in objectscapes shaped by environmental constraints and the idiosyncrasies of the communities. The Roman conquest broke the social structures by introducing new economic and political conditions, led by a strategic control of the territory and the impact of gold-mining exploitation. Therefore, this work focuses on three aspects. First, the different economic scales of pottery production and patterns of consumption: handmade self-sufficient productions, regional manufactures (trends toward standardization, widespread use of the potter's wheel, specialized workshops, and more Roman-style forms), Hispanic-Roman wares, and the imperial trade networks. Second, we address the persistence of technical and aesthetic features rooted in pre-Roman indigenous traditions, traced through Roman, Late Antique periods and even in modern traditional pottery. Three key elements are highlighted: black vessels, burnished surfaces and burnished-lattice decoration. Finally, we explore the relationships between ceramic groups through their spatial distribution, evaluating how these patterns relate to the emergence of new social demands in rural communities and the gradual formation of a small local elite. Archaeological evidence shows communities that had different responses, from resistance and submission to adaptation and imitation. Local potters responded to those incomes while maintaining aspects of their inherited savoir-faire, producing ceramics that mediated between regional traditions and imperial demands. Situating these assemblages within a wider context contributes to broader debates on economic organisation, and the inequal negotiation of cultural identities within the local communities and the Roman world.

522. Romula – a Roman ceramic centre in the Lower Danube region

Authors: Mircea Negru (University of Bucharest | Spiru Haret University Bucharest)
Format: Oral

Romula was the only city in the Roman province of Dacia Inferior (Malvensis), being also the residence of the governor of this province north of the Lower Danube. At the same time, the city was the main economic, commercial and cultural centre of this province. The main branch of the economy of the Roman city was the production of ceramics, from construction materials (bricks and tegulae) and ceramic vessels, to coroplastic objects and lamps, which places it among the most relevant in the Lower Danube region. So far, a total of eight ceramic production workshops have been investigated here, with 27 kilns. Of these, five were for the production of construction materials, and the others for the production of ceramic vessels, coroplast objects and lamps. The ceramic vessels belong to both tableware and kitchenware. Terra sigillata type vessels were produced in this site; in other cases, they were imitated. Recent investigations also indicate the production of Kapitan II type amphorae, which are very numerous in the discoveries. In this ceramic center, a series of types of Roman lamps were imitated, but it was also the place where Firmalampen with the ARMENIVS stamp that circulated in the Lower Danube region were produced. The coroplastic objects include a variety of manifestations, from ceramic statuettes of divinities (especially Venus) to anthropomorphic vessels and from children's toys to medallions. In recent years, there have been some archaeometry investigations on Roman bricks, amphorae, and kaolin vessels, which revealed the pattern of local production fabrics made at Romula. Due to the scale and diversity of the products, the ceramic centre from Romula is among the most relevant of those researched so far in the Roman Danubian province.

84. From idea to tangible: the potential interpretation levels of Sarmatian painted pottery in relation to its Roman influences

Authors: Tamás Szebenyi (Department of Archaeology, University of Szeged)
Format: Oral

The so-called 'red-painted pottery' represents an understudied but methodologically promising group among the find material of the Late Roman Period Sarmatian Barbaricum in the Carpathian Basin. This ceramic type was formed in response to the mid-3rd-century AD decline in the import of Western terra sigillata products. While Barbarian potters were unable to reproduce the Roman 'slip' (Glanztonüberzug), they achieved a comparable visual effect by polishing a simpler red engobe coating. In terms of morphology, Sarmatian workshops sought to pass on the traditions of the 2nd–3rd-century Rheinzabern, Westerndorf and Pfaffenhofen workshops into the 4th–5th centuries AD, primarily through the imitation of forms Dragendorff 33, 37 and 54. Recent publications from the foreground of Aquincum (Pannonia Inferior) indicate that, the form selection of this pottery type followed a more complex pattern than previously assumed. Mechanical imitations of terra sigillata vessels (impact level 1) appears to be rare instances (see the case of stamp-ornamented bowls). However, the technical constraints of Barbarian pottery production occasionally necessitated simplifications (e.g. the application of foot-discs instead of foot-rings). More frequently, their morphology were modified to varying degrees to meet the local demands (impact level 2). These modifications range from minor 'barbarising' features (e.g. grooves below the rim) to the hybridisation of multiple Roman and Barbarian vessel types. For instance, pronounced articulation on Dragendorff 33 imitations may derive from the adaptation of the Dragendorff 30 form. In several cases, the symbolism of 'red painting' appears to have been abstracted, transferring the elevated status once associated with terra sigillata to painted vessels imitating glassware. On the other hand, red painting could lose its original semantic values and is applied to independently developed Sarmatian froms (impact level 3). At this stage, the phenomenon is better explained through workshop-level production traditions than through broader cognitive processes (e.g. glocalisation, hybridisation).

2318. Imitation and Innovation: Knowledge Transfer in Ceramic Production at Late Republican - Early Imperial Salacia Imperatoria (Alcácer do Sal, Portugal)

Authors: Daniel Andrade (CHAM – Centro de Humanidades. NOVA/FCSH - NOVA University of Lisbon) – Raquel

Guimarães (Equip de Recerca Arqueològica i Arqueomètrica de la Universitat de Barcelona | Institut d'Arqueologia Universitat di Barcelona - University of Barcelona | CHAM – Centro de Humanidades. NOVA/FCSH - NOVA University of Lisbon) – Camila Lacueva – Tiago Nunes – Paula Pereira (ERA Arqueologia, SA)
Format: Oral

The Roman city of Salacia Imperatoria (modern Alcácer do Sal, Portugal) was a key urban center in the lower Sado basin and along the western Atlantic façade of the Iberian Peninsula during the late Republican and early Imperial periods. Strongly influenced by Mediterranean commercial and cultural traditions, Salacia developed into a significant center for amphora production, supporting the distribution of fish products from nearby processing sites, particularly at Tróia. Excavations by ERA Arqueologia revealed a substantial waste deposit associated with local pottery production, containing both imported wares and locally produced imitations of exogenous imperial products, including terra sigillata, Roman lamps, and Campanian black-gloss ware. While these imitations often lack the refined surface treatments of their models, their morphological fidelity and sporadic experimental coatings indicate active engagement with unfamiliar techniques and ongoing technical learning. This paper examines the technological and morphological characteristics of these imitative wares, situating them within broader processes of craft knowledge transfer and adaptation. By comparing local products with their imported counterparts, the study explores how Salacian potters negotiated the introduction of imperial forms, integrated them into local production systems, and responded to changing economic and urban contexts. Through this lens, Salacia emerges as a site where practical skill, experimentation, and cultural interaction intersected, illuminating the dynamics of craft knowledge transmission and technological adaptation in the Ancient Mediterranean.

260 MODELS AND WORKSHOP PRACTICES IN THE PRODUCTION OF DECORATION ON CINERARY URNS AND SARCOPHAGI

Theme: 1. Widening perspectives in material culture studies
Organisers: Samuele Cambianica (Universität Zürich, Institut für Archäologie) – Anna Anguissola (Università di Pisa, Dipartimento di Civiltà e Forme del Sapere)
Keywords: Workshop models, Cinerary urns, Sarcophagi, Motif repetition, Workshop practices, Transmission of iconographies
Format: Regular session

SESSION ABSTRACT

The recurrence of iconographic schemes, figure types, and decorative patterns on cinerary urns and sarcophagi across the ancient Mediterranean raises fundamental questions about how workshops produced the decoration on these artefacts. A central issue concerns the mechanisms of replication of decorative motifs and what models and intermediate mediums could actually have been: concrete templates used within the workshops, or rather mental, internalised schemata to which artisans referred? Reconstructing these production means is fundamental for investigating their practices of use and meaning in production processes. The identification of shared workshop models underlying multiple artefacts also contributes to hypotheses regarding common artisanal origins and the transmission of iconographies. In both plastic decoration and polychrome painting on cinerary urns and sarcophagi, formal motifs are repeated even across different materials, despite the distinct technical requirements each material imposes. Phenomena such as "contamination" of iconographies and duplication of figure types within single compositions highlight questions about how models were employed, adapted, and combined. Motif repetition within the contexts of placement of cinerary urns and sarcophagi provides insights into how client expectations and commissioning practices shaped common figurative repertoires responsive to specific requirements. The session aims to provide insights into workshop practices involved in motif repetition on cinerary urns and sarcophagi, and to discuss methodologies and approaches to the study of models in ancient image production. We invite contributions, particularly from early career researchers, on topics that may include: - Case studies in which workshop models and their modes of use can be reconstructed - Transfer of motifs between production groups, for example between sarcophagi and cinerary urns or across materials within the same artefact class - Contextual considerations regarding motif repetition and the placement and display of cinerary urns and sarcophagi - Adaptation of models to local requirements, variations, changes in content, and attribute combinations.

CONTRIBUTION ABSTRACTS

1679. From Workshops to Canvas: Mapping Iconographic Patterns in Clazomenian Sarcophagi

Authors: Juan Navarro (The University of Edinburgh)
Format: Oral

Is the iconography of the paintings on the so-called Clinomania sarcophagi (c. 625–450 BCE) truly standardised, as is sometimes suggested? Do each workshop, in addition to exhibiting stylistic patterns, also possess a distinctive iconography? Or, conversely, does the object itself determine the images, so that, regardless of its place of manufacture, as a funerary monument, it imposes its pictorial scheme? This paper focuses on the figurative paintings of the Clinomania sarcophagi, specifically providing a mapping of the distribution of motifs and scenes across a diverse range of sites. The material extends beyond Ionia, encompassing northern (Acanthus, Abdera) and southern Aegean sites (Rhodes), revealing geographically patterned concentrations of decoration. It

also traces how certain figure types, their combinations, and the layout of decorative panels recur across the corpus. In this paper, iconography is not used as a method for identifying workshops; rather, it is treated as an object of analysis. The evidence suggests that the most striking feature of the corpus is its considerable variation. While organisational schemes remain largely consistent, the depicted subjects display significant diversity, which may reflect a negotiation between clientele preferences, social status, aspects of identity, and a drive for creativity and originality. Consequently, it is possible to propose that the medium does not necessarily dictate funerary iconography (unlike in other monuments, such as grave stelai or pinakes, where the format more strongly shapes subject matter), but rather functions as a "blank canvas" for making a statement of social status, which becomes visible in the ways originality is expressed. By providing an integrated overview of the corpus, the study lays the groundwork for further research on regional workshops, stylistic groups, and early Mediterranean funerary decoration.

1751. Scaling the Model: The Amazonomachy with Vanth from Sarcophagi to Cinerary Urns

Authors: Valeria Riedemann (University of Washington)
Format: Oral

This paper examines the role of models and workshop transmission in the production of decorated Etruscan sarcophagi and cinerary urns, focusing on the Amazonomachy with the female death demon Vanth as a case study. While the Amazonomachy derives from Greek mythological imagery, its appearance in fourth-century BC Etruscan funerary contexts reveals a sustained process of adaptation shaped by local workshop practices, materials, and patronage. The first phase under consideration concerns the dialogue between painted and carved sarcophagi in southern Etruria, particularly at Tarquinia, Tuscania, and Vulci. Stylistic correspondences suggest the circulation of shared compositional models across media, with workshops adapting figural schemes to different artistic techniques. Locally produced stone sarcophagi display flexible narratives and iconographic arrangements, indicating that models were not mechanically reproduced but actively reworked. The second phase traces the transmission (or 'revival') of the motif on later cinerary urns, largely produced in northern Etruria. Here, earlier large-scale sarcophagus compositions are condensed to fit smaller, standardised urn formats. This process required selective compositional reduction and figure rebalancing, revealing workshop strategies of scaling and adaptation rather than simple copying of traditional models. The persistence of key iconographic elements, especially the inclusion of the winged demon Vanth, suggests the existence of workshop templates that were repeatedly reinterpreted. By analysing shifts in material, composition, and scale, this paper contends that the Amazonomachy with Vanth functioned as a mobile and adaptable visual model within Etruscan funerary production. Its transformation across media shows that workshops did not merely replicate inherited schemes but reshaped the iconographic tradition to suit new formats and funerary contexts.

2639. Case Studies of Model Use in the Image Production on Hellenistic Etruscan Urns

Authors: Samuele Cambianica (University of Zurich)
Format: Oral

Etruscan urns decorated in relief are characterised by two phenomena: the use of motifs from the Hellenistic formal repertoire, and the repetition of schemes depicting both the same and different iconographic subjects. This class of finds therefore constitutes an exceptional corpus for the study of models used in the production of images in processes of pattern transfer and replication. The purpose of this paper is to present case studies that facilitate discussion of these issues and provide insight into the specific artisanal practices employed in the production of these cinerary urns. To discuss the nature of the models - whether concrete or conceptual, two-dimensional or three-dimensional - and the modi in which artisans employed them, it is essential to identify artefacts with repeated motifs that share a common artisanal origin. This permits specific considerations regarding a particular series of cinerary urns and their decorations. A further aim of this paper is therefore to offer some methodological reflections on the identification of a "common artisanal origin" of sculptural works. The proposed approach considers style as one of the final stages in the production of decorated artefacts - subordinate to questions of material and design - and proposes an integrated method that encompasses multiple aspects of the entire production process, as well as the combination of various investigative methods. Morphological (formal and typological) and design considerations are, furthermore, intimately connected to the question of the models underlying the production of images on sculptural works.

2743. Regional Models and Local Traditions: Garland Sarcophagi from Hierapolis of Phrygia

Authors: Anna Anguissola (University of Pisa) – Daniele Renna (University of Pisa)
Format: Oral

Hierapolis of Phrygia (Turkey) preserves the largest known concentration of travertine and marble sarcophagi in the Roman world, produced mainly between the 2nd and 3rd centuries CE. The fact that these monuments are very often preserved in situ, associated with their original funerary buildings, as well as with a rich epigraphic record, allows for precise reconstructions not only of production processes but also of the function and social significance of these objects. Within this vast corpus, a particularly widespread production stands out: finished and semi-finished garland sarcophagi are the predominant type among marble chests. Once thought to be imports from nearby Aphrodisias, these are now recognized as local products created by workshops firmly rooted in a regional tradition and well versed in both travertine and marble sculpture. Based on a catalogue of over 1,000 pieces, the paper examines this material by highlighting the distinctive features of the sculptors of Hierapolis, through comparison with other types

of sarcophagi and, above all, with architectural sculpture and the productions of neighboring centers. In particular, the paper discusses how the garland motif is adapted and modified through the inclusion of mythological figures that have few parallels elsewhere, as well as portraits. What emerges is the vitality and innovative capacity of local workshops, which translated a complex visual language across different material supports within a funerary landscape densely packed with buildings and marked by intense competition for visibility and space.

1015. Making and Meaning from Miniature to Monumental: Tracing Cross-Scale Models in the Sarcophagi of Roman Phoenicia

Authors: Nicholas Aherne (University of Groningen)
Format: Oral

The floruit of sarcophagi across the Roman Empire leaves no doubt that the success of Graeco-Roman art depended upon repetition. The recurring stock motifs enveloping sarcophagi may appear prosaic, but the perennial penchant of their designers to adopt and innovatively adapt schemes from an orchestrated repertoire, sometimes punctuating them with localised or personalised idiosyncrasies, present exceptional cases to approach art and making. In contemporary rhetorical practice we can identify model-based learning and visual memory techniques which sarcophagus makers presumably relied upon. Like rhetoric, we witness art employ formulaic expression, standardisation, and codification, consolidating socio-cultural connotations and reflecting broader conditions or experiences of Roman thought. This paper undertakes a conceptual and methodological investigation of such notions through the lens of predominantly ornamental but also figural motifs decorating sarcophagi of Roman Phoenicia, the topic of my ongoing PhD. Having shifted away from the direct-prototype paradigms central to early scholarship, this interdisciplinary study formally analyses sarcophagi of stone, lead, terracotta, and wood. It identified models from the miniature to monumental: coins, magical amulets, pottery, altars, temples, and baths across the Empire which I propose help us to reconstruct the entangled network of models and inspirations that sarcophagus workshops drew upon. Whilst replicative ornamentation would have resonated indelibly with diverse audiences, I deliberate whether esoteric nuances were only fully appreciated by makers, and the degree to which meaning was assimilated with motifs. This paper also situates the sarcophagi within their material-visual-spatial landscape and considers lived experiences of makers and viewers. By analysing replicative ornament across media and scales, this paper demonstrates how sarcophagus production depended not on linear prototype transmissions, but on a malleable repertoire of shared visual models activated through workshop practice, copybooks, material properties, and embodied memory. These findings contribute new perspectives on workshop organisation, cognitive dimensions of making, and Graeco-Roman imagery.

263 BETWEEN LIFE AND DEATH: FUNERARY PRACTICES OF WESTERN ASIA IN THE 7TH–6TH MILLENNIA BCE

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Anna Bach Gomez (Universitat Autònoma de Barcelona) – Eva Fernandez Dominguez (Durham University) – Miquel Molist Montaña (Universitat Autònoma de Barcelona)
Keywords: Neolithic, Funerary practices, Multi-proxy analysis
Format: Discussion session

SESSION ABSTRACT

Funerary practices during the 7th and 6th millennia BC in the Near East reveal a complex net of social, symbolic, and ritual behaviors associated with the treatment of the dead. Since the pottery appearance, this period, marked by profound transformations in settlement patterns, technology and community organization, also witnessed the emergence of diverse ways of conceptualizing death and the afterlife. Through a comparative analysis of burial contexts from key Neolithic sites across Upper Mesopotamia, this study explores how mortuary variability reflects shifting notions of identity, memory, and ancestry but also mobility of goods and people. The integration of bioarchaeological evidence, tanatoarchaeology, spatial distribution, and material culture allows for a nuanced understanding of the interplay between the living and the dead within early agricultural societies. Ultimately, the study highlights how funerary practices served as a medium for negotiating social cohesion, territoriality, and cosmological beliefs during the consolidation stages of Neolithic communities.

CONTRIBUTION ABSTRACTS

1991. Populations and Burial Practices at The End of the Pre-Pottery Neolithic Period in Southern Levant (7100-6300 Cal BC)

Authors: Marie Anton – Hila May (Faculty of Medecine, Tel Aviv University | The Dan David Center for Human Evolution and Biohistory Research | The Shmunis Family Anthropoly Institute) – Hamudi Khalaily – Jacob Vardi (Israel Antiquities Authority IAA) – Fanny Bocquentin (CNRS UMR 8068 Technologie et Ethnologie des Mondes PrehistoriqueS)
Format: Oral

The first half of the 7th millennium BC, also known as the Pre-Pottery Neolithic C (PPNC), was a chaotic period. The settlements flourishing during the end of the 8th millennium were abandoned during the first half of the 7th millennium, hence the term "Palestinian Hiatus" proposed by J. Perrot. While the occupation of sites in the northern Levant continued and ceramics gradually emerged, a real cultural break was described for the southern Levant. Indeed, the main sites were almost abandoned, and smaller settlements appeared, which suggests that communities were highly mobile. In this context, ceramics in the southern Levant appeared 500 to 700 years later than in the northern Levant on a massive scale (Early Pottery Neolithic: 6300-5900 Cal BC). The numerous burials recently uncovered have allowed us to tackle the early 7th millennium question. Analyzing funerary archaeology and biological anthropology through those burials enabled us to observe the funerary treatments and certain social practices of populations that were completely unknown and yet the main protagonists of the last stage of the Neolithic process in the Levant. The results suggest a continuity between the PPNC and the rest of the Pre-Pottery Neolithic periods: individuals are buried in the habitat, in a wide variety of positions and orientations. However, new funerary practices, as the earliest evidence of cremation, emerged during the PPNC. Several of these traditions were observed during the subsequent period, the Early Pottery Neolithic, when the deceased were not allowed in the inhabited area.

2602. Reading Ancestry in Teeth: Dental Topography as a Proxy for Population History in Neolithic Funerary Assemblages

Authors: Albert Epitíe Dyowe Roig (Universitat de Barcelona) – Ferran Estebaranz-Sánchez (Universitat de Barcelona | Institut d'Arqueologia de la Universitat de Barcelona) – Eva Fernández-Domínguez (Department of Archaeology, Durham University) – Alejandro Pérez-Pérez (Universitat de Barcelona | Institut d'Arqueologia de la Universitat de Barcelona) – Bérénice Chamel (Institut Français du Proche-Orient MEAE/CNRS) – Ali Metin Büyükkarakaya (Human Behavioral Ecology and Archaeometry Laboratory IDEA Lab | Hacettepe University) – Rima Khawam (Directorate-General for Antiquities and Museums DGAM) – Miquel Molist Montaña (Universitat Autònoma de Barcelona) – Arkadiusz Sołtysiak (University of Warsaw) – Laura M Martínez Martínez (Universitat de Barcelona | Institut d'Arqueologia de la Universitat de Barcelona)
Format: Oral

Funerary contexts of the 7th–6th millennia BCE in Western Asia provide key insights into how early Neolithic communities conceptualised identity, ancestry, and belonging. While mortuary practices are commonly explored through spatial organisation, ritual treatment, and material culture, bioarchaeological proxies offer a complementary perspective for assessing population continuity and mobility. Although part of the dataset predates the 7th millennium BCE, these earlier populations represent the demographic and biological foundations upon which later Neolithic funerary traditions and notions of ancestry were constructed. This study examines diachronic and regional variation in lower molar morphology among Natufian, Pre-Pottery Neolithic B, and Pottery Neolithic individuals from Southwest Asia. A total of 93 unworn first and second lower molars recovered from funerary contexts across Levant, Upper Mesopotamia, Zagros, and Central Anatolia were analysed using high-resolution 3D dental topography. Four complementary metrics (RFI, DNE, OPCR, and PCV) were employed to capture variation reflecting both functional adaptation and inherited morphology. Results reveal substantial morphological continuity between Natufian and PPNB groups, alongside marked intra-group variability during the PPNB, consistent with genomic evidence for fine-scale population structure and individual mobility. Genomic and morphological continuity across the Epipalaeolithic–Neolithic transition allows earlier populations to be directly integrated into discussions of ancestry, memory, and funerary practices during the 7th–6th millennia BCE. In contrast, Pottery Neolithic individuals (particularly from Central Anatolia) exhibit a distinct topographic signal characterised by increased crown relief and reduced occlusal exposure, suggesting both dietary change and population differentiation during the consolidation of Neolithic lifeways. By integrating dental topography with archaeological and genetic frameworks, this study highlights the value of bioarchaeological evidence derived from funerary assemblages for reconstructing population histories. Dental morphology emerges as a robust complementary proxy in contexts where ancient DNA preservation is limited, enriching interpretations of Neolithic mortuary variability and the relationship between the living and the dead.

2766. Neonatal Mortuary Practices in the Middle Euphrates: Current Evidence and Methodological Challenges

Authors: Olivia Orri – Miquel Molist (Autonomous University of Barcelona, Research group SAPPO-GRAMPO)
Format: Oral

Neonatal burials constitute a particularly relevant field of analysis for the study of liminal conceptions between life and death within pottery Neolithic communities of the Near East. In the Middle Euphrates valley, especially during the Halaf cultural horizon (c. 6200—5300 cal BC), the archaeological evidence currently available for perinatal and neonatal individuals remain relatively limited, dispersed and unevenly documented. This contribution presents a state of the question on neonatal burials documented in the Middle Euphrates and its main areas of influence, based on a critical review of the archaeological and bioarchaeological literature from sites in northern Mesopotamia and the middle river basin. The analysis focuses on the characterisation of funerary contexts attributed to neonates, including primary inhumations in pits or shafts, burials within ceramic containers, cremations and collective contexts, as well as their spatial relationship with domestic and communal areas. In addition, this paper reviews the principal analytical variables commonly employed in the study of these burials—such as intra- or extramural location, body position and orientation, the presence or absence of grave goods, and the typology of associated material culture—while placing particular

emphasis on the methodological limitations arising from the differential preservation of neonatal skeletal remains, excavation biases and the limited application of systematic bioanthropological analyses.

2767. Intramural Burials and the "Domestication" of the Dead: Memory, Ancestors and Architecture in the 7th–6th Millennium Near East

Authors: Anna Bach Gomez – Miquel Molist (Autonomous University of Barcelona, Research group SAPPO-GRAMPO)
Format: Oral

Intramural burial practices—interments located within domestic spaces such as beneath floors, inside rooms or in courtyards—represent one of the most distinctive mortuary phenomena of the Near East during the 7th–6th millennium cal BC. Despite their wide distribution across the Late PPNB, the Pottery Neolithic and the Early Halaf horizon, the social meaning of these practices remains difficult to assess. Were intramural burials primarily embedded in processes of ancestor-making, whereby the dead became active social agents in the reproduction of household memory and identity? Did they function instead as strategies of territorial control, legitimising claims over space, property and lineage through the physical anchoring of bodies within the built environment? Or should they be interpreted more pragmatically, as practical solutions for corpse management within sedentary communities? Beyond formal inhumations, many sites also document human remains in secondary contexts—disarticulated bones, selected skeletal elements, or partial bodies—redeposited within floor make-up layers, wall foundations, or architectural fills. These practices raise further interpretative challenges: should such remains be understood as part of funerary behaviour and domestic commemoration, as "closing deposits" linked to architectural renewal, or as the outcome of taphonomic disturbance and the reworking of earlier burial spaces? This paper addresses these tensions by critically reviewing the archaeological signatures most used to differentiate "ritual" from "functional" intramural mortuary practices. Attention is paid to the relationship between architectural renovation, floor sequences and the reopening or transformation of burial contexts. The discussion highlights the analytical potential of fine stratigraphic recording, micro-contextual approaches, and the distinction between articulated primary inhumations and secondary redepositions. By reassessing intramural mortuary variability across regions and cultural horizons, this contribution aims to refine interpretative models and evaluate the extent to which domestic mortuary practices can be meaningfully compared through time and space in the Neolithic Near East.

264 HOW CAN ARCHAEOLOGY SKILL GAPS BE ADDRESSED? EXPLORING ISSUES AND SOLUTIONS FOR THE DEVELOPMENT OF TECHNICAL SKILLS

Theme: 2. Crossing the divide. Archaeology and the open world
Organisers: Cara Jones (Chartered Institute for Archaeologists) – Pirjo Hamari (Museovirasto - Finnish Heritage Agency)
Speakers: Angela Pencheva (Balkan Heritage Foundation)
Keywords: Skills, Skill Gaps, Training, Future Skills
Format: Round table
Affiliation: Chartered Institute for Archaeologists (CIfA), Community on Teaching and Training of Archaeologists - CTTA

SESSION ABSTRACT

The mechanisms to identify and record skill gaps in archaeology is increasingly being applied by organisations to their workplaces, specialisms, and individual projects. They can be identified through skill audits or anecdotal evidence and then reported through Labour Market Intelligence processes or data gathering associated with strategic skills initiatives. Ultimately skill gaps are recognised as a 'risk' to our ability to carry out the very process of archaeology. Previous responses have included 'fixed-term' (supported by fixed-funding) training programmes or in-house training, but this solution is often dependent on available resource, capacity and the accessibility of the training initiative. It is rare that these solutions are sustainable or systematic. Therefore, is there a need to redesign how we develop our archaeologists of the now and of the future by rethinking how we respond to skill gaps? Should we as a profession be looking towards more formalised ways of meeting our skill needs? Should we look at developing vocational qualifications or micro-credentials specifically designed for archaeologists? Organised by members of the EAA Community for teaching and training of archaeologists, this discussion session seeks to • Explore how skills gaps are identified and addressed • Discuss if the utilisation of micro-credentials or vocational qualifications support archaeologists to rapidly respond to new areas of practice (such as Artificial Intelligence or Climate Change) • Identify examples or case studies of the sustainable and systematic responses to skill gaps While this roundtable will prioritise space for discussion, we welcome short presentations from external contributors.

266 ARCHAEOLOGY OF DELTA- ACROSS CULTURAL TRADITION

Theme: 7. Interaction, connectivity and mobility
Organisers: Durga Basu (University of Calcutta) – Sergiu Musteaţă (History and Geography Faculty, Ion Creanga State University)
Keywords: Archaeology, coastal region, settlement, cross-cultural tradition, connectivity
Format: Discussion session

SESSION ABSTRACT

Delta regions across the world represent dynamic zones shaped by environmental change, dense human occupation, and long-standing cultural interactions. Their fertile landscapes, shifting waterways, and strategic locations have fostered distinctive settlement patterns, subsistence systems, and networks of exchange. This session examines the archaeology of deltaic environments across countries to understand how communities adapted to and transformed these complex landscapes. To sharpen the analytical focus, the session invites contributions addressing questions such as: • How have environmental dynamics and geomorphological changes influenced settlement patterns in delta regions? • What types of material culture illuminate intercultural connections, trade, or shared technological traditions in these landscapes? • In what ways did subsistence strategies evolve in response to deltaic ecological opportunities and constraints? • How do archaeological datasets from different deltas compare, and what broader patterns of connectivity or divergence emerge? Case studies, comparative analyses, and interdisciplinary approaches—including geoarchaeology and environmental archaeology—are especially welcome. The session aims to develop a clearer, more integrated picture of deltas as key spaces of interaction, connectivity, and cultural tradition.

CONTRIBUTION ABSTRACTS

1389. Archaeology of Delta- Across Cultural Tradition, focusing on the Gangetic Delta of India

Authors: Sayamtara Mitra (Burdwan University)
Format: Oral

The Gangetic delta, largely corresponding to present-day West Bengal, constitutes one of the most significant archaeological landscapes of eastern India. Formed by the Ganga–Bhagirathi–Hooghly river system, this deltaic region has experienced continuous geomorphological transformation, profoundly influencing human settlement and cultural development. Archaeological sites such as Chandraketugarh, Harinarayanpur, Deulpota, Mangalkot, Bharatpur, and Tamluk (ancient Tamralipta) provide crucial evidence for understanding the dynamics of settlement, subsistence, and connectivity within a coastal delta environment. Analysis of settlement patterns indicates a preference for elevated landforms and palaeochannel zones, reflecting adaptive responses to flooding, sedimentation, and river migration. Material culture assemblages recovered from these sites—including Northern Black Polished Ware, rouletted ware, terracotta figurines, beads, seals, and numismatic evidence—demonstrate both regional cultural continuity and sustained cross-cultural interaction. The discovery of Roman coins and imported ceramic forms, particularly at Tamralipta, underscores the delta's participation in long-distance riverine and maritime trade networks linking the Gangetic hinterland with the Bay of Bengal and the wider Indian Ocean world. Subsistence strategies combined wet-rice cultivation, fishing, shell exploitation, and craft production, indicating ecological flexibility and economic integration. The archaeological record of the Gangetic delta thus highlights its role as an active centre of settlement continuity, cultural interaction, and connectivity within the broader framework of delta archaeology.

2506. The Port Cities of Krishna Godavari Delta- An Archaeological Search

Authors: Durga Basu (University of Calcutta | Society For Heritage, Archaeology & Management)
Format: Oral

The Krishna–Godavari Delta, located along the eastern coast of India bordering the Bay of Bengal, is an extensive and fertile alluvial region traditionally referred to as the "rice bowl of India." Geologically, the delta is characterized by a complex system of river channels and deltaic formations. Owing to these natural advantages, several port cities emerged within the deltaic landscape of present-day Andhra Pradesh. These ports played a significant role in ancient maritime activities. Archaeological excavations and exploratory surveys along the coastal belt have revealed substantial evidence for the existence of numerous port towns dating to the Early Historic period. Situated in the central sector of India's eastern seaboard, Andhra Pradesh possesses a long-standing maritime tradition facilitated by its navigable rivers and favorable landing points, which supported long-distance oceanic trade across different historical phases. From the Early Historic period onward, traders established both major and minor maritime ports, contributing to the region's economic expansion. Epigraphic records referring to pre-Sātavāhana rulers and various corporate and mercantile organizations further attest to the intensification of economic and trade activities. The present study examines the archaeological context and significance of port cities in the Krishna–Godavari Delta region.

2795. Danube Delta and its Outstanding Universal Value

Authors: Sergiu Musteata („Ion Creanga" Pedagogical State University of Chişinău)
Format: Oral

This paper examines the Danube Delta as a long-term contact zone where environmental dynamics, mobility, and cultural interaction have shaped human occupation across multiple historical periods. Situated at the interface between the lower Danube, the

Black Sea, and the Eurasian steppe, the Delta has historically functioned as a corridor of communication and exchange linking diverse cultural traditions. Archaeological evidence from the region illustrates how communities adapted to a constantly shifting deltaic landscape while maintaining networks of interaction that connected riverine, maritime, and steppe environments. Within the thematic framework Archaeology of Deltas – Across Cultural Traditions, the Danube Delta offers a particularly relevant case study of how dynamic wetland environments generate both cultural diversity and shared strategies of adaptation. Changes in waterways, sedimentation processes, and ecological conditions influenced settlement distribution, subsistence practices, and mobility patterns, shaping long-term cultural landscapes that reflect continuous negotiation between human communities and fragile environments. The presentation places particular emphasis on the concept of Outstanding Universal Value (OUV) and its implications for interpreting and managing the Danube Delta within UNESCO heritage frameworks. Although the site is internationally recognised for its exceptional natural significance, its archaeological record and long-term cultural history remain underrepresented in heritage narratives. By foregrounding the Delta's role as a socio-ecological landscape shaped by interactions across cultural traditions, the paper argues for a more integrated approach that bridges natural and cultural heritage perspectives. Through this comparative analysis, the presentation contributes to broader discussions on cultural landscapes, sustainability, and heritage governance in dynamic environments. It highlights the potential of archaeological research to inform more holistic management strategies and strengthen recognition of deltas as complex heritage systems in which natural processes and cultural histories are deeply intertwined.

2195. Rivers in Motion: Geo-archaeology and Changing Settlement Networks in the Ganga–Brahmaputra Delta of Bengal

Authors: Arabinda Singha Roy (Maulana Abul Kalam Azad University of Technology, West Bengal)
Format: Oral

Deltaic Bengal represents one of the most dynamic human–environment systems in South Asia, where shifting river channels, sedimentation, flooding, and coastline changes have continually reshaped patterns of habitation and mobility. This paper examines how geomorphological processes in the Ganga–Brahmaputra Delta influenced settlement location, economic strategies, and regional connectivity from early historic to medieval times. Drawing on palaeo-channel mapping, sediment studies, satellite imagery, and archaeological site distribution, the study reconstructs former river courses and floodplain zones that structured human occupation. It explores how communities selected elevated levees and inter-fluvial tracts for habitation, adapted agricultural practices to seasonal inundation, and exploited waterways as transport corridors linking inland Bengal with coastal and overseas networks. The paper further argues that environmental instability was not merely a constraint but also a catalyst for cultural interaction. Migrating rivers redirected trade routes, encouraged the rise of new centres, and contributed to the abandonment or burial of others. By comparing Bengal's deltaic record with other global deltas, the study highlights broader patterns of resilience, mobility, and technological response in wetland environments. Through a geo-archaeological lens, the paper positions Bengal's riverine landscape as an active historical agent—one that continuously mediated connectivity, cultural transmission, and long-term settlement planning in eastern India.

2185. Port Cities of Ancient Bengal: Connectivity and Cultural Exchange at Tamralipta and Chandraketugarh

Authors: Debsmita Bonu (University of Calcutta | Heritage Academy High School)
Format: Oral

Ancient Bengal occupied a strategic position between the Bay of Bengal and the riverine highways of eastern India, fostering long-distance exchange networks that connected South Asia with Southeast Asia and the Indian Ocean world. This paper investigates the role of deltaic port-settlements—especially Tamralipta and Chandraketugarh—as nodal points of trade, mobility, and cultural interaction. Combining archaeological evidence such as coins, terracotta plaques, ceramics, beads, and architectural remains with geo-archaeological data on palaeo-estuaries, river migration, and siltation patterns, the study reconstructs the environmental settings that sustained these centres. It examines how tidal channels, distributaries, and sheltered anchorage zones enabled maritime activity, while also assessing how geomorphic change contributed to harbour relocation and eventual decline. The paper situates these Bengal ports within wider trans-regional networks involving Roman, Southeast Asian, and inland Gangetic contacts, arguing that delta landscapes functioned as powerful mediators of intercultural exchange rather than passive backdrops. By foregrounding the interaction between river dynamics and material culture, the study offers a comparative framework for understanding how coastal–deltaic systems across the world generated distinctive urban forms, commercial infrastructures, and hybrid cultural traditions.

268 DECODING THE WETLANDS: NEW METHODS AND MULTIDISCIPLINARY APPROACHES TO WATERLOGGED ARCHAEOLOGY

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Patricia Vandorpe (IPNA, Universität Basel) – Alexandra Schmidt (Environmental Genomics, Department of Biology, University of Constance) – Cristiano Nicosia (Dipartimento di Geoscienze, Università di Padova) – Ana Smuk (Groningen Institute of Archaeology, Faculty of Arts, University of Groningen)
Keywords: Wetland archaeology, Bioarchaeology, sedaDNA, Methodological innovation
Format: Discussion session

SESSION ABSTRACT

Waterlogged archaeological sites contain unique, detailed data about human activities, the environment and the economy in the past. Their organically rich sediments offer a valuable opportunity to reconstruct the interactions between humans and the environment and thus answer key questions about mobility, subsistence models, use of resources etc. Bioarchaeological methods including archaeobotany, zooarchaeology, palynology and geoarchaeology have a long tradition of being used to study these wetland environments. In this session we would like to explore how combining traditional bioarchaeological methods with emerging sedaDNA techniques (or more general with studies of ancient DNA) can transform our perception of wetland settlements and their surrounding landscapes. The focus of this session is on methodological innovation and the integration of diverse datasets, including archaeobotanical, zooarchaeological, palynological, isotopic, sedimentological and genetic data. Within this interdisciplinary framework, the aim is to evaluate the strengths and limitations of each line of evidence, as well as the associated interpretative challenges. We invite contributions that present methodological advances, interdisciplinary applications, and critical reflections on data integration in the investigation of waterlogged archaeological sites. We also welcome contributions on coherent strategies for integrating complex datasets, as well as on establishing common standards for future research in wetland archaeology.

CONTRIBUTION ABSTRACTS

634. A Story in Multiple Acts: Taking a Multi-Proxy, More-Than-Human Approach to Scotland's Peatland Heritage

Authors: Isobel Harvey (University of Glasgow)
Format: Oral

This paper will present on ongoing doctoral research into the cultural and natural heritage of Scotland's peatlands. The blanket bogs of the Scottish uplands represent a unique resource for examining human-environmental relationships that often lie upslope of the agricultural zone. By going beyond the head-dyke, and using a three part methodology that considers the various attitudes, activities and impacts humans have had in these wetlands, this study hopes to tell a more holistic narrative of people-peatland relationships through time. This paper will examine the initial insights from two field sites where different environmental proxies were used to establish local palaeoecological sequences of the peatlands. The use of coleoptera for an isolated corrie on the slopes of Ben Lawers in the Central Highlands will be compared with the use of pollen for the site of Canna in the Small Isles. This paper will also draw upon more-than-human discourse and Assemblage Theory to situate these ecological proxies within a wider narrative that weaves together people, places, plants and animals. Through this discussion, this paper will demonstrate the importance of these wetlands to a vast array of actors both in the past and the current anthropogenic climate and biodiversity crises.

2044. Methods and Preliminary Results of Archaeozoological and Isotope Analysis from Neolithic Pile-Dwelling Sites at Lake Zug and Lake Zürich (Switzerland)

Authors: Kirsten Scheinberger – Sabine Deschler-Erb – Marguerita Schäfer – Simone Häberle – Renate Ebersbach (IPNA, Universität Basel) – Rouven Turck (Universität Zürich)
Format: Oral

The multidisciplinary project "Deciphering Lakesite Settlements" (funded by the Swiss National Science Foundation, German Research Foundation and Austrian Science Fund) contains various approaches of established bioarchaeology like the study of plant macroremains, palynology and morphological archaeozoology as well as stable isotope analysis and innovative sedimentary ancient DNA (sedaDNA). This interdisciplinary approach not only allows comprehensive research of the late neolithic (Horgen) Lakesite settlement (around 3000 BC) Immensee Dorfplatz at Lake Zug in central Switzerland, but aims to investigate the possibilities and limitations of the individual and combined disciplines. The results of new data from Immensee Dorfplatz will be compared to other Horgen settlements at Lake Zug and the well-studied site Zürich Opèra at Lake Zürich (3176-3160 BC). To achieve this, the project involves experts from four Universities (Basel, CH, Zürich, CH, Konstanz, D Innsbruck, A) as well as the Center for Underwater-/Dendroarchaeology of Zürich, CH. A main aim of this interdisciplinary project is to show the economic concepts of the sites and to establish whether the lakeshore communities were sedentary or highly mobile. The combined archaeozoological and stable isotope analyses are a key part to finding answers to this question and will benefit from constant exchange with the other disciplines to add to the wider picture. The presentation shows the comprehensive strategies and methods of those two disciplines on the faunal remains from the site Immensee Dorfplatz. Furthermore, it addresses the preliminary results that hint to a special role of this settlement which shows in an exceptionally high percentage of game as well as the first data from Immensee Dorfplatz received from sampling teeth from domestic animals.

2175. Human-environment interactions in Neolithic pile-dwelling sites at lakes Zug and Zürich (Switzerland) in light of archaeobotany and sedimentary ancient DNA

Authors: Juliette Elie (IPNA, Universität Basel) – Alexandra Schmidt (Universität Konstanz) – Patricia Vandorpe – Bigna Steiner – Cécile Bettschart (IPNA, Universität Basel) – Laura Epp (Universität Konstanz) – Niels Bleicher (Unterwasserarchäologie und Dendroarchäologie Stadt Zürich) – Örni Akeret (IPNA, Universität Basel)
Format: Oral

The lakeshore settlements of the Alpine foreland are renowned for the exceptional preservation of organic remains, including seeds, fruits, and other botanical macroremains, in waterlogged environments. These conditions provide rare and detailed insights into plant economy, daily life, and landscape management of past human populations. While the potential of these sediments as genetic archives is increasingly recognized, it remains largely underexploited. Ancient DNA from archaeological layers provides a direct window into the human-environment interface of prehistoric life. Within a Weave project, we applied a multidisciplinary approach at two pile-dwelling sites on Lake Zug and Lake Zürich (Switzerland), both dated to the Late Neolithic period. We conducted systematic sampling across different organic layers and combined archaeobotanical analysis with sedimentary ancient DNA (sedaDNA), including multi-marker metabarcoding of eukaryotes in general, plants and selected vertebrate groups. We compared terrestrial and aquatic DNA signals with macroremain assemblages from different archaeological layers within the settlements. This integrated strategy will allow us to assess the respective strengths, weaknesses, and blind spots of both methods, refine the interpretation of (bio)archaeological datasets, and develop standardized protocols for the investigation of waterlogged lakeshore sites.

2238. Pollen and NPPs from Near-Site Sediment Records at the Neolithic Pile-Dwelling Site of Immensee-Dorfplatz (Switzerland)

Authors: Marie-Claire Ries (University of Innsbruck, Department for Archaeology | University of Innsbruck Department of Botany) – Peter Trebsche (University of Innsbruck, Department for Archaeologies) – Laurent Marquer (University of Innsbruck Department of Botany) – Niels Bleicher (Underwaterarchaeology/Dendrolab of City of Zurich)
Format: Oral

Waterlogged lakeshore settlements in peri-Alpine waterscapes provide exceptionally rich archives of past human–environment interactions, yet linking micro-contextual on-site activities with broader landscape-scale processes remains challenging. This study addresses this issue using new high-resolution palaeoenvironmental data from a near-site sediment core recovered adjacent to the Neolithic pile-dwelling settlement of Immensee-Dorfplatz (Lake Zug, Switzerland). This study is part of the interdisciplinary project Deciphering Lakeside Settlements (DeciLak). Vegetation, land-use, and aquatic ecosystem changes during the late 4th and early 3rd millennium BC are reconstructed using pollen and NPP analyses. Regional and extra-local vegetation contemporaneous with settlement occupation are assessed from the near-site lake sediment, whereas local vegetation and site-specific human activities are reconstructed from on-site palynological records. Pollen data assess woodland openness and anthropogenic disturbance, coprophilous fungal spores indicate grazing pressure, and aquatic NPPs together with microcharcoal serve as proxies for trophic shifts and fire activity. The first results of this project aim at showing how comparing proxies—from settlement interiors to the surrounding vegetation mosaic—help to understand the links between on-site activities and a larger landscape. This approach forms the basis for future integrative analyses combining palaeoenvironmental data with archaeobotanical, zooarchaeological, isotopic, and emerging ancient environmental DNA evidence.

2293. New Insights from the Alpe-Adria Lakes: Absolute Dating and Interdisciplinary Research at the Prehistoric Pile-Dwelling Site Kapuzinerinsel (Lake Wörthersee, Austria)

Authors: Marie-Claire Ries (University of Innsbruck, Department for Archaeologies)
Format: Poster

Southern Austria's lakescapes offer significant potential for studying early settlement development and long-term human–environment interactions. The Klagenfurt Basin in Carinthia comprises numerous lakes and wetlands of high archaeological relevance; however, key periods such as the emergence of sedentary lifeways and early metallurgy at the onset of the Copper Age remain poorly understood in this region. Recent underwater archaeological investigations led to the discovery of a previously unknown, multiphase insular pile-dwelling site at Kapuzinerinsel in Lake Wörthersee. Dense pile fields and well-preserved waterlogged remains dating to the 4th millennium BC were documented, including material associated with the Kanzianiberg–Lasinja complex and communities producing furrowed-incised pottery. Systematic excavations in 2024 recorded and sampled more than 100 wooden piles and associated stratigraphic features. These remains provide the basis for high-resolution dendrochronological and radiocarbon dating, alongside detailed material culture analyses that refine site phasing and settlement organisation. Ongoing interdisciplinary research integrates palaeoenvironmental and biomolecular approaches, including ancient DNA from plant remains, to reconstruct subsistence strategies and local environmental conditions. At the same time, alarming levels of erosion underscore the vulnerability of this site. Investigations at Kapuzinerinsel fill a major chronological gap and anchor an eastern Alpine site more firmly in the European pile-dwelling research network.

270 TRACKING STONES, TRACING STORIES: PROVENANCE, SUPPLY CHAINS AND DAILY LIFE IN ANCIENT QUARRIES

Theme: 1. Widening perspectives in material culture studies
Organisers: Caterina Previato – Simone Dilaria (University of Padua) – Anna Gutiérrez Garcia-Moreno (Institut Català d'Arqueologia Clàssica) – Daniel Diffendale (Scuola Normale Superiore di Pisa)
Keywords: Stone quarries, Stone provenance, Stone supply chains, Stoneworkers, Daily life
Format: Session with keynote presentation

SESSION ABSTRACT

One of the most recognizable materials in the archaeological record is stone. From well-established studies of lithic resources catchment in prehistoric times to the use of the finest marbles in antiquity and beyond, stone has long caught the attention of scholars. In recent years, our knowledge of the first phases of stone supply in ancient societies has grown extensively. This session focuses on two aspects of these early stages in the supply chain, first, identifying the place of origin of stone by means of geoarchaeological provenance analyses, and second, the experience of those who worked in quarries, not just during the extraction of stone but in all aspects of their daily life. The first sub-session focuses on the provenance of stone materials, whether used for construction or artefacts, by presenting case studies, methodological challenges, and analytical approaches applied to the identification of lithic sources in archaeology. Contributions addressing these topics are welcome, ranging from site-specific case studies to methodological and analytical advancements. The second sub-session hosts contributions aimed at reconstructing the inner organization of and life in ancient stone quarries based on data deriving mainly from archaeological excavation and ethnographic parallels. The focus is on shelters, infrastructure, worship sites and other material evidence (ceramics, tools, epigraphy, ecofacts, etc.) related to the daily life of stoneworkers in quarries. Contributions that meaningfully incorporate both of these approaches are also welcome.

CONTRIBUTION ABSTRACTS

2761. Keynote: Can We Identify Marble Provenance Without Ancient Quarries? Methodological Limits and Analytical Possibilities

Authors: Vasiliki Anevlavi (National Hellenic Research Foundation, Greece | Austrian Archaeological Institute, Austrian Academy of Sciences)
Format: Oral

Provenance studies of ancient stone have traditionally relied on the identification and sampling of archaeologically attested quarries. Yet in many cases such quarries remain unknown. In prehistoric contexts, organised extraction sites are rarely preserved or recognisable, while in later periods, including the Roman era, despite the extensive use of marble, the precise sources often remain uncertain or speculative. Moreover, modern exploitation has frequently destroyed or obscured ancient quarry landscapes. How, then, can we meaningfully identify the origin of raw materials when the quarry itself is archaeologically invisible? This keynote proposes a reverse methodological approach to stone provenance. Rather than beginning with known quarries and matching artefacts to them, the analysis starts from the artefacts and expands outward to the geological landscape. Systematic investigation of regional marble formations and sampling of modern extraction fronts within broader lithological provinces allow the construction of comparative reference datasets independent of securely identified ancient quarry sites. Multi-proxy archaeometric analysis, combining petrography, stable carbon and oxygen isotope ratios, and trace element geochemistry, enables the definition of geological signatures at the level of formations or micro-regions. Statistical clustering and comparative modelling permit the assignment of artefacts not necessarily to a single quarry, but to a specific geological zone. When artefacts are securely dated, provenance attribution acquires a chronological dimension: materials assigned to previously undocumented geological areas may indicate phases of exploitation that are not archaeologically visible in the landscape/region. In this way, dated objects become chronological anchors for reconstructing extraction histories. The absence of visible quarries should therefore be understood not as a limitation, but as an opportunity to rethink provenance methodology. The case study of Roman inland Thrace (present-day Bulgaria) demonstrates the potential of this approach for reconstructing lost extraction landscapes and refining our understanding of stone supply systems from prehistory to antiquity.

2747. Polished stone implements from the Baradla Cave, Hungary

Authors: Erika Kereskényi (National Institute of Archaeology, Hungarian National Museum) – Béla Fehér (Department of Mineralogy, Herman Ottó Museum) – Ferenc Kristály (Institute of Exploration Geosciences, Miskolc University) – Veronika Szilágyi – Zsolt Kasztovszky (Budapest Neutron Centre, HUN-REN Centre for Energy Research) – György Szakmány (Department of Petrology and Geochemistry, Eötvös Loránd University)
Format: Oral

The Baradla Cave, located in northern Hungary, has been settled since prehistoric times and was repeatedly used by human communities as a temporary dwelling, refuge, and possibly as a place for ritual activities. Archaeometric investigations at the cave have revealed 20 polished stone tools made from various raw materials. Most of the polished implements are flat chisels therefore we presume that they belong to the Bükk culture, Middle Neolithic period. Regarding the sandstone curved hoe, the limestone handstone and basalt polished stone tools, their shape do not fit exclusively to the Neolithic era, they might also date from the Late Bronze period of time. The analysed artefacts are inventoried in three institutional collections: the Herman Ottó Museum (Miskolc), the Institute of Archaeological Sciences of Eötvös Loránd University, and the Hungarian National Museum (Budapest). All mineralogical and geochemical analyses were carried out using non-destructive methods. Mineral-chemical investigations were performed by electron microprobe analysis on the original surfaces of the tools. Most specimens were analysed by X-ray diffraction, while

bulk rock chemistry was determined using Prompt Gamma Activation Analysis. Eight lithological types were identified. The most frequent raw material is blueschist, represented by eight stone adzes. Four tools were classified as contact metabasite, four as greenschist–amphibolite, while serpentinite, sandstone, limestone, and volcanic rock occur as single ones. The blueschist tools contain glaucophane-bearing assemblages and record polyphase metamorphism. The most possible provenance is the nearby Bórka Unit in Slovakia. Contact metabasites represent long-distance raw materials derived from the Bohemian Massif, reflecting wide-ranging exchange networks within the Carpathian Basin and beyond. The mineral assemblages, textural features, and metamorphic characteristics of the greenschist–amphibolite tools point to the Western Carpathians as the most likely source area. Provenance determination of serpentinite, basalt, sandstone and limestone adzes remains uncertain due to limited diagnostic features.

726. Building stones of the Archaic sanctuary on Despotiko Island (Greece): geoarchaeological insights into expedient exploitation of variable local rock resources

Authors: Erich Draganits (University of Vienna)
Format: Oral

The islands in the Aegean Sea are stony, and rocks are easily accessible in many areas. Although there are many studies about properties and provenance of (white) marble from a few large quarry areas, other rock types and less important quarry locations are understudied. In this geoarchaeological research, we investigate building stones of the Archaic sanctuary on the island of Despotiko (central Cyclades), combined with a survey of quarries on the island and surrounding islands. Eleven different rock types have been recorded in the main building of the archaic sanctuary: white mylonitic gneiss, medium-grained white calcitic marble, coarse-grained white calcitic marble, grey orthogneiss and calcrete are common lithologies, while Pleistocene eolianite, pegmatitic gneiss, grey banded calcitic marble, dolomitic marble, rhyolite and mica schist are rare. With exception of the coarse-grained white calcitic marble, all rock types can be found on the island. Despite the small size of Despotiko and Tsimitiri, 17 quarries/rock extractions have been documented in 7 different areas on both islands. Excluding three small eolianite quarries in southern Despotiko, as well as the 4 small white mylonitic gneiss quarries southeast of Panagia chapel, all other quarries are situated within 420 to 880 m distance from the sanctuary. Unambiguous quarrying traces are very rare, because in most cases rocks most likely have been loosened along tectonic fractures and foliation, without leaving clear traces. This study shows that in the main building of the archaic sanctuary most building stones probably originate from small-scale quarrying of local sources. The only exception are the largest building stones (e.g. thresholds, columns, architraves, friezes and geisa), which are made from coarse-grained white calcitic marble, which does not occur on Despotiko. The existence of this high number of small quarries is interpreted that expedient use of nearby sources dominated the rock extraction during several periods.

1822. Quarrying and stone procurement at Rudiae (Lecce, Italy): evidence from the Messapian city walls and the Roman amphitheatre

Authors: Nicoletta Di Benedetto – Giuseppe Scardozzi (CNR-ISPC, Lecce) – Emma Cantisani (CNR-ISPC, Firenze)
Format: Oral

This contribution investigates quarrying and stone procurement at Rudiae (Lecce, Italy) through two major monuments from different periods: the Messapian city walls (4th century BCE) and the Roman amphitheatre (1st–2nd century CE). These large-scale building projects had a major impact on the exploitation of local natural resources. The Messapian fortifications were built predominantly with large blocks of local calcarenite attributable to the Calcareniti del Salento Formation, a lithotype available in the immediate vicinity of the city. Quarry areas around Rudiae–exploited from antiquity into modern times–provided an accessible supply that strongly conditioned construction choices, reflecting a procurement logic primarily driven by proximity, efficiency, and structural requirements. The amphitheatre, by contrast, reveals a more articulated selection of materials. While calcarenite was employed for several structural components, other elements–especially decorative features and high-status architectural details–were executed in pietra leccese, a more valued calcarenite historically preferred for prestigious architectural elements and sculpture. The nearest sources of pietra leccese lie approximately 1.5 km north-west of the site, implying a deliberate procurement choice that goes beyond purely functional and logistical considerations. Overall, the evidence points to a shift from predominantly local, convenience-based supply for the Messapian defences to a Roman-period strategy that integrates aesthetic aims with construction needs, offering new insights into changing supply chains and building practices at Rudiae.

1325. Marble in Roman epigraphy at the centre of the Mediterranean: data from Sicily

Authors: Alessia Coccato (University of Oxford) – Germana Barone – Paolo Mazzoleni (University of Catania) – Jonathan Prag (University of Oxford) – Devi Taelman (Vrije Universiteit Brussel)
Format: Oral

Despite stone being one of the most widely used epigraphic supports – or at least the one that survives most frequently – the material properties and geological provenance of inscribed monuments have rarely been integrated into epigraphic interpretation. This paper addresses this gap by examining the use of marble in Roman inscriptions from Sicily as part of a wider Mediterranean production and exchange network. The study forms part of the Crossreads project (ERC, H2020, GA No. 885040), which combines epigraphic studies with data from different disciplines, including petrography. Within Crossreads, the precise identification of rocks and therefore of their provenance becomes part of an interdisciplinary discussion investigating on the one hand the exploitation

of Sicilian rocks through time and on the other the long-distance trade routes involving Sicily in antiquity. A corpus of inscribed marbles from archaeological contexts across Sicily has been analysed systematically using a non-destructive protocol (pXRF and digital microscopy), complemented by targeted micro-destructive laboratory techniques (XRD, thin-section petrography, isotopic analysis, etc.) to assess their probable quarry sources. The results allow the identification of multiple marble varieties, revealing patterns in the selection of imported marble across different periods and epigraphic contexts. By situating these findings within recent quantitative and diachronic studies on Roman marble trade, the paper explores the interpretive potential and methodological challenges of systematic geology-derived analytical methods in epigraphy. By integrating material provenance into epigraphic analysis, Crossreads offers new insights into economic, cultural, and social history of Sicily and the Mediterranean in Roman times.

22. Living, working, and praying in newly discovered or re-discovered rock-cut sites of Messinia in the Peloponnese, Southern Greece

Authors: Sophia Germanidou (Hellenic Ministry of Cutlure)
Format: Oral

Rock-cut sites in the Peloponnese, southern Greece, are limited in number and have not been thoroughly investigated, or are still undiscovered. In this paper, I will share preliminary survey results from four such sites in the Messinia province: Drosopigi near Mila (central region), Agios Onoufrios in Methoni (in the SW), and Pyrgos and Kampinari (in the district of the Outer Mani peninsula). The sites are particularly distinct because, additionally, they served combined agro-pastoral, religious, and residential purposes. In this paper, I will talk about several issues on these archaeological sites, including: a) the environmental setting, particularly their direct connection to quarries and their access to water—whether natural or artificial, b) their hewn micro-structural features, such as multiple niches, mangers, and presses, c) evidence of their religious use, whether pagan or Christian, d) their topography, which may involve positioning that remains "hidden" yet effectively oversees settlements, passages and harbors. A further aim of this research is to explore the experiences of the people who worked, lived, and expressed their faith in these multi-functional yet marginal "hubs," thereby addressing issues related to the session's second sub-topic: tool marks in the rock-cut sites and the adjacent quarries; stone remains of micro-industrial operation; evidence of cult or funerary practices such as Byzantine paintings, crosses, tombs.

1811. Mount Altesina: Quarrying Practices and the Construction of a Ritual Landscape

Authors: Giuseppe Labisi – Anna Caiozzo (University of Orléans) – Simona Raneri (University of Florence) – Vito Trecarichi (Independent)
Format: Oral

This paper presents the results of the most recent archaeological investigations conducted at Mount Altesina, where ongoing excavations are directed by G. Labisi. The November 2025 campaign focused on the summit area of the mountain, characterised by a cave and a rock-cut architectural complex dated to the Classical period (6th–1st century BCE), interpreted as a place of worship connected with the cult of water and subsequently reused during the early Middle Ages. The structures rest directly on bedrock that was deliberately shaped and the mountain itself served as the quarry for their construction. The contribution examines the quarrying practices employed at Mount Altesina and their role in transforming the natural rocky outcrop into a cultic landscape. Particular attention is paid to the technical relationship between extraction marks, architectural features, and the geomorphology of the summit area, highlighting how quarrying was not merely functional but integral to the creation and long-term reuse of the site. The paper also considers the geological and geomorphological characteristics of the mountain which conditioned both the extraction strategies and the spatial organisation of the sanctuary. The contribution aligns with the session's focus on provenance, quarry organisation, and lived experience in extraction contexts, offering a site-based case study that combines material sourcing, cult practice, and diachronic reuse.

2130. Quarries, Coastlines, and Sea Routes: Stone Extraction and Maritime Supply Networks on the Karaburun Peninsula (Albania)

Authors: Krist Anastasi (Laboratory HiSoMA, University Lumière Lyon 2) – Adrian Anastasi (National Institute of Archaeology - Academy of Sciences of Albania)
Format: Oral

This contribution presents the results of three years of archaeological and geoarchaeological research focused on stone extraction and supply networks on the Karaburun Peninsula (southern Albania), an area characterized by the presence of major ancient quarries and strategic maritime routes. The study concentrates on three quarry areas: two large extraction zones in the area locally known as Mermeri and a third quarry located on the outer western side of the peninsula, within the Bay of Grama. All three sites preserve extensive evidence of extraction activities, including quarry faces, tool marks, and block detachment surfaces. It is hypothesized that their exploitation began in the early fourth century BC. The methodological approach is based on petrographic analyses carried out on stone samples collected from quarry blocks, from three altars dating to the Classical period, and from architectural structures and fortifications of major ancient coastal centers of the Hellenistic period, including Dyrrachium, Apollonia, Treporti, and Oricum. Comparative petrographic results demonstrate clear material correspondences, providing strong evidence for organized maritime transport of stone from Karaburun to these urban centres. In addition to extraction evidence, the quarry landscapes reveal features related to logistics and daily activity, such as loading areas adapted to local and prevailing wind conditions. The Bay

of Grama represents a particularly complex context, functioning not only as a quarry and anchorage point but also as a significant ancient sanctuary, as indicated by its numerous inscriptions. By integrating provenance studies with archaeological evidence from quarry landscapes, this contribution reconstructs stone supply chains and highlights the multi-functional character of quarry sites within ancient coastal and maritime systems.

1843. Worship in the quarry: evidence from Hierapolis in Phrygia (Turkey)

Authors: Francesca Di Palma – Giuseppe Scardozzi (National Research Council of Italy - Institute of Heritage Science CNR ISPC)
Format: Oral

In the Yokuşyol district of Pamukkale (Denizli, Turkey), near the ancient city of Hierapolis in Phrygia, a quarry face exploited for calcite alabaster extraction has been documented. The trench measures 32.5 m in length, 5 m in depth, and up to 2 m in width, oriented along a north-west/south-east axis. On its eastern side, a substantial outcrop of polychromatic breccia is visible, which was also partially quarried in antiquity. This context lies within the territory of Hierapolis, where extractive activities are associated with high-quality lithic materials. The contribution focuses on a relief carved into the eastern wall of the quarry, near its north-western entrance, extant until 2005 and subsequently removed by unknown parties. The relief, roughly rectangular (65 × 90 cm) and set within a shallow recess of about 5 cm, can be broadly dated to the Roman Imperial period. Despite partial erosion, three deities are identifiable: at the centre, Apollo Citharoedus, clad in a long chiton; to his right, Artemis Ephesia; and to his left, Heracles, depicted performing the gesture of dexíosis with Apollo. The iconography aligns closely with the local pantheon, as documented in monumental reliefs and coinage of Hierapolis from the 1st to the 3rd centuries AD. The presence of the relief within an extractive context allows reflection on the role of quarries as sites of cultic activity. Comparisons with ritual practice in Roman quarries suggest that the Yokuşyol quarry face may have combined productive and religious functions. The depiction of Heracles may be associated with the cult of Hercules Saxanus, attested in extractive contexts in Italy, the Western provinces, and the Aegean, while evidence from Asia Minor is comparatively limited. The Yokuşyol relief represents a rare example of the sacralisation of a quarry space in Roman Asia Minor, indicating interplay between economic activity and ritual expression.

797. Late Antique and Early Medieval stonemason workshops and quarries in Northern Dalmatia – new data from Galovac

Authors: Ana Maričić (University of Zagreb Faculty of Mining, Geology and Petroleum Engineering) – Mirja Jarak (University of Zagreb Faculty of Humanities and Social Sciences) – Ante Uglešić – Tomislav Fabijanić (University of Zadar, Department of archaeology) – Ivo Ćevid (University of Zagreb Faculty of Humanities and Social Sciences)
Format: Oral

The paper presents results of the petrographic analyses of stone monuments in the frame of the Croatian Science Foundation project „ The 8th and 9th century workshop production and imports at the territory of Northern Dalmatia“. The project includes research into church furniture and architectonic sculpture from the locality Galovac in the Zadar hinterland. The stone monuments from Galovac belong to three different phases: the 1st is from the Late Antiquity (6th century), the 2nd from the 8th and the 3rd from the middle of the 9th century. The paper includes the results of examination of the stone monuments from the first two phases (Late Antiquity and the 8th century), while the research into monuments from the 9th century has been planned in 2027. The goal of the project research is a better knowledge of the origin of limestone used for the sculptural monuments of the church building in Galovac. With regard to different styles of stone monuments, a recognition of quarries from which stone material originates could throw some light on stonemason workshops during Late Antiquity and the Early Middle Ages in Zadar and surroundings. A closer determination of stone material could suggest some differences in supply policy of the Zadar workshops during the periods under study. Petrographic analyses have included samples taken from stone sculpture of different phases and from quarries, especially from the quarries on the Zadar islands.

274 HERITAGE CROSSROADS: THE ETHICS AND POLITICS OF RESONANT PASTS

Theme: 3. Museums and cultural heritage in the era of ‘permacrisis’
Organisers: Andreas Pantazatos (University of Cambridge) – Helaine Silverman (University of Illinois Urbana-Champaign)
Keywords: ethics, politics, dissonance, heritage, legacy, museums
Format: Session with keynote presentation

SESSION ABSTRACT

A definitive feature of heritage institutions, broadly construed, in times of the so-called permacrisis is the demand for rapid responses to future conditions of perpetuating uncertainty. From the protection of heritage in violent conflict zones to the role of heritage institutions in identity building, post-colonial discourse and epistemic justice, these responses shape our relationship with the past and affect our lives. Hence, heritage is inextricably related to ethics and politics. Two realms that concern the impact of our actions

onto significant others and decision making that help us living together. The aim of this session is to initiate a dialogue between heritage, ethics and politics focusing on the consultative role of ethics and politics beyond dilemmas and hard cases. The proposed dialogue becomes viable if we allow space for the fluid nature of heritage in our ethical reflections and our political deliberations as we engage with the different stages of the heritage-making process. The session addresses, but it is not limited to, the following questions: • How do our conceptual tools in ethics and/or politics engage with heritage management in the permacrisis era? • How do we understand the role of ethics and/or politics in heritage institutions that need to respond to the demands of decolonisation? • What are the ethical and political demands of identity building for heritage institutions such as museums in times of political polarisation in Europe and beyond? • How do we engage with the ethical and political pressures of the legacy of cultural and environmental heritage disasters (such as violent conflict and natural disasters)? • How could heritage practitioners respond to the ethical needs and political demands of communities who live with difficult pasts?

CONTRIBUTION ABSTRACTS

2801. Keynote: Caring encounters: Understanding, care, and the heritage of the Leros Psychiatric Hospital

Authors: Andreas Pantazatos (University of Cambridge)
Format: Oral

Scholars recognise and advocate a relationship between heritage and ethics, but what is the heritage-making process, and how do the relationships work? I address this problem in three ways. First, I draw upon the oral history project I have conducted on the island of Leros in Greece, focusing on the heritage of the psychiatric hospital there in terms of the architectural, emotional, and social traces that have been left on Leros residents. Leros’ hospital has a multi-layered heritage whose ethical conundra have arisen through the heritage-making process. Second, theoretically, the dramatic case of Leros invites us to distinguish between interpretation and understanding. I argue that the latter is a prerequisite of the former. I highlight that lack of sufficient understanding leads to misapprehension of what is selected for interpretation, and this therefore undermines the significance of what is transmitted, as heritage, to the future. If heritage interpretation is about revealing relationships with the past, then lack of sufficient understanding can conceal who the significant other(s) are who might be harmed or benefitted during the heritage-making process. Third, I propose adoption of an informed ethics of care, which will provide the needed framework for helping us to navigate the ethical considerations that arise in heritage making overall. The ethics of care is rooted in the human capacity to form relationships with others and with the environment.

2802. Keynote: Anticipating loss, again: Exploring the ethical implications of the dialectical relationship between heritage and risk perception

Authors: Dacia Viejo Rose (University of Cambridge)
Format: Oral

Central to the idea of heritage is the need for it to be protected, which suggests the question: What does it need to be protected from? How we answer this is critical to informing safeguarding strategies for heritage and ethical considerations. The relationship between heritage and perceived risk has a dense history. It is also a productive dialectic through which our understanding of heritage and the challenges we face as societies mutually inform and shape one another. Since sociologist Ulrich Beck theorised about ‘the risk society’, we have seen a growing crescendo in crisis reporting. Has the perception of an ever-larger number of risks spurred a growth in the number of heritages we feel need to be protected? Has it changed our appreciation of what counts as heritage? This chapter addresses these questions by exploring the social aspects of risk as they relate to heritage. To do so, it brings in research on risk from various disciplines to focus on notions of fragility, transmission and the implications for heritage ethics, including the consequences of ingrained ways of responding to perceived risks, often in scenarios marked by a sense of emergency and urgency. To conclude, this contribution will propose an alternative approach to making ethical decisions about heritage in relation to risk.

2690. Heritage in/of/and Exception: Disaster, Risk and the Normalization of Crisis in the Aftermath of the 2023 Turkish Syrian Earthquakes

Authors: Ladin Akcacioglu (University of Cambridge)
Format: Oral

In the aftermath of the 2023 Turkish-Syrian earthquakes, this presentation explores the political dynamics of heritage management in the historic city of Antakya in southernmost Turkey and asks: what does it mean to “safeguard” heritage when its governance renders crisis a permanent and persistent condition of everyday life? In providing a historically grounded analysis of the recent earthquakes, the presentation aims to situate the 2023 earthquakes within the broader legacies of authoritarian emergency rule in contemporary Turkey. As an authoritarian mode of governance, ruling through exception can help to maintain control, assert authority, and, at times, legitimize state violence. Central to the argument is the awareness that whether some interventions appear to be political or politically neutral depends on epistemic positionality. When disaster risk is calculated solely on the basis of the destructive impact of physical hazards, risk-reduction strategies appear to be politically neutral, scientifically necessary interventions. There are two interconnected logics of exceptionality at play in such circumstances: the exceptionality of heritage value, in which heritage protection is framed as a moral responsibility. Here, the assumed neutrality and vulnerability of heritage simultaneously

help to conceal how heritage can be weaponized as a resource of political power. Finally, the exceptional nature of disasters, which obscures how post-disaster heritage governance reinforces the systemic vulnerabilities that transformed natural hazards into disasters in the first place.

236. State-driven Restitutions: Their Ethics and Politics, through Case Studies from the Spanish Civil War

Authors: Maria Ruigomez Eraso (University of Cambridge)
Format: Oral

Heritage restitution has become one of the most visible ethical museological responses to institutions' legacies of extraction. In this context, they are often framed as mechanisms of repair, or reconciliation, and even as a tool for decolonisation. What is often highlighted in these debates is the importance of restitution for transitional justice, the potential of an act of return for healing, and the need for reparations. However, research has focused less on the reasons why states decide to restitute proactively. This paper will draw on ongoing PhD research to examine restitution as a performative practice through which states actively reconstruct their relationship to resonant pasts. I will focus on how, in Spain, restitution acts of objects displaced during the Spanish Civil War are mobilised to produce specific narratives on the past. The paper asks: what values are prioritised in these restitution processes, who is authorised to speak for the past, and how does it shape collective memory in the present?

966. The Affective Aesthetics of Greek Marble: from Archaeopolitics to Artistic Cognition and Craftivism

Authors: Isavella Voulgareli (University of Cambridge)
Format: Oral

In recent decades, heritage scholarship has approached politics through questions of (mis)recognition and contestation over value. However, such work tends to highlight moments of formal decision making. What remains underexplored is ethical–political praxis at the mundane level. Drawing on the case of marble craftsmanship on the Cycladic Island of Tinos in Greece, I aim to investigate how ethics and politics are (re)enacted through micro-relations in heritage practice. Tinian marble craftsmanship (from 1662-1664 CE onward) has been mobilised to link ancient Greece (until 146 BCE) and the modern Greek state (est. 1832 CE). After the end of Ottoman rule, marble craftsmen from Tinos were brought in to rebuild the new capital (Athens) at the moment of national constitution. This act embedded invalid claims of uninterrupted transmission between past and present into the neoclassical architectural fabric of the state. Such ideological positions have since been reactivated at turbulent times (under authoritarian regimes, in subsequent folklorist revivals, and within resurgent far-right discourses), demonstrating how the craft operates as an archaeopolitical mechanism. Hence, it is in negotiation with these established tendencies that modern practice unfolds. I divide the paper into two sections. First, I examine how local practitioners introduce experimental methods that unsettle material assumptions in marble work. While this reorientation opens up alternative possibilities for the craft as an artistic medium, it also produces distinct forms of dissonance. Uneven distributions of power persist, with particular aesthetics of craft considered superior. Second, I address craftivism on the island in relation to the artistic shift of the practice. In this context, craftivism reworks relations of care between humans and non-human tools, technologies and environments. I emphasise that such small-scale activities enable material-affective attachments that stretch traditional perceptions of resistance and therefore transform ethical and political coalitions in heritage practice.

2705. Heritage-Making and Imaginary Governance: The Case of China's National Archaeological Site Parks

Authors: Junting Lyu (University of Cambridge)
Format: Oral

In the face of the permacrisis, how heritage institutions respond to ongoing challenges and increasing instability has become a critical issue. This paper draws on social imaginaries-the background frameworks through which communities make sense of their social existence-as a theoretical lens for examining heritage-making. It proposes rethinking heritage-making as a form of imaginary governance, through which collective ideals, future visions, and social expectations are organised and mediated. This study examines the consultative role of ethics and politics in heritage practices by focusing on how heritage institutions mediate social expectations amid processes of identity formation and ongoing social transformation. It argues that heritage institutions operate as expectation-mediating mechanisms across everyday, institutional, and national scales, embedding and enacting ethical and political positions within heritage landscapes. Empirically, the paper draws on China's National Archaeological Site Parks (NASP) project as a case to demonstrate how imaginary governance operates through institutional forms and unfolds in everyday settings. By examining both the policy framework and heritage practices of selected NASP sites, the paper shows how particular ways of perceiving the past and understanding contemporary identities are institutionally configured and embedded in everyday landscapes through heritage-making processes, thereby shaping how collective futures are imagined.

1746. Copyright as Heritage-Making: Ethical Responsibility in the Digital Museum

Authors: Porin Šćukanec Rezniček – Matko Gospodnetić (Archaeological Museum in Zagreb)
Format: Poster

Museums increasingly operate at the sensitive intersection of cultural heritage preservation, digital accessibility, and ethical stewardship. In the context of the ongoing permacrisis – marked by accelerated digitalisation, institutional precarity, and competing demands for openness – the dissemination of collections through online platforms has transformed the protection of authors' rights from a purely administrative task into a significant ethical and political responsibility. This poster explores the challenges of copyright management in museums, focusing on the balance between public access and the rights of creators within the framework of Heritage Crossroads. It examines key risk areas intensified by the digital turn, including the digitisation of legacy archives, open-access policies, and the ethical use of documentation. Through selected case studies, the contribution highlights how proactive rights management – via transparent licensing practices and internal ethical guidelines – functions as a form of institutional decision-making within the heritage-making process. Ultimately, the poster argues that navigating copyright is not merely a legal requirement but a fundamental ethical and political obligation. In the context of resonant pasts, copyright management shapes how heritage is made visible, interpreted, and shared, and is therefore essential for maintaining trust between cultural institutions, creators, and the public. Responsible approaches to copyright ensure that the transformation of legacy data into digital heritage experiences remains both ethically grounded and socially accountable.

275 ARCHAEOBOTANY MEETS HISTORICAL ARCHAEOLOGY

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Daniel Fuks (Ben-Gurion University of the Negev) – João Tereso (University of Porto) – Ali Caimi (University College London)
Keywords: historical archaeology, archaeobotany, history, agriculture, crops, food
Format: Regular session
Affiliation: Crop History Community

SESSION ABSTRACT

Historical archaeology offers the prospect of comparing historical and archaeological records, exploring the instances and reasons for their mutual reinforcement or disagreement, and thus attaining more detailed, nuanced understandings of the past. Such prospects are high in the study of agricultural history, as exemplified by numerous historical archaeological studies of agricultural installations, landscapes and plant remains, alongside textual and iconographic evidence. However, with the development of archaeobotany, and its increasing application to historical (as opposed to prehistoric) periods, integration of these sources has not kept pace. For example, the original studies of transformations like the Columbian Exchange, the Islamic Green Revolution, and Roman Agricultural Diffusion were conducted by historians before archaeobotanical evidence was widely available for these periods. Today, many archaeobotanical studies abound but relatively few historians work on textual evidence for the agricultural crops and practices that form the basis of these phenomena. This session aims to encourage multidisciplinary integration by inviting proposals that combine any or all the following types of sources: archaeobotany, historical-archaeological studies, textual and iconographic evidence. Papers may focus on a particular crop plant, a series of crops, agricultural practices, or a combination thereof. Both specific case studies and broader syntheses are welcome.

CONTRIBUTION ABSTRACTS

438. Moving plants in the 1st millennium CE Mediterranean and Middle East

Authors: Daniel Fuks (Ben-Gurion University of the Negev)
Format: Oral

One of the more interesting and debated topics in agricultural history is the Islamic Green Revolution thesis (IGR), discussed by scholars for decades. The counterpoint to the IGR is Roman Agricultural Diffusion (RAD), long appreciated by Greco-Roman historians and more recently by archaeobotanists. Most recently, a recent special issue of Vegetation History and Archaeobotany sheds light on these phenomena through several regional archaeobotanical and historical syntheses covering much of the Mediterranean, Middle East and beyond. Collectively, this body of work demonstrates that the first millennium CE was totally unprecedented in the long-term history of agriculture in terms of the number of new crop introductions. Although some new introductions had major impacts in some regions, most did not replace familiar staple crops, supporting a gradualist model of crop diffusion. Methodologically, the richness of the textual record and its relationship to the archaeobotanical record indicates high potential for synergies between these key sources on ancient plants.

179. Identify Chinese bottle gourd and its useful relatives through phytolith analysis

Authors: Yong Ge (Institute of Vertebrate Paleontology and Paleoanthropology)
Format: Oral

Chinese bottle gourd is one of the most useful Cucurbitaceae plants in the world, especially in China, as it is both useful as a container, and also has blessing meanings. However, such plant remains are uncommon in archaeological contexts, similar to other famous plants: common in historical textile records but rarely seen. So we are seeking a new way to evidence their presence: to use phytolith

analysis. Phytoliths are more likely to be preserved than soft plant tissues in archaeological contexts due to their inorganic nature, and we have found that Chinese bottle gourd and its useful relatives all produce diagnostic morphotypes in the rind, which can be distinctly discriminated from phytoliths produced in leaves and veins. The spheroidal scalloped phytoliths are the main type of the rind, while acute, polygonal, tracheid phytoliths are the main types of the leaves and veins. The spheroidal scalloped phytoliths showed size variance in different plants, which could further help in a more precise identification. Our study showed the potential of phytolith analysis in understanding the history of formerly uncommon plants in archaeobotanical studies.

1624. Plants, Texts, and Practice in Al-Andalus: Integrating Archaeobotanical, Legal and Agronomic Sources

Authors: Leonor Peña-Chocarro – Josep Suñé-Arce (Instituto de Historia, CSIC) – Antonio Peralta-Gómez (Instituto de Historia, CSIC | University of Granada)
Format: Oral

This paper explores the integration of archaeobotanical data with legal and agronomic historical sources to deepen our understanding of plant use in Al-Andalus (the Muslim-ruled territory of the Iberian Peninsula). While historians have traditionally focused on textual records and archaeologists have often overlooked archaeobotanical evidence, combining these approaches allows for a more nuanced reconstruction of past practices. Drawing on novel plant remains recovered through the MEDAPP project and a carefully selected corpus of legal and agronomic texts, we examine which species were cultivated, consumed, and valued in medieval Iberian societies. By systematically comparing material and textual evidence, we can identify both correspondences and discrepancies, revealing patterns of cultivation, dietary practices, and economic and social significance that neither source alone could fully illuminate. This interdisciplinary methodology demonstrates the complementarity of archaeobotany and historical written sources, offering fresh insights into everyday life, agricultural management, and plant-related practices in Al-Andalus, and highlighting the broader potential of combining plant remains and textual sources in archaeological research.

2079. Texts and archaeobotany: the case of fruit trees in early medieval North-West Iberia (10th-11th centuries)

Authors: María Valero-Rodríguez (Instituto de Historia, CSIC | Universidad Autónoma de Madrid) – Antonio Peralta-Gómez (Instituto de Historia, CSIC | Universidad de Granada) – Julio Escalona – Leonor Peña-Chocarro (Instituto de Historia, CSIC)
Format: Oral

This paper examines the presence, management and use of fruit trees in North-West Iberia during the Early Middle Ages (10th-11th centuries), through an interdisciplinary approach that combines the information derived from archaeobotany with that of Latin texts. On the one hand, the study primarily focuses on notarial records of property transfers -such as donations, sales, and exchanges-, in which fruit trees are cited as a common feature of the agricultural landscape. These texts make it possible to identify the main species, and to envisage how they were integrated in the landscape -their distribution, economic value, etc. They are, though, not free from biases derived from the very nature of those legal records. On the other hand, archaeobotanical data provide an alternative view of fruit-tree cultivation. By comparing these two data sets an integrated, more complex view emerges that boosts our understanding of agricultural practice and social dynamics associated in early medieval North-West Iberia.

1846. Reassessing Medieval Crop History through Archaeobotany and Documentary Sources: rural communities and nobilty in Central Portugal

Authors: Catarina Magalhães (CITCEM, Center for Transdisciplinary Research Culture, Space & Memory, U. Porto) – Luís Seabra (ISEM, Université de Montpellier, CNRS, IRD, Montpellier | CIBIO, Centro de Investigação em Biodiversidade e Recursos Genéticos | BIOPOLIS Program in Genomics, Biodiversity and Land Planning) – João Tereso – Catarina Tente (NOVA University of Lisbon, Institute for Medieval Studies) – João Lobão – Maria Ferreira (Município de Trancoso)
Format: Oral

Research on medieval Portugal has long been shaped by a pronounced seigneurial bias, owing to the predominance of elite-produced written sources such as foral charters and other contractual documents. As a result, lordly centres are far better documented than rural communities, which have only recently become a significant focus of archaeological research. In the inland region of central Portugal, however, a growing number of rural sites dated between the ninth and twelfth centuries are now known, several of which have undergone archaeobotanical analysis. In 2021-22, storage deposits were excavated in the castle of Trancoso, a comital centre occupied during the same period. The archaeobotanical study focused on two sequential fire-related destruction layers, with radiocarbon dates spanning the tenth and twelfth centuries. Systematic sediment sampling produced well-preserved assemblages dominated by a diverse range of cereals and pulses, with notable differences between the two phases. This study integrates unpublished archaeobotanical data from the castle storage contexts and regional contemporaneous rural settlements, together with archaeological and documentary sources, to investigate production and consumption dynamics within the medieval agrarian system. By contextualising the results within broader settlement histories and regional frameworks, it seeks to reconstruct patterns of crop use, management, and distribution across space and time. The approach contributes to the history of crop cultivation by

moving beyond a narrow focus on staple cereals to encompass a wider spectrum of cultivated plants, including pulses and other under-represented taxa. It also considers how historiographical and archaeological biases have shaped which crops become visible in prevailing narratives of medieval agriculture. Through this interdisciplinary perspective, the study demonstrates the potential of combining material and textual evidence to refine our understanding of agricultural practices and the diverse plant economies that sustained medieval societies.

439. Can interdisciplinary crop history research promote present-day agricultural biodiversity?

Authors: Daniel Fuks (Ben-Gurion University of the Negev)
Format: Poster

Biodiversity loss is a global challenge, directly associated with agricultural expansion of a small number of commodity crops. A recent review by the Crop History Consortium (CHC) indicated that selective biases in modern agriculture may replicate themselves in certain fields of archaeology-based crop history research. After exploring this evidence, the present paper will draw on local case studies to ask whether the direction of influence can go the other way. That is, can research on ancient agriculture contribute to present-day biodiversity conservation efforts and agricultural sustainability? Indeed, history, archaeology and related disciplines are uniquely poised to offer a deep historical perspective on how some crops became marginalized while others colonized the globe, and to examine the chronological depth of local growing conditions, agricultural traditions and sustainability. Such data on ancient crops, their past geographic distributions, domestication status, local significance and infraspecies diversity could be of great value for designing policies to expand and promote agricultural biodiversity.

276 PLAYING THE PAST: INTERDISCIPLINARY PERSPECTIVES ON ANCIENT BOARD GAMES, SOCIETY, AND LEARNING

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Barbara Care (University of Lausanne) – Theodora (Dorina) Moullou (Hellenic Open University | Ministry of Culture)
Keywords: Board games, Archaeoludology, Cultural transmission, Digital heritage, Museum education
Format: Regular session

SESSION ABSTRACT

In recent years, the archaeology of board games has evolved into a dynamic and truly interdisciplinary field, drawing together archaeology, classics, anthropology, computer science, and museum studies. Once regarded as a marginal or antiquarian pursuit, the study of ancient play now offers a productive framework for investigating human behaviour, communication, and cultural transmission. Games were deeply integrated into the social and intellectual fabric of ancient societies. They mirrored hierarchies, expressed values, and mediated identities; at the same time, they fostered skills such as strategic reasoning, numeracy, and literacy. The material traces of play — boards carved in stone, portable sets, dice, and tokens — reveal how games travelled across regions, adapted to local traditions, and acquired new symbolic meanings. Far from being mere pastimes, they often intersected with politics, religion, and education, reflecting broader notions of order, fate, and competition. This session invites contributions adopting interdisciplinary approaches to board games and gaming artefacts across cultures and periods, from prehistory to late antiquity. We particularly welcome papers combining archaeological, historical, and digital perspectives, including AI-assisted simulations, 3D documentation, as well as studies addressing the manufacturing, use, and social functions of games. A further focus of the session concerns the potential of ancient games in museum and heritage education. Increasingly, reconstructed games are being integrated into exhibition design and public programmes, fostering inclusive and hands-on engagement with the past. By examining games as both material and intellectual artefacts, the session aims to bridge research, digital experimentation, and educational practice — showing how the study and recreation of ancient play can connect academic inquiry, cultural heritage, and public learning in innovative ways.

CONTRIBUTION ABSTRACTS

270. To play or not to play: Possible board game accessories from the Bronze Age in northern Hungary

Authors: Szilvia Guba (Hungarian National Museum - Castle Museum Szécsény) – Nicklas Larsson (Hungarian National Museum - National Archaeological Institute)
Format: Oral

The number of Bronze Age artefacts from the Carpathian Basin that can be associated with gaming accessory, particularly board games, is relatively limited. The identification of certain clay objects of uncertain function as potential game boards has been proposed, suggesting that they may represent variants of the so-called senet and mehen games. However, their identification and classification in this context remain highly challenging. The recognition of board game pieces is even more difficult than that of game boards, as they are typically smaller objects. Among these, many may have been used in an ad hoc manner, with neither their

raw material nor their method of manufacture explicitly indicating their function as gaming accessories. In many cases, they could be made from materials found in nature such as pebbles, crops, seeds and fruits, or even fragments of dried manure. A substantial assemblage comprising over 700 ceramic and stone discs, along with polished sheep or goat bones (astragalus and metacarpus), was excavated in 2022 at a single Bronze Age site in northern Hungary. These objects have been recovered from both funerary and settlement contexts. The circular, flat, unperforated discs with polished edges, which vary in size and colour may be identified as board game pieces. These possible tokens were produced secondarily from the side walls of broken ceramic vessels, or sandstone. Additionally, polished artefacts crafted from the astragalus or other foot bones (such as the phalanx and metacarpus) of various small ruminants have been documented, with several examples featuring deliberate notches. This paper provides a concise overview of the site, the typology of the artefacts, their technological characteristics, and a possible interpretation of their role in board games.

1096. Weiqi and Senet: Identity Politics and Religious Morality Behind Race and Territorial Competition

Authors: Zhangheng You (School of history and culture heritage Xiamen University)
Format: Oral

Games functioned not only as material expressions of intellectual thought, but also as extensions of ideas about life and death, moral values, and social hierarchy. Focusing on Weiqi (Go) in early medieval China, this paper examines the game's ethical and philosophical connotations, its symbolic role among the aristocratic elites of the Northern and Southern Dynasties (4th–6th centuries CE), and the relationship between systems of game ranking and broader structures of social classification. Archaeological finds of board games from elite tombs of this period, together with textual accounts of 棋品("ranks of Go skill"), provide a material and documentary basis for exploring how Weiqi became embedded in aristocratic culture. During the Northern and Southern Dynasties, the Nine-Rank System (九品官人法) institutionalised social stratification by grading individuals according to pedigree and moral reputation, reinforcing the distinction between elite and common. Within this context, Weiqi emerged as a refined aristocratic practice, and the ranking of Go skill gradually shifted from a purely technical evaluation to a symbolic marker of social prestige: higher chess ranks increasingly signified higher social identity. Some rulers of non-aristocratic origin even cultivated Weiqi as a means of attracting elite support and integrating into aristocratic networks. The game also served as a medium for the performance of character and composure, exemplified by narratives such as Xie An's calm continuation of a Go match following the victory at the Battle of the Fei River. A comparative perspective is introduced through the ancient Egyptian board game Senet, closely associated with funerary ideology and afterlife judgment in the Book of the Dead. Contrasting Senet as a race game with Weiqi as a territorial strategy game highlights how different forms of play carried distinct moral and symbolic meanings. The paper concludes with reflections on incorporating gaming experiences into museum exhibition practice.

1778. Pieces of gaming equipment in funerary contexts in Roman Pannonia

Authors: Linda Dobosi (HUN-REN - ELTE Research Group for Interdisciplinary Archaeology | ELTE Eotvos Lorand University)
Format: Oral

Pieces of Roman gaming equipment are found in various contexts: most often during settlement excavations, in graves or sometimes as ritual offerings. This study discusses the gaming paraphernalia deposited as grave goods in Roman Pannonia along with their possible symbolic meanings and their role in communicating a deceased person's identity. Pieces of gaming equipment turn up regularly in burials all over Roman Pannonia. Mostly known from inhumation burials of the 4th century AD, they are occasionally observed in earlier cemeteries as well, in both civilian and military contexts. An overview of the published material reveals that gaming paraphernalia in graves are largely limited to just a few dice or counters in a burial and are usually present in only one or two burials within a necropolis. Complete gaming sets are extremely rare in Pannonia, the sole evidence so far being a set for ludus duodecim scriptorum in Scarbantia (Sopron, Hungary). Pieces of gaming equipment tend to be placed in the richest burials in cemeteries, in adult male burials more often than in female or child burials. As observed in earlier studies, it seems to be a cross-cultural phenomenon that playing board games served as a symbol of elite identity. Placing pieces of gaming equipment in a grave underlined the high status of the deceased and might also have been indicators of their intelligence, leadership qualities or strategical skills.

1394. Did Roman legionaries and the Germanic elite play ludus latrunculorum on the borders of the province of Pannonia?

Authors: Branislav Kovár (Institute of Archaeology, Slovak Academy of Sciences) – Summer Courts (Department of Archaeology, University of Reading) – Tim Penn (Department of Classics, University of Reading)
Format: Oral

Interaction between the Roman army and Germanic tribes did not take place only on the battlefield. Exchange between Romans and Germanic tribes also took place through other forms of cultural interactions, including boardgames. There were several Roman military camps on the border of the province of Pannonia (today Slovakia). Contacts between the Germans and the Romans also took place through strongholds and trading posts. Evidence of boardgames has been found at several sites of this type in Slovakia. In addition to individual gameboards, archaeologists have also discovered sets of tokens, which were often found in the graves of Germanic elites. Both the Germanic and Roman peoples played games using similar equipment, and dice and counters are likely to have been produced within the Empire, then exported. Along the limes, inside the Roman Empire, Ludus Latrunculi, a strategy

boardgame played on a grid-shaped board without dice, was particularly popular, but the presence of dice suggests people also played other games. The presence of similar counters and dice in the Barbaricum, outside of Roman territory, suggests participation in a similar tradition – it is possible, though not certain, that people beyond the empire's borders played a similar game. The only board from Slovakia outside of Roman territory, at Poprad, is a grid, but it may have been too big to play Latrunculi. The Slovakian data fills a gap in the published record and situates this material within the published record from Britain in the west to Egypt in the east. Our presentation will not only focus on archaeology, but in the second part of the talk, we will also focus on presenting the issue to the general public through organizing various workshops. Playing Ludus Latrunculi is more than suitable for introducing the life of the Romans and Germans to a wider audience.

1615. Games and Cultural Connectivity in Kyivan Rus': Archaeological and Textual Insights

Authors: Natalia Khamaiko (Institute of Archaeology of the National Academy of Sciences of Ukraine)
Format: Oral

Board games in Kyivan Rus' (10th–13th centuries) provide evidence for cultural connectivity, social hierarchy, and intellectual practices in medieval Eastern Europe. Archaeological finds together with written and epic sources reveal networks linking Rus' with Scandinavia, Byzantium, and other regions, demonstrating the movement not only of objects but also of ideas, skills, and social models. Board games were not characteristic of Slavic material culture prior to the arrival of the Rus' and their Scandinavian connections. While children's and physical games are universal, board games typically emerge in socially stratified societies. In Kyivan Rus', their appearance coincides with the consolidation of elites and new forms of social distinction. Gaming sets made of stone, glass, precious materials, and walrus ivory signalled high-status ownership. Written sources associate these games with princes and warriors and describe exceptionally high stakes, highlighting their prestige and social significance. Finds from the emporium of Shestovytsia and from urban Kyiv indicate that board games were primarily embedded in elite and urban environments rather than rural life. The shift from hnefatafl in the 10th century to the spread of chess in the 12th century reflects changing cultural orientations and intellectual fashions. At the same time, the persistence of hnefatafl in Scandinavian-associated contexts in Kyiv Podil serves as a marker of continued long-distance contacts and international exchange networks. Board games thus acted as instruments of elite identity, strategic learning, and cross-cultural interaction. They formed part of the social language through which status, affiliation, and cultural knowledge were expressed and negotiated in medieval Rus'.

1258. Nothing but Time: Anthropological Notions of Play and Gaming at Archaeological Sites of Confinement

Authors: Alexander Anthony (Syracuse University)
Format: Oral

Play and gaming are an essential part of what it means to be human. Far from being merely a trivial past-time, games create material places that become nodes of meaningful social interaction, a structured environment in which to alleviate interpersonal tensions, and an opportunity to demonstrate skill and mastery of indeterminacy in a bounded setting reinforcing and potentially restructuring social hierarchies. Additionally, games often manifest materially - the traces of which abound in the archaeological record and offer insight not only into the nature of being human, but to the interaction between humans and non-living agents, as can be seen with rain on a football pitch, or an errant strike of a pool cue due to an uneven billiards table. Further, when skilled players are well matched, play has the potential to alter our fundamental experience of time itself for participants and observers alike. This presentation draws from discoveries of gameboards made by the Central Mediterranean Penal Heritage Project (CMPHP) during analysis of a 3D capture of the Prigione del Castello at the medieval city of Noto Antica, Sicily, modern ethnographic observations, and other archaeological recoveries at sites of confinement. The goal is not to answer whether people in confinement play, instead it is to explore how modern anthropological notions of play and gaming can be applied to the now abundant archaeological evidence to better understand the lived experience of confinement in the past and present.

196. LUDITECH: Integrating Tactile Sensing and Computational Modelling in the Archaeology of Ancient Board Games

Authors: Barbara Care (University of Lausanne) – Dorina Moullou (Hellenic Open University | Greek Ministry of Culture and Sports)
Format: Oral

The LUDITECH (LUDIc + TECHnology) project, recently funded by the Swiss National Science Foundation (SNSF) under the Spark scheme, introduces a new methodological framework within the emerging field of digital archaeoludology. The project aims to reconstruct the material and experiential dimensions of ancient board games by combining tactile sensing technology, computational modelling, and traditional archaeological analysis, Previous research has relied primarily on textual references, iconography, ethnographic analogy, or on computational simulations of rules. These approaches, while informative, offer limited insight into the physical traces of use preserved on the artefacts themselves. LUDITECH employs high-resolution tactile sensors capable of detecting sub-micron wear, scratches, and residues, thereby generating a new category of empirical data that documents the interaction between players and boards. The study follows three interrelated research axes: 1. Validation of rule hypotheses by comparing simulated wear "heatmaps" with observed micro-traces; 2. Functional assessment, distinguishing objects used for play from those serving

ritual or decorative purposes; 3. Manufacturing analysis, identifying tool marks and craftsmanship to infer production methods and skill levels. Through the integration of tactile data and computational experimentation, the project reorients the study of ancient games from rule reconstruction toward questions of materiality, performance, and cultural context. Beyond ancient board games, the same methodology offers significant potential for investigating other categories of artefacts, such as inscribed or worn surfaces, and for developing interactive museum applications that connect the public with the sensory dimensions of the past.

98. Playing for the Afterlife: Senet as a Tool for Public Engagement with Ancient Egypt

Authors: Porin Šćukanec Rezniček (Archaeological Museum in Zagreb)
Format: Oral

The ancient Egyptian board game Senet occupied a unique position at the intersection of play, religion, and social practice. Archaeologically attested from the earliest periods in Ancient Egypt onward and richly represented in both material culture and iconography, Senet developed from a leisure activity into a game imbued with cosmological and eschatological meaning. Its boards, pieces, and textual associations reflect broader Egyptian concepts of order, fate, and the journey to the afterlife. This presentation explores Senet not only as an object of archaeological and historical inquiry, but also as an effective medium for public engagement and museum education. Drawing on a series of workshops and public presentations held at the Archaeological Museum in Zagreb, at the science-fiction and fantasy convention Sferakon, and in various educational and informal cultural settings, the contribution examines how reconstructed gameplay can make Ancient Egypt more approachable to diverse audiences. Through hands-on interaction, participants encounter abstract concepts—such as Maʿat, chance, divine intervention, and social hierarchy—through embodied experience. i.e. playing the game, rather than purely textual or ex cathedra explanations. By contextualising Senet within its archaeological, religious, and cultural frameworks while simultaneously reactivating it as a playable game, these activities demonstrate the potential of ancient board games to bridge scholarly research and public learning. The presentation argues that Senet functions as both a material artefact and an intellectual interface, capable of fostering curiosity, dialogue, and critical engagement with the ancient past. In line with current interdisciplinary approaches to the archaeology of play, this case study highlights how ancient games can serve as powerful tools for inclusive, experiential heritage interpretation and museum practice.

309. "Games and Toys in Ancient Times" - an Interdisciplinary Program for Kids and Students. Theory, and Methods (NAIM-BAS)

Authors: Kaloyan Pramatarov (National Archaeological Institute with Museum)
Format: Oral

"Games and Toys in Ancient Times" is one of the successful programs for working with preschoolers and primary school students. Applied by the museum pedagogues at the Archaeological Museum – Sofia, it combines three modules: 1. a short movie with explanation of what Archaeology is, what the essence of the archaeological profession is, what the museum is, and why all these artifacts are displayed to the attention of the broad public; 2. Specialized lectures and concomitant discussions dedicated to the games and toys in prehistoric Europe, ancient India, Egypt, Thrace, Greece, Rome, and Medieval Bulgaria; 3. Interactions with replicas of ancient toys and practicing various ancient games (rotta, draughts, alquerque, mancala, etc.). The present report describes the theoretical bases of these pedagogical technologies for game interactions. It lists and explains the methods used by museum specialists, emphasizing a personality-based approach, the social aspects of the educational process, and interactivity with archaeological materials, artifact replicas, and restored ancient board games and toys.

388. Ancient Board Games and Museum Engagement

Authors: Ema Kosnica (Archaeological Museum in Zagreb)
Format: Oral

Ancient board games offer a fascinating glimpse into everyday life in the past. They were not only a form of entertainment, but also a way for people to spend time together, learn, and communicate. Because of this, they are especially well suited for presentation in museums. This paper looks at how knowledge about ancient games, gained through archaeology, can be brought closer to today's visitors through playing, reconstructing old games, and creating new ones inspired by the past, using examples from the Archaeological Museum in Zagreb. Drawing on archaeologically attested games such as senet, mill, and tris, the museum has developed a public programme that integrates reconstructed ancient games into exhibition-related events and educational activities. Within the programme Evenings of (Ancient) Board Games (Večer (drevnih) društvenih igara), visitors actively engage with games connected to archaeological collections, learning about their material evidence, rules, and social contexts through hands-on experience rather than passive observation. A central focus of the paper is the development of the Archaeological Museum in Zagreb's first original board game inspired by ancient Egypt. Designed on the basis of archaeological and historical research, the game functions simultaneously as an educational tool, a museum programme activity, and a commercially available museum souvenir. Its dual role highlights the potential of board games as intellectual artefacts that mediate between research, public learning, and sustainable museum practice. By examining reconstructed and newly designed games as interpretative media, this paper argues that ancient board games offer a powerful framework for connecting archaeological research, museum education, and contemporary audiences, while fostering inclusive, participatory, and reflective engagement with the past.

1263. Loaded Luck: A Mercury-Loaded Gaming Dice and Inclusive Heritage at Roman Mageroy

Authors: Valentina Limina (UCLouvain | Arc-Hab) – Sylvie Collignon – Anémone Peteers (Arc-Hab) – Thomas Daniaux (University of Reading) – Jean-François Baltus (Parc naturel Haute-Sûre Forêt d'Anlier)
Format: Poster

The Roman villa of Mageroy (Habay, Belgium) has been investigated through archaeological excavations conducted since 1984 by the non-profit organisation Arc-Hab. Occupied from the second half of the 1st century to the end of the 4th century AD, the site comprises an extensive agricultural courtyard (3 hectares), enclosed by a perimeter wall and flanked by several ancillary buildings. The complex also includes a masonry-lined basin approximately 65 m in length, constructed in the valley bottom, while the residential sector is characterised by a private courtyard to the north. A remarkable gaming artefact - an ivory dice - was recovered from a 3rd-century deposit located between the residential courtyard and the basin. Accidentally fractured during excavation, the object revealed the presence of minute droplets of mercury. Measuring only 9 mm per side and dated to the 3rd century AD, this dice constitutes the only known Roman example of a mercury-loaded gaming dice. It provides rare and direct material evidence of cheating practices associated with dice games, which were both widespread and socially ambivalent in Roman society. As such, the artefact offers valuable insights into the social dynamics of play, chance, and risk in the ancient world. Beyond its archaeological importance, the Mageroy mercury dice now serves as key reference point for interdisciplinary heritage interpretation and learning. The site is currently part of the LEADER project "Patrimoine en-jeux: Exploring Heritage through Play and Inclusion", which brings together multiple regional partners and seeks to approach heritage through gaming and inclusive practices. Within this framework, the die has inspired the development of an inclusive role-playing game that combines archaeological evidence, historical interpretation, and participatory learning. This initiative aims to integrate ancient gaming practices into educational and public outreach programmes, fostering new forms of engagement and reaching more diverse audiences through play-based heritage mediation.

2614. Ancient Board Games of the Northern Black Sea in Museum and Educational Practice

Authors: Mariia Lobanova (Odesa Archaeological Museum of the National Academy of Sciences of Ukraine)
Format: Poster

At the beginning of the full-scale invasion, the Odesa Archaeological Museum of the National Academy of Sciences of Ukraine was closed to visitors, its exhibition dismantled, and public activities suspended. This led to a reconsideration of the museum's role as an educational and public engagement space. Within the framework of the grant programme "Heritage. Space for Work," the exhibition about "Zmiinyi Island: The Island Protected by the Gods" was opened, dedicated to the archaeological heritage of Zmiinyi Island - the site of the ancient Temple of Achilles and archaeological research conducted since the 1840s. A series of educational events was held, including the interactive programme 'Replay Achilles. An Evening of Ancient Board Games.' Student interns from Odesa National University helped prepare the event. Limited funding required the use of simple game replicas, and the game rules were adapted for a museum audience. The event concept was based on finds from the Island - especially glass gaming pieces from the 1st–2nd centuries CE - and on materials from other Northern Black Sea sites (Olbia, Tyras, Nikonion). This emphasized the local context for how board games spread in the ancient world. The event featured an introductory lecture and practical gameplay using reconstructed sets. The programme, conducted at multiple venues including the Odesa Archaeological Museum, schools, orphanages, and festivals, effectively engaged diverse audiences, merging academic insight with hands-on experience to deepen understanding of southern Ukrainian archaeology. Active student involvement linked education with practical cultural heritage work. Reconstructing ancient board games proved a successful way to foster archaeological knowledge in museums, educational institutions, and outreach settings.

277 THE FLUVIAL ANTHROPOSPHERE: PAST INTERVENTIONS, LEGACY IMPACTS, LESSONS LEARNED

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Laszlo Ferenczi (Charles University, Prague) – Rowin Van Lanen (The Cultural Heritage Agency of the Netherlands) – Martina Bergamo (Ca' Foscari University of Venice) – Jacopo Paiano (University of Trento)
Keywords: fluvial/coastal archaeology, landscape archaeology, geoarchaeology, wetlands, climate change, adaptation
Format: Regular session
Affiliation: Medieval Europe Research Community - MERC

SESSION ABSTRACT

River basins are in focus of climate adaptation strategies [1]. Current and future adaptation and restoration plans depend much on informed decisions based on substantial knowledge about historical conditions [2]. Wetlands preserve valuable environmental archaeological information; however, they are the most vulnerable parts of riverine/coastal landscapes significantly affected by climate change [3]. In addition to the integration of different hydrogeomorphological approaches—paleohydrography, paleohydrology, paleohydraulics—holistic, multidisciplinary studies are necessary to analyze complex paleoenvironmental dynamics and

linkages between climate, river environments, and societies [4]. To contribute to this goal, this session invites papers that address the issues of environmental challenges, forcing mechanisms, exposures, hazards, disasters, crises, long-term environmental impacts of past interventions, in connection with problems of socio-economic vulnerabilities, coping mechanisms, responses, adaptation, risk mitigation, resilience at the various stages of the Holocene timeline of human influence, i.e. domestication, agriculture and irrigation, hydraulic engineering, intensification of technological impact [5],[6]. In line with past EAA sessions on the 'Fluvial Anthroposphere', we are primarily looking for landscape archaeological and environmental archaeological contributions working on the basis of different types of evidence and analytical methods. In view of the holistic approach, however, papers which comply with other themes of the conference (material cultural aspects, agency, connectivity, modelling and computational methods, etc.) are also welcome, in case they specifically focus on fluvial/coastal environs. In addition to the agenda of previous years' sessions, contributions on the meta-analysis of sedimentary archives—assessing baseline biophysical conditions and contrasting different deviations in riverine/coastal contexts [7],[4]—as well as on segmenting, contrasting, comparing fluvial and coastal areas as lived spaces, based on criteria of choice, are particularly welcome. References: [1] https://doi.org/10.1111/j.1475-4959.2006.00221_5.x [2] https://doi.org/10.1186/s12302-021-00561-4 [3] https://doi.org/10.15184/aqy.2022.112 [4] https://doi.org/10.1016/j.quaint.2009.03.009 [5] https://doi.org/10.3390/quat1030021 [6] https://doi.org/10.1007/978-3-031-11181-5 [7] https://doi.org/10.1890/1540-9295-12.8.427

CONTRIBUTION ABSTRACTS

1833. Safe and Sound: Stability and Adaptation in Riverine Landscapes. Comparative Case Studies from Northern Italy

Authors: Jacopo Paiano (University of Trento) – Martina Bergamo – Diego Calaon (Ca' Foscari University of Venice)
Format: Oral

Extreme climatic events, the increasing variability of hydrological regimes, and the resulting reduction in the habitability of fluvial landscapes are currently exerting a significant impact on settlement patterns in Italy. In recent years, risk perception related to rivers has grown steadily, largely because of climate instability and the increasing frequency and intensity of torrential processes. While these dynamics are often perceived as a specifically modern concern, archaeological and historical evidence demonstrates that large-scale flood events also occurred frequently in antiquity, affecting areas that remain densely urbanized today. This contribution explores a selection of case studies from northern Italy, with the aim of assessing long-term strategies of human adaptation to riverine environments characterized by differing degrees of hydrological instability. Particular attention is paid to contrasting contexts: on the one hand, highly dynamic fluvial systems prone to rapid changes and catastrophic flooding; on the other, relatively stable environments associated with spring-fed rivers, whose constant discharge and limited tendency toward levee failure created more predictable conditions for settlement. Well-documented examples of both ancient and recent flood events are drawn from several areas of northern Italian regions, highlighting the recurrent challenges posed by fluvial dynamics and the diverse responses adopted over time. In contrast, the case of the Sile River and the other spring ones (Veneto region) is presented as a positive model of long-term coexistence between human communities and a stable fluvial system. Here, a well-developed yet non-invasive settlement network emerged, apparently shaped by an enduring - if not always explicit - awareness of environmental constraints and by a generally moderate and sustainable exploitation of riverine resources.

1851. Fluent places: water networks, settlement dynamics and spatial organisation in the western High Adriatic (Late Roman - Early Middle Ages)

Authors: Martina Bergamo (Ca' Foscari University of Venice) – Jacopo Paiano (University of Trento) – Diego Calaon (Ca' Foscari University of Venice)
Format: Oral

Riverine systems and lagoonal areas played a crucial role in shaping settlement patterns in the western High Adriatic during the Late Roman and the Early Middle Ages, a period of profound socio-environmental reorganisation. In this transitional context, water networks served as both environmental frameworks and essential infrastructure, shaping mobility, connectivity, and access to resources within a dense and evolving hydrographic landscape. Fluvial and lagoonal routes significantly influenced settlement dynamics, contributing to the reorganisation of existing sites and the development of new early medieval centres. Waterways also structured the landscape at an intra-site scale, where the arrangement of built spaces, open areas, and activity zones reveals a close link with riverine and lagoonal routes. Particular attention is given to interfaces between settlements and waterways, such as landing sites and waterfront areas, which appear to have played an important role in daily practices and economic activities. Studying these spaces over the long term provides insights into adaptive responses to hydrological variations and changing conditions. This paper explores the relationship between settlement systems and water networks through a multi-scalar approach that combines a sub-regional perspective with selected intra-site case studies. By integrating landscape-scale analysis with detailed spatial observations, the study aims to investigate how places were articulated in relation to the flow and variability of riverine and lagoonal routes over time. Through this approach, it is possible to trace strategies of adaptation and response to environmental instability, hydrological stress and change, and climate-related adverse events as embedded in spatial organisation.

2564. How does archaeology inform current decision making in relation to climate change mitigation in the the Great Hungarian Plain?

Authors: Laszlo Ferenczi (Charles University, Prague)
Format: Oral

The Great Hungarian Plain (Pannonian Basin) experienced dramatic hydrological transformations in the 19th century through regulation works that reshaped drainage, flooding regimes, and water balance. These hydrological modifications, implemented in tandem with a shift toward intensified agricultural exploitation, redefined land-use systems and landscape resilience for generations. This presentation introduces the potential relevance and limitations of integrating archaeological investigations—encompassing archaeological topographical surveys, surface surveys, and geoarchaeological studies—into contemporary land-management strategies aimed at mitigating climate-driven pressures on crop production. We argue that archaeological topography and geoarchaeology can illuminate long-term land–water–soil interactions, revealing historical hydraulic infrastructures, floodplain dynamics, sedimentation patterns, and agrarian practices that historically sustained productivity under variable climate conditions. Such insights offer a dual benefit: (1) identifying historically robust configurations of field layouts, water-control features (e.g. the so-called 'fok'-system), and crop associations that could inspire resilient, low-input strategies in the present climate regime, and (2) providing a critical baseline to distinguish climate-driven signals from legacy anthropogenic alterations in soil and hydrology. The methodological core combines field surveys, landscape archaeology, sedimentary proxy analyses (grain size, organic matter, mineralogy), GIS-based reconstructions, and historical cartography, enabling diachronic assessments of land-use transitions and hydrological performance. However, a central caveat governs the applicability of past practices: contemporary environmental conditions—temperature regimes, precipitation patterns, soil moisture dynamics, and extreme events—diverge markedly from those of the past. We thus propose a nuanced framework that (a) identifies historical practices for ecological and hydrological compatibility with present conditions, (b) adapts them through climate-informed design (e.g., reconfigured drainage, buffer zones, and soil-water management), and (c) couples archaeological insights with modern agronomy to foreground sustainability over nostalgic imitation. The talk highlights policy-relevant pathways for climate-smart agriculture that draw from deep-time landscape knowledge while acknowledging current environmental limits.

2551. Tracing the environmental impact of settlement activity and industrial exploitation in the area of the Mures River

Authors: Gergely Szenthe (Hungarian National Museum Budapest) – Levente Daczó (Romanian Academy, Institute of Archaeology and History of Art of Cluj-Napoca) – Alpár Dobos (National Museum of Transylvanian History, Cluj-Napoca) – Erwin Gáll (The Romanian Academy of Sciences, Institute of Archaeology "Vasile Pârvan") – Zsófia Rácz (Eötvös Loránd University, Institute of Archaeology) – Calin Cosma (Romanian Academy, Institute of Archaeology and History of Art of Cluj-Napoca) – Petr Libor (Masaryk University Department of Archaeology and Museology) – Lenka Lisa (ARUP) – László Ferenczy (Ustav pro archaeologii, Univerzita Karlova)
Format: Oral

The authors present preliminary results of archaeological topographical project focusing on the Transylvanian Basin, carried out in the framework of a project on early medieval networks, settlement, production and distribution systems (Project No. TKP2021-NKTA-24 financed by the Hungarian NRDI Office). During the Avar period (7th–8th century AD), the Avar type archaeological record was concentrated in the middle section of the catchment of the River Mureş (Transylvanian Basin, Romania), where important economic resources (salt deposits) may have been exploited. We investigate patterns of long-term settlement changes between the Roman (1th -2nd c. CE) and the Árpád period (11th–13th c. CE), and more specifically the settlement network of the Avars, studying environmental parameters. The fluvial environment seems to have determined human settlement in every historical period, and different patterns of settlement could be documented in the Mureş valley and in the valleys of its tributaries. The settlement pattern was influenced by local and supra-regional road systems, and, most probably also by the two salt deposits, situated to the south of the Mureş (in Ocna Mureş, and Ocnişoara). In addition to the extensive archaeological topographical surveys, we have been also conducting geophysical and geocemical surveys in 2025, focusing on a study site in Ocnisoara, the locality, where salt exploitation likely dates back to the medieval period or even earlier. The purpose of our investigation was to assess the character of subsurface archaeological features related to this activity, and study the chronology of dynamics of soil accumulation, which could be linked to land-use changes and surface erosion.

493. Medieval Gullies as Legacy Effects of Agrarian Land Use: A Landscape Archaeological Perspective from Central Europe

Authors: Lukáš Holata (Charles University)
Format: Oral

Extensive gully systems are among the most striking legacies of past human–environment interactions in fluvial landscapes, yet their relationship to historical land use remains insufficiently understood. This paper explores medieval gullies as long-term geomorphological consequences of agrarian practices in the Czech Republic, particularly in the hinterlands of deserted medieval villages. Using LiDAR data combined with systematic ground-truthing, we have documented large-scale relic field systems preserved under forest cover. Dense or exceptionally developed gully networks were detected in direct spatial association with former field parcels.

Gully formation does not simply correlate with slope steepness. The aim of this contribution is to reveal a broader set of interacting factors that contributed to the formation and development of gullies. At a macro-scale, GIS-based modelling is employed to assess topography, soil properties, and erosion susceptibility. At a micro-scale, detailed analyses of land-use organization and field-pattern morphology are applied to selected case studies, allowing closer examination of how medieval agricultural systems structured runoff pathways and sediment fluxes. By integrating landscape archaeology, environmental modelling, and historical land-use analysis, this contribution situates medieval gullies within the framework of the fluvial anthroposphere. It highlights gullies not merely as erosion features, but as durable archives of socio-environmental decision-making with relevance for understanding long-term human impacts on river basins and for informing present-day landscape management and climate adaptation strategies.

2174. Highland Transformation: Human Impact in the Bukov Brook Valley from the 11th to 17th centuries (Bohemian-Moravian Highlands, CZ)

Authors: Miroslav Dejmal (MUNI - Department of Archaeology and Museology) – Jan Petřík (MUNI - Department of Geological Sciences) – Libor Petr (MUNI - Department of Botany and Zoology) – Michal Vágner – Michaela Prišťáková (MUNI - Department of Archaeology and Museology) – Katarína Adameková (Institute of Archaeology of the Czech Academy of Sciences, Brno)
Format: Oral

The history of human activities in the Central European mid-mountains differs significantly from the intensively inhabited lowlands. The Bohemian-Moravian Highlands are believed to have been settled during the onset of metal mining in the 13th century AD. But our evidence from the floodplain deposits of Bukov Brook demonstrates sporadic human activity during the prehistoric era. Since the 10th-12th centuries, an agricultural landscape with mild deforestation is inferred from buried valley floodplain sediments, despite limited archaeological evidence of settlement. Significant geomorphological changes were observed in the 11th-13th centuries, with prospecting, mining activities, the construction of a pond, and intensive deforestation, alongside the presence of scarce cultivated grain. This dating contradicts the existing historical model, which assumes the colonization of this area at the end of the 12th century and especially in the 13th century. Analysis of pond sediments from the 13th to 16th centuries saw the end of mining, increased anthropogenic influence, and a deforested landscape supporting more agriculture, grain cultivation, and grazing. From the 16th century onwards, erosion from fine washouts from fields and pastures occurred, and the once-functional pond vanished. This can perhaps be connected with the Thirty Years' War, the economical decline of the whole area and perhaps the onset of the Little Ice Age. Excavations in the Bukovy Valley highlight the importance of researching smaller catchments in mid-mountain regions like the Bohemian-Moravian Highlands, allow to verify the existing historical-archaeological models and sets the stage for further exploration into the evolving dynamics of humanenvironment interactions across various historical periods.

1519. Changing patterns in the Vál Valley. Investigating settlement pattern dynamics from the Neolithic to the Middle Ages

Authors: Rebeka Gergácz (Hungarian National Museum | Eötvös Loránd University, Doctoral School of History)
Format: Oral

Riverbeds and valleys play a crucial role in human occupation, as they provide essential resources such as water and food, and also serve as channels for communication, travel, and trade. As a result, throughout various archaeological periods, many settlements have been established in close proximity to natural water sources. However, the choice of specific habitation sites near these water bodies often varies based on the needs of the settlements, environmental constraints, and prevailing climatic conditions. In this paper, I analyse the location of settlements and their changing patterns from the Neolithic to the Middle Ages in a 30 km segment of the Vál Valley, located in Northeast Transdanubia, Hungary. The Váli-stream flows in a northwest-southeast direction towards the most significant river of the Carpathian Basin, the Danube. This advantageous connection, along with the fertile soils of the valley, greatly enhances the availability of the microregion. This inquiry raises further questions like 1) which archaeological periods are likely to be represented in similar or identical locations, 2) how the settlement locations suggest historical waterlevels and access to water, and 3) how the varying detectability of the archaeological periods affects general insights. For the archaeological dataset, I utilise the findings from the systematic artefact collections conducted in the valley as part of the National Archaeological Topography Program and my PhD research. With over 20 km² already surveyed, these results offer valuable insights into the settlement patterns of the area through GIS analysis.

2203. Waterscapes in Sardinia (Italy): Investigations in the Mar'e Pontis Lagoon – Cabras

Authors: Maria Mureddu – Viviana Pinna – Giorgio Franco Murru (Fondazione Mont'e Prama) – Rita Auriemma (Università del Salento) – Filiberto Chiabrando (Politecnico di Torino) – Paolo Emanuele Orrù (Università degli Studi di Cagliari) – Emanuela Solinas (Independent Researcher) – Pier Giorgio Ignazio Spanu (Università degli Studi di Sassari) – Anthony Muroni (Fondazione Mont'e Prama)
Format: Oral

The Mont'e Prama Foundation manages the Archaeological and Natural Park of the Sinis Peninsula, in central-western Sardinia. One of the objectives of the Foundation is the realisation of research projects in the territory. The three-year project "Water Landscapes. Research in the Mar'e Pontis Lagoon", was born in this perspective and aims to reconstruct the transformations of the Cabras Lagoon

and the surrounding landscape, from the geomorphological aspects of its formation, to the interactions of human communities with it, from prehistory until contemporary times. The project is carried out in collaboration with the University of Sassari, the University of Salento, the University of Cagliari and the Polytechnic of Torino. It employs a multidisciplinary approach. Traditional land-based and underwater surveys are supplemented by paleoecological sampling and analysis, geophysical surveys, and instrumental underwater surveys. Aerial and topographic surveys are also conducted. The data obtained are fed into a Territorial Information System/GIS which also includes the existing literature, the survey cartography, and thematic visibility cartography. The lagoon, fed by two freshwater streams, flows in the Oristano Gulf via various natural and artificial channels, which conformation certainly changed through time. It is still today an important resource for fishing activities, and has attracted human occupation since Prehistory, as evidenced by Neolithic settlements identified along its shores. In various times it may also have served as a waterway, promoting contacts and commercial activities between different communities of the territory. On its southern shore, traditionally and perhaps significantly named Su Pottu (The Harbour) by locals, various hints suggest the presence of port activities during Late Roman and Medieval times. The multidisciplinary research in progress, allowing to reconstruct the evolution of the waterscape, points to a better understanding of the surrounding settlements and of the exploitation of the lagoon by human communities over time.

278 MODELLING SOCIO-ECOLOGICAL SYSTEMS AND HUMAN-ENVIRONMENT INTERACTIONS FROM INDIVIDUALS TO POPULATIONS

Theme: 5. Changing worlds and environments in the past, present and future
Organisers: Dries Daems (Vrije Universiteit Amsterdam) – Andreas Angourakis (Ruhr University Bochum)
Keywords: socio-ecological systems, human-environment interactions, computational modelling
Format: Regular session
Affiliation: Computational Modelling of Past Socio-ecological Systems - COMPS

SESSION ABSTRACT

Understanding the dynamics of human-environment interactions requires bridging scales from individual decision-making to population-level processes. Effective multiscalar research entails integrating diverse theoretical and computational approaches. This session brings together researchers exploring ancient societies, socio-ecological systems and human-environment interactions through a wide spectrum of methods, aiming to highlight how different frameworks can illuminate the complexity of past and present human behaviors within a socio-ecological context. Contributions are sought spanning a wide range of approaches, including ecological models such as optimal foraging theory, which provides insights into resource acquisition strategies under ecological constraints, and adaptive cycle models, which capture resilience and transformation in coupled human-natural systems. We also invite work employing computational modelling approaches such as agent-based modelling, enabling simulation of heterogeneous actors and emergent patterns, and network analysis, which reveals structural properties of social and ecological connectivity. By juxtaposing these approaches, the session seeks to foster dialogue on methodological complementarities, theoretical integration, and the challenges of scaling from micro-level interactions to macro-level outcomes. Beyond methodological innovation, this session emphasizes the relevance of modelling for archaeological interpretation, offering tools to reconstruct past socio-ecological dynamics and explore long-term trajectories of human adaptation.

CONTRIBUTION ABSTRACTS

1375. Modeling Socioecological Processes and Technological Innovation in the Archaeological Record

Authors: Letícia Correa (University of São Paulo) – Michael Barton (Arizona State University) – Astolfo Araujo – Camilo Neto (University of São Paulo)
Format: Oral

Innovation, the spread and adoption of new technology, is a process that can be affected by diverse social and ecological factors: culturally mediated willingness to accept new ideas, biases for social learning across cultural boundaries, opportunities for social interaction, demography, the effectiveness of a new technology to solve important problems in different social or environmental contexts to name a few. And of course, it is likely in many cases that innovation results from some combination of these and other factors. Hence, it is unsurprising that archaeologists have long debated whether variability in the remnants of past technologies that comprise the archaeological record serves as a proxy for cultural affiliation and norms, patterns of social interaction, or adaptation to environmental variation and change. To better explore the complex interactions of socioecological processes that encourage or inhibit technological innovation, we developed a simple modeling platform for agent based simulation. It allows a researcher to explore the consequences of these and other processes on technological innovation across varying temporal and spatial contexts. It also generates a digital 'archaeological record' to enable modeling results to be compared with empirical data. We use the Holocene record of forager sites from the State of São Paulo, Brazil as a test case for evaluating which interacting cultural, social, and ecological factors can produce results that most closely match the empirical archaeological record of this region.

2116. Modeling Late Holocene Expansions in Lowland Eastern South America: Simulation of Diffusion

Processes

Authors: Jonas Gregorio De Souza (Barcelona Supercomputing Center) – Luiz Silva De Lima (National Museum - Federal University of Rio de Janeiro) – Igor Pedroza (Fluminense Federal University)
Format: Oral

The late Holocene in lowland eastern South America was marked by major cultural expansions, often associated with the spread of agroforestry practices and, in some cases, with demic diffusion processes that contributed to the dispersal of the continent's most widespread language families. Despite these broad correlations, reconciling linguistic, archaeological, and chronological evidence remains a persistent challenge. In this paper, we address this issue through a comparative case study of two major familes in the South American lowlands: Tupi-Guarani and Jê. These traditions differ markedly in the timing and tempo of their expansions, as well as in their ecological contexts, with Tupi-Guarani populations primarily associated with rainforest environments, and Jê groups occupying savanna and grassland regions. Our objectives are twofold. First, we conduct a review of the available radiocarbon record for both traditions, proposing models for their initial settlement and regional expansion dynamics across different areas of eastern South America. Second, we simulate expansion processes at a finer spatial scale, comparing demic and cultural diffusion scenarios while incorporating paleoclimatic data. These simulations build upon and refine our previous modeling work, allowing us to explore how environmental constraints and different diffusion mechanisms may have shaped the observed archaeological and linguistic patterns.

2287. Understanding the Emergence and Stability of Cultural Groups by Modeling Cultural Transmission in Neolithic Europe (7000–3000 BP)

Authors: Simon Carrignon – Adrian Timpson – Mark Thomas – Stephen Shennan – Martin Hinsh (University College London)
Format: Oral

The persistence or non-persistence of human cultures through time and space raises multiple questions about how cultural groups form and disappear. How do coherent cultural entities emerge, why some disappear while others stay? The Neolithic in Europe is a great case study for exploring these phenomena. During this period, the arrival of new subsistence technologies was associated with the spread of new cultural groups, that cohabited, mixed and replaced pre-existing cultures. Here we use the Big Interdisciplinary Archaeological Database (BIAD) to analyse the spatial and temporal spread of major European cultures between 7000 BP and 3000 BP . We combine multiple methods to produce robust estimates of their geographical and temporal extent, leveraging the large dataset about on site geolocation, C14 samples and cultural material available in BIAD. To move beyond descriptive analysis, we develop an Agent Based Model (ABM) to test hypotheses about the formation and perpetuation of cultural groups and boundaries. The model focuses on two main factors that we hypothesise as having major impact on these groups formation: 1/ Isolation by distance: Cultural divergence resulting from geographic or natural barrier 2/ Homophily: The tendency for individuals to maintain interactions with culturally similar peers. The model combines complex network analysis with data-derived least-cost path and cultural transmission theory to explore the interactions between these processes. Using different inference methods such as Approximate Bayesian Computation, we fit the model to the estimated spatio-temporal pattern to identify under which combination of isolation by distance and homophily our model can best reproduce the archaeological observations. Our goal is to quantify the significance of these factors during the Neolithic and better understand the emergence of stable cultural groups in human societies at large.

2779. Household Demography model: An Agent-Based Framework for Exploring Population Dynamics in Past Socio-Ecological Systems

Authors: Andreas Angourakis (Ruhr-University Bochum | University of Cologne)
Format: Oral

This paper presents the Household Demography model, an agent-based simulation framework tailored for archaeologists seeking to explore the structure and transformation of past human populations. Moving beyond traditional demographic approaches, this model captures the complexity of ancient households and communities by simulating individual life events—such as birth, marriage, death, and the splitting of family groups—using probabilistic mechanisms and social rules grounded in archaeological and ethnographic evidence. Its implementation in NetLogo ensures accessibility and flexibility, making it suitable for both educational and research purposes within archaeology, especially when direct demographic data from the past is incomplete or fragmented. Key components include modular submodels for fertility, marriage, and mortality, with parameters informed by established demographic studies. The model's design enables archaeologists to adjust initial parameters—like household counts, age structures, and resource constraints—to reflect diverse cultural and environmental settings. Importantly, the model can simulate the impact of social practices and environmental pressures on household formation, population growth, and community sustainability, offering new avenues to test archaeological hypotheses about the resilience, decline, or transformation of past societies. A range of experiments demonstrates the model's usefulness for archaeological questions, from testing how changes in resource availability or social customs could influence population trajectories, to assessing the robustness of settlement systems under environmental stress. Results provide insights into the demographic mechanisms that may underlie observed archaeological patterns, helping to bridge the gap between material evidence and human behaviour. The discussion addresses the advantages and limitations of agent-based approaches

for archaeological demography, highlighting the potential for this model to enrich our understanding of household and population dynamics in ancient societies and to inspire further research at the intersection of archaeology, modelling, and social theory.

2141. Modelling socio-ecological systems through operational sequence networks and agent-based modelling in Iron Age to Hellenistic Anatolia

Authors: Dries Daems (Vrije Universiteit Amsterdam)
Format: Oral

Bridging multiple scales of analysis ranging from individuals to populations, constitutes one of the hardest challenges in studying multi-level socio-ecological systems. This paper seeks to critically evaluate two important frameworks shaping our understanding of past resource use and human-environment interactions: operational sequences and agent-based modelling. Operational sequence networks is a methodological framework that traces the sequence of technical processes involved in the production and use of material culture, from raw material acquisition to the final use and discarding of an object using network-based visualization and analysis. Agent-based modelling is a computational method used to simulate interactions between autonomous agents and their environment to assess the emergent effects of decision-making processes within the overall complex system. Both methodologies tend to operate at different scales. Yet, they are not mutually exclusive and significant potential is left untapped at their interface. By combining the micro-level, qualitative and macro-level, quantitative components of, respectively, operational sequences and agent-based modelling, I will present a robust approach that aims to provide a comprehensive understanding of resource exploitation and management strategies in past societies, and their long-term interactions with and impact on the environment. I will focus on case studies of craft production, community formation, and social complexity trajectories in Iron Age to Hellenistic Anatolia to further elucidate the theoretical and methodological integration of operational sequence networks and agent-based modelling.

964. Modelling settlement dynamics with targeted radiocarbon data: a Bayes-based case-study from Lochinver Quarry, North East Scotland (c. 2000 BC-100 AD)

Authors: Kevan Edinborough (Bournemouth University | Archaeological Research Services Ltd.) – Phillippa Hunter – Ana Rodrigues – Clive Waddington (Archaeological Research Services Ltd.)
Format: Poster

In recent years, large scale archaeological mitigation using strip, map and record methods have produced significant amounts of archaeological remains with associated radiocarbon data and additional targeted OSL dates. This allows us to better date sites constrained by well-informed archaeological features, many with stratigraphic relationships. In turn, high-quality data allows us to model broader settlement dynamics with far more confidence than previously possible. Here we present a case study with 108 targeted radiocarbon measurements spanning more several years of systematic excavations by Archaeological Research Services Ltd. from Tarmac's Lochinver Quarry near Elgin. This site has revealed a significant, multi-phase industrial settlement dating from the Bronze Age to the Roman Iron Age (c. 2000 BC – 100 AD). Key finds include cremation burials, a long sequence of roundhouses, rare iron-smelting furnaces, a souterrain and bronze cauldrons, suggesting a major craft centre in the later Iron Age to Roman Iron Age transition. Our radiocarbon results demonstrate how dynamic ancient settlement activity can be reconstructed using large-scale strip, map and record archaeological methods supported by a targeted and iterative programme of scientific dating. We argue that by using computational methods in this way we can significantly enhance outcomes for all stakeholders.

2169. Choosing the landscape: a GIS-based comparison of Late Bronze Age settlement patterns in Romanian Banat and Transylvania

Authors: Sofia Bertea (Babes-Bolyai University)
Format: Poster

The Late Bronze Age (c. 16th–11th centuries BC) in the Eastern Carpathian Basin is characterized by cultural diversity and intensified regional interaction, yet comparative spatial analyses of settlement patterns remain limited. This study presents a GIS-based comparison of Late Bronze Age settlement location strategies in two adjacent regions: Romanian Banat and Transylvania. By adopting a landscape-oriented approach, the paper aims to identify shared and regionally specific patterns of environmental selection and land-use behavior. The analysis is based on a georeferenced database of Late Bronze Age settlement sites compiled from published records, excavation data and field surveys. Spatial analyses were conducted using digital elevation models, hydrological networks and basic geomorphological units. Key variables include elevation, slope, distance to permanent water sources and settlement density. Comparative methods involve distribution mapping, kernel density estimation and statistical assessment of environmental parameters across the three regions. Preliminary results indicate a consistent preference for settlements located on slightly elevated terrains in close proximity to, but generally outside, major floodplains, suggesting a deliberate balance between access to fertile lowlands and avoidance of environmental risk. At the same time, notable regional differences are observed in settlement density and topographic positioning, reflecting local geomorphological constraints and potentially distinct socio-economic strategies. By emphasizing comparable spatial variables across neighboring regions, this study highlights both convergent and divergent landscape choices within the Late Bronze Age Carpathian Basin and demonstrates the value of GIS-based comparative approaches for understanding settlement organization at a supra-regional scale.

279 (RE-)PRESENTING ASIA IN EUROPEAN MUSEUMS: CURATING ACROSS COLONIAL LEGACIES, CONTEMPORARY PRESSURES AND INSTITUTIONAL PRAGMATICS

Theme: 3. Museums and cultural heritage in the era of 'permacrisis'
Organisers: Geonyoung Kim (University of Cambrige) – Willem Van Wijk (Leiden University)
Keywords: visual representation, heritage practice, museum practice, Asia, decolonisation
Format: Regular session
Affiliation: Early Career Archaeologists Community - ECA

SESSION ABSTRACT

The politics of displaying the Other in museums has been a sustained focus in anthropology, museum studies, and heritage studies, particularly related to the displaying of collections entangled with Europe's colonial history. Conventionally, these discussions centre around restitution, the right to represent, and on how exhibitions may reinforce colonial discourses. However, these conversations often overlook the specific challenges posed by material culture from diverse Asian contexts, particularly from regions more peripheral to Europe's colonial control. This gap limits the potential of treating Asia as a methodological concept with which to challenge Eurocentric heritage discourse. In recent decades, dedicated Asian galleries have been created in major European museums, often funded by Asian state agencies and private cooperatives. Additionally, blockbuster exhibitions, such as the V&A's "Hallyu! The Korean Wave" (2023) and the British Museum's China's Hidden Century (2023), have sparked intense public debate, reviving both familiar and newly articulated questions. This increased attention to the exhibition of Asian material and cultural practices creates a space in which emerging heritage practices can be discussed. This session invites papers that examine the opportunities and challenges that the exhibition of Asia in European museums brings to ongoing discussions of decolonising museum practices, with particular attention to material culture both within and beyond archaeological contexts. We seek contributions that address institutional pragmatics, curatorial strategy, and public perception. Themes may include, but are not limited to: • Visual representations of Asia's past and present in European displays • Institutional and practical challenges and opportunities emerge during curating Asia in European museums • Public perceptions of Asia galleries

CONTRIBUTION ABSTRACTS

2054. Heritage Beyond Borders: Inclusive Approaches to Heritage Governance and Equity – the Case of Korean Collections outside of Korea

Authors: Geonyoung Kim (University of Cambrige)
Format: Oral

This paper examines how the heritage production of Korean collections in UK museums contributes to heritage equity in the context of colonial acquisition. By evaluating collaborative practices between South Korean institutions and UK museums, the project aims to contribute to the discussions on decolonising museum practices and facilitating heritage equity and diversity. Using archival research, interviews and stakeholder analysis, the study assesses the roles of UK institutions and the South Korean government in shaping narratives on Korean heritage. It focuses on case studies from the British Museum, Victoria and Albert Museum, Fitzwilliam Museum and Ashmolean Museum, exploring decision-making structures and stakeholder dynamics in interpreting and exhibiting Korean collections. Specific attention is paid to analysing how both the South Korean government and institutional policies facilitated diversifying the stakeholders in interpreting Korean heritage outside Korea and promoted heritage equity in representing heritage interests related to the Korean collections held in institutions outside of South Korea. The findings suggest that heritage equity operates as a negotiated and evolving process, shaped by representational strategies, institutional practices, and the extent of Korean stakeholder involvement.

2668. On Decolonial Discomfort: Asymmetrical Heritagization and the Commemoration of Dutch Colonial Presence in Taiwan

Authors: Willem Van Wijk (Leiden University)
Format: Oral

This paper departs from ethnographic observations made during meetings around the commemoration of four hundred years since the Dutch colonization of Taiwan. These observations were made in part at discussions at the Taiwan Representative Office in The Hague and Dutch-themed exhibitions realised in Taipei and Tainan. In these encounters, I was confronted with the relative generosity with which Dutch colonial history in Taiwan is discussed and publicly heritagized, while efforts to commemorate this history appeared to be met with hesitation in the Netherlands. In Taiwan, the quadricentennial was actively taken up through multiple exhibitions and cultural platforms in 2024, supported by public funding and existing heritage and cultural infrastructures. These initiatives framed Dutch colonisation largely through narratives of encounter, exchange, and long-term connection. In the Netherlands, the same history resulted in a limited, paper-based museum presentation at the Rijksmuseum and a number of scattered events. Plans for a larger exhibition did not materialise, despite sustained interest among a significant group of artists,

researchers, and diplomatic actors. This paper suggests that such asymmetrical heritagization, expressed through differences in tone, scale, and institutional commitment, comes to matter in the commemoration of Asian–European colonial pasts. It explores whether this contrast can be understood in relation to the prominence of decolonial debates within European museum and heritage practice, without assuming that caution necessarily signals greater criticality, or that generosity implies a lack of reflexivity. Instead, it treats both positions as situated responses shaped by distinct historical, institutional, and political conditions.

1079. One collection, different representations: Stein Collection in India and the UK

Authors: Indu Prasad (Birkbeck, University of London)
Format: Oral

In the early decades of the 20th century the Hungarian-British archaeologist, Marc Aurel Stein, lead three archaeological expeditions (1900-01, 1906-08, 1913-16) from colonial India to what was then known as Chinese Turkestan, corresponding to the present-day Western Chinese provinces of Xinjiang and Gansu. Stein brought back more than 70,000 objects from these expeditions, which are today collectively known as the Stein Collection. The collection is today spread across multiple nations, most notably the UK and India. The objects from the collection have also formed the mainstay for exhibitions and material culture discourse related to Central Asia and the 'Silk Road' cultural networks, both in India and the UK in recent decades. This paper unpicks the representations of the Stein Collection that are on permanent display at the British Museum and the V&A in London, and the National Museum in New Delhi to juxtapose and illustrate the differing spaces of rhetorical landscapes the collection occupies in the post-colonial period. Further, it will extend the discussion to special exhibitions in both places over the last five years and the Stein Collection's representations in them. In doing so, the paper illustrates the complex and often conflicting ways in which material culture from a single colonial archaeological collection is employed in service of the larger geo-political and cultural narratives in museological practices in the two countries today.

2444. 'No Chinese Person Can Leave the British Museum Smiling'? Rethinking Emotional Engagement with Contested Legacies in Contemporary Museums

Authors: Qiwei Guo (University College London)
Format: Oral

In a context where social media have become key sites for the emotional negotiation and public contestation of heritage, the British Museum has attracted sustained attention from Chinese audiences. Discussions surrounding the display of Chinese artefacts in its galleries and exhibitions have circulated widely online, giving rise to popular slogans such as 'no Chinese person can leave the British Museum smiling' and short-form dramas like Escape from the British Museum. This paper examines how emotions shape Chinese audiences' interpretations of museum exhibitions, focusing on China's Hidden Century (2023), Silk Roads (2024–2025), and the British Museum's permanent China-related galleries. Drawing on in-depth interviews with a small number of Chinese participants, alongside observation of social media discussions, the study examines how affect participates in the interpretation of museum exhibitions. It combines critical discourse analysis and thematic analysis to explore how affect operates as an ambient condition shaping interpretive possibilities. The findings suggest that claims concerning the contested legacies of Chinese collections are often articulated in relation to state-influenced narratives of national humiliation. However, emotional engagements with collection histories do not necessarily translate into explicit nationalist demands or calls for restitution. Instead, such engagements frequently coexist with interpretive restraint and reflective distance, as audiences negotiate their positions between critique, identification, and self-awareness. By foregrounding the affective dimensions of audience interpretation, this paper reflects on how particular narrative configurations within contemporary museum frameworks carry specific affective affordances. It contributes to ongoing discussions about how museums are experienced, interpreted, and contested by transnational publics in digitally mediated environments.

2720. Chinese Painting, Taiwanese Perspectives: Canon and Display in Dutch Ethnographic Museums

Authors: Tzening Hong (Erasmus University Rotterdam)
Format: Oral

During visits to the Wereldmuseum in Leiden and Rotterdam, I encountered works by artists such as Qi Baishi, Xu Beihong, and Tai Jing-Nong within exhibitions introducing Chinese cultural production to European audiences. In Chinese and Taiwanese art historical education and museum exhibitions, these artists occupy a prominent place within the canon of modern painting and calligraphy. Encountering their work in Dutch ethnographic exhibition contexts therefore prompted reflection on how familiar figures from Chinese art history are framed within broader displays. In these exhibitions, objects are typically organised through regional and cultural classifications rather than through the art historical narratives that usually structure the study of painting and calligraphy. As a result, artists who occupy a central place in Chinese and are part of Taiwanese art historical traditions risk being presented primarily as examples of cultural categories rather than as individual contributors to the history of modern Chinese art. For visitors who recognise these artists from within these traditions, such encounters may also raise questions about national classification, particularly when artists whose work circulates between both Chinese and Taiwanese contexts are presented under the umbrella of "Chinese art" in European museum displays. Drawing on autoethnographic reflection from the perspective of a Taiwanese visitor trained in fine arts, this paper examines how encounters with familiar names from Chinese painting generate moments of recognition, uncertainty, and self evaluation. The paper argues that such encounters reveal how curatorial classification

and exhibition narratives shape the perceived significance of artworks. It further suggests that exhibitions presenting Chinese cultural production in European ethnographic museums may be interpreted differently by visitors whose cultural and educational backgrounds are closely connected to the works on display.

281 NETWORKS OF PRESTIGE? ELITE IDENTITIES IN MIRROR OF HIGH VALUE OBJECTS FROM AN ARCHAEOLOGICAL PERSPECTIVE

Theme: 7. Interaction, connectivity and mobility
Organisers: Šárka Krupicková (Czech Academy of Sciences, Institute of Archaeology, Brno) – Orsolya Heinrich Tamáska (Leibniz Institute for the History and Culture of Eastern Europe, GWZO)
Keywords: elites, supra-regional contacts, jewellery, dress accessories, high value metal objects
Format: Regular session

SESSION ABSTRACT

Jewellery, dress accessories, and other high value objects represent a key component of the self-identification and self-presentation of elites, who used them to construct their distinctive identities. These identities were regionally specific, yet simultaneously grounded in broader supra-regional cultural contacts and networks. Members of the elites were typically in close contact with counterparts from other regions—whether through long-distance trade or through direct and indirect social interactions, such as diplomatic exchanges accompanied by the presentation of prestigious gifts. Jewellery and other fine metalwork thus constitute essential archaeological evidence for studying supra-regional relations and provide valuable insights into the complex socio-economic structures of Europe's past. The nuanced interpretation of their chronological placement, spatial distribution, and functional context depends on analytical approaches, including detailed technological and production studies. Such analyses contribute to questions of provenance, technological character, and elite identity. This session welcomes contributions from all chronological periods that address the theme of supra-regional elite contacts through archaeological, material, or technological analyses of jewellery, dress accessories, and other high value objects, including ceremonial items and reliquaries. Theoretical or synthetic papers dealing with these issues are also highly encouraged.

CONTRIBUTION ABSTRACTS

1874. Connected Elites: Prestige Hoards and Long-Distance Exchange Networks in the Cucuteni-Trypillia Area

Authors: Senica Turcanu ("Moldova" National Museum Complex of Iasi)
Format: Oral

The paper analyses the hoards containing prestige objects from the Cucuteni-Trypillia cultural complex in Southeastern Europe (5th-4th millennia BC), focusing on supraregional networks and the identity of elites constructs. The inventories of prestige hoards varies from a few dozen to over 800 items. Their composition is extremely varied, including beads made from deer canines, copper, marble, and pottery; clothing accessories crafted from pharyngeal carp teeth and shells of Spondylus and Dentalium; copper bracelets (wire, bar or plate), diadems, pendants made of copper and gold, as well as weapons and axes made from stone and copper, interpreted as obvious markers of social status. The analysis of the provenance of raw materials and the typology of the pieces indicates that, although some of the objects could have been produced locally, the majority were acquired through long-distance exchanges. These exchanges reflect the existence of complex networks of interaction, which connected Cucuteni-Trypillia communities with distant regions of the Balkans and Central Europe. The analyzed hoards appear to represent accumulations built up over the course of several generations, suggesting not only the circulation of prestige objects, but also the symbolic transmission of status and elite identity. In this sense, jewelry, clothing accessories and weapons constitute essential archaeological evidence for understanding socio-economic relationships, mobility and supra-regional interconnection in Prehistoric Europe. Through an integrated approach to the archaeological context, raw materials, and certain functional characteristics of these objects, this contribution aims to highlight the role of Cucuteni-Trypillia prestige hoards as material expressions of elite networks and identities constructed through intercultural contact.

910. New Networks and Elites? Shifting representations of elite identities in an interconnected Tartessian First Iron Age (9th–6th centuries BCE)

Authors: Io Cruz Vera (Université Paris 1 Panthéon-Sorbonne | UMR 8215 Trajectoires | UMR 8546 AOrOc)
Format: Oral

From the conclusion of the second millennium BCE to the onset of the first millennium BCE, seafarers from the eastern Mediterranean, who were traditionally associated with the Phoenicians, established maritime connections with the western Mediterranean, particularly south-western Iberia. This protracted process of initial contacts gave rise to a number of phenomena from the latter quarter of the 9th century BCE onwards, including the establishment of new settlements partially settled by these Mediterranean seafarers,

and the mutation of the local archaeological culture. This evolution, discernible through the archaeological corpus, is particularly evident in the forms of representation by and for the social elites, which are the most visible aspect of this change in the local material culture. These elites adopted new ways of self-identification and representation, combining newly imported cultural markers with more traditional artefacts and techniques inherited from the Late Bronze Age. This marked a period of consolidation and diversification within this segment of Tartessian society. This is evidenced by the emergence of a more intricate social hierarchy, as demonstrated in the funerary registry, which unveils new levels of wealth among the upper social classes. The presence of imported objects and typologies, that appear to have been considered valuable, and even prestigious, by these populations, is often indicative of this wealth. The period is also characterised by pronounced disparities between the material culture of the elite, who adopted these newly imported, high-value objects, and that of the general population, which is often considered to be more traditional. The purpose of this communication is to enhance our comprehension of the manner in which Tartessian elites articulated their identity within the context of the consolidation of new trade networks and the facilitation of diplomatic exchanges, as well as the development of new forms of control and domination over the rest of society.

1856. The (in)visible elements of elite dress in the Early Iron Age of northern Croatia

Authors: Julia Fileš Kramberger – Hrvoje Potrebica (University of Zagreb)
Format: Oral

Monumental graves and their lavish inventories are a usual source for defining elite identities in particular communities. In Early Iron Age Europe these have traditionally been defined through surviving metal and pottery objects such as weapons, wagons, personal adornments, feasting sets, etc. At the same time, different elements of dress, jewelry and weapons were certainly key components in constructing and visually communicating various aspects of individual identity. In the Early Iron Age of northern Croatia prestigious objects such as local or imported bronze fibulae or pins, electrum beads as part of attire, whetstones with decorated bronze handles, as well as armaments such as traditional bronze and iron swords, or imported Greco-Illyrian or Corinthian helmets, represent key elements in the construction of local elite visual identities. They also reflect a complex network of inter-elite contacts through prestigious objects imported from the Balkans, the Mediterranean or Central Europe. Nevertheless, this evidence reveals only a partial image of elite visual identity as it does not include perishable materials that are rarely visible in the archaeological record, such as textiles, leather, and wood, which were undoubtedly an integral – if not essential – piece of the puzzle. This paper will show how elites from the periphery from the Hallstatt complex established and maintained their position as a major hub in network communications between elites from different cultural areas. It will also broaden the interpretative framework by stressing the importance of including these often "invisible" objects into the construction and reconstruction of the elite identity, since these elements may have played a crucial role in conveying regional or supra-regional messages.

2537. Jewellery as an element of self-presentation of the Sarmatian elites

Authors: Evgenia Velychko (National Museum of the History of Ukraine)
Format: Oral

A variety of jewellery is frequently found in the elite burials of the Sarmatians, nomads who lived in the steppes of the North Pontic region in Roman times. Among them are exquisite, technologically advanced jewellery that was made in the workshops of Egypt, Syria, or Italy. They clearly served as markers of high social status: the higher the presumed status of the burial, the more high-quality, non-local jewellery was buried in it. At the same time, products in the traditional Sarmatian turquoise-gold style, closely attuned to Central Asian visual culture and signalling Sarmatian aristocratic identity in its own right, continued to serve as markers of elite status and were often found together with imports. This unique mixture gave rise to the interesting phenomenon of Sarmatian elite burials, in which a single complex contained luxurious items of Mediterranean production, artefacts of Far Eastern origin, and crafts of local North Pontic workshops, clearly catering to barbarian tastes. This diversity mirrors the extensive social relations of Sarmatian elites, which had considerable influence on political and commercial activities in the North Pontic region and beyond.

390. The Supraregional Contacts of Roztoky Site (Czech Republic) in the 7th century AD

Authors: Nadezda Profantová (Institute of Archaeology of the CAS, Prague, v. v. i.)
Format: Oral

Roztoky near Prague is the largest settlement area in Central Europe for the Prague-type pottery Culture. The documents of supra-regional contacts are the most intensive with the South-East Regions (glass beads, bronze spiral necklace with pendants, silver fitting), quite intensive with the Western Europe (brass loop, iron strap-end, phalera, and inlay loop, antler comb case and decoration); the small lump of amber from the Baltic sea as a resource is also quite luxurious. The round bronze decoration is an unfinished local product, but we can find its inspiration in the East or South-East, probably in a milieu influenced by the Byzantine Empire. The small, round iron ´bowl´ is unique; its origin or inspiration is not known. Some of the antler-decorated finds - handles - are also local, and they show us a good level of local production. The local production of decorations is evidenced by the little pans with remains of non-ferrous metals and the find of a crucible with locally produced silver. Imports, artefacts influenced by supraregional contacts just like specialised production documents inform us that the local elite probably resided in Roztoky, even we did not find the residential building(s). I would not discount the possibility that the elite used a group of "common" houses.

601. A silver deposit in Smila (Ukraine,Cherkasy region): what tell us the objects about early medieval elites?

Authors: Viacheslav Baranov (Institute of archaeology of NAS of Ukraine) – Jens Schneeweiß (Leibniz Zentrum für Archäologie) – Orsolya Heinrich-Tamaska – Inga Utkina-Wöhrl (Leibniz Institute for the History and Culture of Eastern Europe) – Olga Manigda (Institute of archaeology of NAS of Ukraine)
Format: Oral

In 2008, near the town of Smila in the Cherkasy region of Ukraine, a treasure was discovered, which has since been transferred to the collection of the Medzhybizh State Historical and Cultural Reserve. The site is located on the road between the hillfort at Pastyrskyi (the most important central place of the region) and the crossing point to the left bank of the Dnieper. The treasure consists of nearly 200 silver items, was hidden in a pottery vessel, and belongs to the second group of so-called "Ant treasures", dating from the beginning to the first quarter of the 8th century. The collection includes several silver objects, like brooches, a necklace, bracelets, pendants with star-shaped rosettes and earrings with spherical pendants. With our team we are going to investigate these objects with different methods and we ask by whom and why those objects were hoarded. To this end, both the material and the manufacturing technique of all objects are being examined. We want to find answers regarding the origin of the silver used and the knowhow of the craftsmen, so that we can also discuss the social networks of the early medieval elites behind this composition. Chronologically and spatially we will discuss this deposit also in frame of the settlement structure of of the Pastyrskyi hillfort, which was destroyed at the same time, as the hoard was hidden.

977. Import, elite product, imitation? Searching for production mechanism and distribution of jewellery in early medieval Central Danube region

Authors: Šárka Krupicková (Czech Academy of Sciences, Institute of Archaeology, Brno) – Birgit Bühler (Vienna Institute for Archaeological Science, University of Vienna)
Format: Oral

One of the main identifiers of social stratification in all human communities is clothing, with metal clothing accessories and jewellery often being the only preserved elements of original attire, which are discovered in archaeological contexts. In the past, elite clothing accessories and jewellery made of precious metals using sophisticated jewellery techniques would be given as gifts among allies or vassals. The whole artefacts or rare components for their production (precious stones, pearls) could be the subject of long-distance trade. Erudite craftsmen who mastered specific demanding production techniques of hammering, chasing, filigree production, granulation or stone setting travelled between regions or were sent to serve in different territories. All the aforementioned forms of production and/or distribution are reflected in the form of artefacts that connect supra-regional fashion trends and specific technological processes used in their manufacturing. Exclusive fashion items could be also imitated for the purpose of spreading among the lower or local elites, but also for the purpose of distributing simplified variants among non-elite population strata. By comparing technological details, decorative motifs and also by comparison of the find context of jewellery and clothing items discovered during archaeological research in the Middle Danube region, we attempt to answer the question of which specific jewellery and clothing items could have travelled through Europe as imports, which artefacts reflected the local manufacturing process in elite workshops, and whether we also find imitations of elite products in the archaeological material.

1955. Mobile containers and the question of reliquaries from the 9th-century Moravia

Authors: Lumír Polácek – Šárka Krupičková (Czech Academy of Sciences, Institute of Archaeology, Brno) – Luděk Galuška – Lucie Valášková (Moravian Museum) – Michał Płygawko (Czech Academy of Sciences, Institute of Archaeology, Brno) – Michal Vopálenský (Czech Academy of Sciences, Institute of Theoretical and Applied Mechanics) – Martin Fořt (Czech Academy of Sciences, Institute of Archaeology, Brno)
Format: Oral

New analyses of a luxurious gold artefact with almandine from Mikulčice (Moravia, Czech Republic) – a probably valuable import – have opened the question of the functional interpretation of this exceptional archaeological find as a potential belt reliquary. This interpretation was based on the alleged finding of organic matter in the cavity between the two halves of the almandine cabochon. The presence of organic matter – perhaps blood-stained fabric – was detected during the opening of the artefact in the 1960s at the RGZM. Since then, the objects have been unofficially referred to as "the blood of Christ". A new comprehensive archaeometric investigation of the artifact has required, among other things, its re-opening. It has been found that the aforementioned cavity is empty, so the original interpretation loses its main argument for its validation. Therefore, we will focus more generally on artefacts that could have served as containers for preserving relics or other valuable substances. These will include both personal artefacts (amulets, capsules, captorges, reliquary crosses) and larger mobile containers that could have been part of the liturgical equipment of churches (reliquaries, pyxides). We will focus our attention on the area of Great Moravia and the surrounding regions in the 9th century. We will also examine the historical issue of the treatment of reliquiaries in the region under study in the given period. The reliquaries could have reached Moravia region probably through Christian missions coming here from the Frankish Empire, the Adriatic region or Byzantium, but also through gifts within the framework of supra-regional elite interactions. In any case, the question of the presence of reliquaries or similar containers in Great Moravia in the 9th century remains an important part of the cultural and ecclesiastical history of the early Middle Ages in East-Central Europe.

371. Luxury jewellery – exclusively for the highest elite? Social-culture topography of luxury jewellery in early medieval Bohemia

Authors: Katerina Tomková (Institute of Archaeology of the Czech Academy of Sciences, Prague)
Format: Oral

Luxury jewellery, the production of which is tied to more sophisticated production techniques and the use of gold and silver, is traditionally associated with elites and important early medieval centres. Mapping the penetration of this jewellery into other strata of early medieval society, as well as into peripheral areas of centres, duchies and empires, merits scholarly attention. The aim of the presentation is to describe various cases of these transfers using the example of Bohemia at the following levels: 1. finds of luxury jewellery from the burial ground in Lumbe Garden versus from the burial grounds of the satellite settlement in the surrounding area of Prague Castle; 2. luxury jewellery from the burial grounds of the inhabitants of hillforts and from rural burial grounds; 3. luxury jewellery on the periphery of the heart and eastern part of central Bohemia, including central Vltava region. The changes in the internal political and geopolitical situation in the 9th and 10th centuries will be taken into account, i.e. the transformation of Bohemia, governed by a larger number of princes in the 9th century, into the gradually centralised Duchy of the Přemyslids in the 10th century, as well as the rise and fall of the Great Moravian Empire.

1972. How was the production of Great Moravian luxury jewellery organized?

Authors: Šimon Ungerman (Czech Academy of Sciences, Institute of Archaeology, Brno)
Format: Oral

In recent years, there has been a revival of interest in luxury jewellery found in the territory of former Great Moravia (mainly present-day Moravia and southwestern Slovakia, 9th century), primarily in the technology of its production. The question of whether the production of this jewellery was somehow organized and whether it was redistributed is also starting to be discussed. In principle, three "ideal" models are conceivable. According to the first model, the main – or even the only – customer was the ruler, who operated jewellery workshops under his direction. He ordered the craftsmen how many and what kind of jewellery they were to produce. The ruler then distributed the jewellery to his allies and supporters. The second model assumes that each of the most important aristocratic families maintained its own workshop. The patron delivered the necessary amount of precious metal and provided instructions on how many pieces of jewellery should be made and how they should look. The primary reason for the workshop's existence was to satisfy the demand from women and girls from a given aristocratic family, but clients or allies of this family could also have access to the workshop. In other words, this model of jewelry production is decentralized and does not involve significant redistribution. The third model has a "commercial" character – it assumes that the workshops were independent and satisfied the demand of anyone who was rich enough to order the luxury jewellery. The question is whether, in addition to work on order, such workshops could also produce „to stock", i.e. without following instructions of a specific customer. In the paper, the three models are discussed in the context of the (very fragmentary) information we have about the work of jewelers in the Early Middle Ages in Western Europe, Byzantium, and the Near East.

1984. The social status of individuals buried in settlement graves furnished with precious-metal jewellery (Early Middle Ages, Central Europe)

Authors: Renáta Prichystalová (Masaryk University, Brno)
Format: Oral

During the Early Medieval period of the 9. and 10. centuries in Central Europe — specifically within the political sphere of influence of the so-called Great Moravia (present-day Czech Republic and Slovakia) — elite burials containing jewellery made of precious metals were usually found in the church cemeteries. These burial grounds were directly connected to the power and residential centres of Great Moravia, and the individuals buried there are traditionally considered to have been members of the upper classes. Similar graves also occur, albeit less frequently, in rural row cemeteries, where they are associated with local elites, whether clan-based or military. In settlement graves, however, jewellery made of precious metals is extremely rare, and such finds have not yet received systematic scholarly attention. Individuals buried in settlement burial grounds are generally considered to have belonged to the lower or middle social tiers of early medieval society. The presence of precious-metal jewellery in these graves challenges this conventional interpretation, raising the question of who these individuals actually were. This paper analyses these exceptional settlement burials and presents possible scenarios for interpreting their social status in early medieval Great Moravian society.

1474. Reflections of Wealth and Culture: Byzantine and Moravian jewellery in a 10th-century burial site in the Carpathian Basin

Authors: Dániel Giedl (Ferenczy Múzeumi Centrum, Department of Archaeology) – Péter Langó (Hungarian Academy of Sciences, Archaeological Institute, Faculty Member | Pázmány Péter Catholic University, Department of Archaeology, Faculty Member)
Format: Oral

A richly adorned female burial dating to the 10th century was unearthed during an excavation near Csévharaszt, Hungary, in autumn 2024. The grave contained the remains of a woman with an estimated age-at-death between 30 and 40 years. In addition to a variety of dress accessories, a range of jewellery items were uncovered in the grave, whose technological and typological characteristics suggest connections to both Byzantine and Moravian craftsmanship. A broader examination of these artefacts offers indirect insight into the diverse cultural connections of the former community. A particularly noteworthy discovery was a head ring of a rare type, composed of gilded silver plates. The distinctive technical features of the ring suggest that its design can be associated with Byzantine jewellery craftsmanship. However, only a few comparable examples, discussed in this study, are known from 9–11th-century East-Central European jewellery, reflecting the wearer's high social elite status. A gilded ornamental button, decorated with a floral pattern, was also found in the grave. The design of the ornamental button is indicative of the group of decorative buttons generally referred to as Great Moravian 'gombíky'. The Moravian decorative button discovered in the grave offers an opportunity to re-evaluate the potential nature of the relationship between the former Moravia and the Hungarians in the 10th century. In the presentation, an overview is provided of the distribution and chronology of Moravian decorative buttons discovered in the 9th–10th-century Hungarian environment. The valuable jewellery and clothing accessories found in the grave in Csévharaszt, which indicate the high social prestige of the wearer, provide an opportunity to understand the social network of the elite living in the region during that period.

319. Insignia of Noble Metals in Graves from the Roman Period in the Province of Thrace (1st – 3rd c.)

Authors: Kaloyan Pramatarov (National Archaeological Institute with Museum)
Format: Poster

After the establishment of Province of Thrace in AD 47/48 by emperor Claudius, in the burial mounds started the organization of representative funerals, reflecting common Graeco-Roman concepts about the Death, and the strive of the provincial elite to create an image for themselves as warriors, hunters, and participants in feasts by depositing category of specific objects, signs for economic prosperity, political power and social status: drinking ware and table ware, weaponry, jewelry, insigniae of gold and silver (wreaths, diadems, pectorals, appliques). The presence of the latter is related to the concept for the heroization of the deceased persons and finds parallel in other parts of the Roman Empire – Asia, Cyprus, Syria, Italy, Macedonia, characterized by an aristocratic ruling model and high economic potential. The present poster presents the possible interpretation of the discussed category of objects by representing the most valuable finds and situating them in the context of the Roman Empire.

1408. A gilded mask brooch from Tura, Hungary

Authors: Tibor Rácz (Ferenczy Museum Centre | Pázmány Péter Catholic University)
Format: Poster

Early medieval bow brooches were not merely functional dress fasteners but socially charged artefacts that conveyed status, wealth, and identity. Among them, anthropomorphic mask brooches represent a rare and highly debated variant whose interpretation has long been entangled with questions of ethnicity, particularly Slavic versus Germanic attribution. This poster presents a recently discovered gilded bronze mask brooch from Tura (Pest County, Hungary) and situates it within the wider archaeological and historiographical context of seventh-century Central and Eastern Europe. The brooch was recovered as a stray find during metal detector survey near an Avar-period cemetery and lacks a secure archaeological context. Its evaluation therefore relies on detailed morphological, stylistic, and technological analysis, combined with regional parallels and associated Avar-period material from the site. The artefact displays elaborate anthropomorphic and zoomorphic ornamentation, high-quality casting, and gilding, marking it as an exceptional prestige item. Rather than treating mask brooches as ethnic markers, recent scholarship interprets them as elements of an elite visual language transcending ethnic boundaries. The Tura brooch supports the view that such objects functioned as symbols of social distinction within interconnected elite networks operating across Byzantine, Germanic, and Avar cultural spheres.

1593. An Unwanted Decoration? When Fashion Becomes a Political Statement

Authors: Zbigniew Robak (Institute of Archaeology, Slovak Academy of Sciences | Department of Archaeology and Museology, Masaryk University)
Format: Poster

The poster addresses the problem of the surprisingly small number of brooch finds in the Great Moravian cultural milieu (from the late 8th to the early 10th century). This phenomenon is all the more intriguing given that in the neighbouring Carolingian cultural sphere brooches constituted a fundamental element of dress, fulfilling important practical, aesthetic and symbolic functions. The aim of the presentation is not so much a typological analysis of the few Great Moravian brooches as an attempt to reconstruct the ways in which they were perceived and the social meanings ascribed to them. The point of departure is the period around the turn of the 8th and 9th centuries, when the Middle Danube basin underwent profound social and cultural transformations: the collapse of the Avar Khaganate, the migration of people from Bavaria eastwards, the Christianisation of the Alpine and Danubian regions, and, as a result, the emergence of the first durable Slavic political organism – Great Moravia. These processes were reflected, among other things, in the appearance of female skeletal burials furnished with ornaments characteristic of Bavaria and Austria in the second half of the 8th century, including brooches, within burial grounds of an unequivocally Slavic character. This phenomenon

disappears with the common adoption of inhumation following the Christianisation of 831, despite the continued intensity of contacts with Bavarian and Frankish elites. The poster advances the hypothesis that brooches in the Great Moravian context may have been perceived as carriers of foreign, ethnically and politically charged symbolism, leading to their deliberate rejection. At the same time, the few burials containing brooches are examined as potential markers of a particular social status, origin, or cultural role of the individuals interred.

282 INTERDISCIPLINARY APPROACHES TO ARCHAEOLOGICAL METAL ANALYSIS

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Sebastian Wärmländer (Stockholm University | Cotsen Institute of Archaeology, UCLA) – Olga Zagorodnia (The British Museum: Department of Scientific Research) – Elisa Maria Grassi (The National Research Council: Institute of Cultural Heritage)
Keywords: Metal object, Metal analysis, Metal conservation, Archaeometallurgy, Interdisciplinary
Format: Regular session

SESSION ABSTRACT

Archaeometallurgy is a multidisciplinary field where researchers from different fields, and different traditions, come together to answer questions related to ancient metals and metalworking. Most research in this field is based on metallurgical analysis, but studies involving experimental archaeology or material provenancing are also common. In this session aims we welcome full-length papers that combine different aspects of metal analysis with other investigation strategies, such as typological analyses or historical studies, to clarify the cultural significance of metal artefacts. Other types of interdisciplinary work related to archaeometallurgy is also welcome, such as investigations of conservation methods for metal objects, analysis of non-metal tools used for metal artefact production, studies of use-wear or production marks created by metal objects (or found on them), et cetera. As the aim of the session is to provide instructive examples of interdisciplinary work that involves metal analysis combined with other research approaches, our session welcomes papers where the studied objects might come from any time period or geographic region. Furthermore, we especially encourage contributions from advanced students and young researchers.

CONTRIBUTION ABSTRACTS

2544. Resolving Copper Provenance in the Southern Levant through Osmium Isotope Analysis

Authors: Ivan Stepanov (Curt-Engelhorn-Zentrum Archäometrie, Mannheim) – Naama Yahalom-Mack (Hebrew University, Jerusalem) – Michael Brauns (Curt-Engelhorn-Zentrum Archäometrie, Mannheim)
Format: Oral

The limitations of lead (Pb) isotope analysis for distinguishing copper ore deposits of similar geological age and formation history are well recognized. In the Southern Levant, copper ores from the major ancient production centers of Timna and Faynan exhibit overlapping Pb isotopic signatures, complicating provenance studies. Both regions supplied copper to the Mediterranean trade network during the Late Bronze and Iron Ages. To address this long-standing challenge, we apply rhenium–osmium (Re–Os) isotope analysis as a complementary and more discriminating approach. Osmium is a highly siderophile element that preferentially concentrates in Fe/Mn oxide minerals and, consequently, in smelted metal products. The intentional use of Fe/Mn oxides as fluxes, as well as their accidental incorporation during copper ore smelting, was a defining feature of Bronze and Iron Age copper production in the Arabah. Because copper ores typically contain very low Os concentrations, the original osmium isotopic composition (187Os/188Os) of the ore was largely overprinted during smelting by the isotopic signature of associated Fe/Mn oxides. Copper produced at Faynan is characterized by radiogenic 187Os/188Os ratios (3.2–8.7) and elevated Os concentrations (200–2000 ppt), reflecting the osmium signature of Fe/Mn oxides associated with the local ores. In contrast, Timna copper exhibits lower Os isotope ratios (approximately 1.4–1.7), consistent with the less radiogenic osmium composition of regional hematite. Variability in Os isotopic compositions may also relate to repeated re-melting of copper, which promotes the removal of iron and/or osmium from the metal. These findings demonstrate the potential of osmium isotopes as a powerful tool for resolving copper provenance and reconstructing trade networks in the eastern Mediterranean during the Bronze and Iron Ages.

2567. The Crucibles from Groß-Rohrheim and their importance of early La Tène metalworking for the region of South Hesse, Germany

Authors: Anna-Lena Jerg (University of Tübingen) – Roland Schwab (Leibniz-Zentrum für Archäologie, Mainz)
Format: Oral

Archaeological excavations at Groß-Rohrheim revealed an unexpected Early La Tène metalworking complex. Several pits containing approximately 180 slags, 500 crucible fragments, and five almost entirely preserved crucibles, provide key evidence of early La Tène metalworking practices. The assemblage is of particular significance, as it represents not just the second largest complex, but

it originates from a region traditionally considered peripheral. Recent research suggests, however, that Groß-Rohrheim was characterised by a centralised settlement structure, within which metalworking activity may have played an important role. The area is also known for remarkable finds, including two gold-plated bronze rings with coral inlay and a golden disc, possibly components of drinking horns, typically associated with funerary contexts. In addition to the standardisation of the crucibles, which all belong to the same small and uniform type, a specialised and controlled use was suggested. This has led to speculation that the crucibles were used for melting precious metals. To test this hypothesis, all crucibles were systematically investigated using an interdisciplinary analytical programme combining metallurgical analyses with ceramic petrography. The combination of X-ray radiography, computer tomography and micro-X-Ray fluorescence analysis (μ-XRF) with ceramic petrography allowed the reconstruction of technological choices, production practices and distribution, including the analysis of raw material selection, clay preparation and temper composition. The results indicate a clay recipe with carefully selected and well-processed raw materials. The assemblage consists exclusively of single-walled crucibles of mostly consistent morphology and manufacturing traits and with only minimal adhering metal remains, which exclusively consist of thermally decomposed bronze. By integrating technological and archaeological perspectives, the results contribute to a reassessment of the role and significance of metalworking in the Early La Tène societies of South Hesse, while also addressing broader questions of craft organisation, regional settlement structure and underlying social structures.

322. Material Characterization and Manufacturing Processes of Elite Early Medieval Jewellery from Grave H53, Lumbe Garden Cemetery, Prague Castle

Authors: Estelle Ottenwelter (Czech Academy of Sciences, Institute of Archaeology, Prague | TRACES laboratory CNRS UMR5608, Toulouse) – Ludmila Barčáková (Czech Academy of Sciences, Institute of Archaeology, Prague)
Format: Oral

Among the findings at Lumbe's Garden Cemetery at Prague Castle - one of the most significant early medieval burial site in Bohemia (Czech republic) - grave 53 stands out for its exceptionally rich assemblage of elite 10th century jewellery. The grave goods include a metallic necklace with a silver zoomorphic amulet container, silver beads and a set of elaborately decorated globular earrings adorned with intricate granulation work. The fragmented condition of the jewels facilitated straightforward sampling and material characterization through metallographic examination and SEM/EDS analysis. X-ray radiography and SEM imaging of the surface of the golden globular earrings revealed mounting anomalies and surface defects which have shedded light on the manufacture of the earrings and material used. Additionally, creating replicas of the jewellery offered valuable insights into each stage of the manufacturing process. It also facilitated the assessment of craftsmanship skills, and allowed an estimation of time of manufacture for the whole set of jewellery emphasizing its uniqueness.

618. The Southern Roots of Northern Bronze: Multi-Proxy archaeometric investigation of Sögel-Wohlde swords and their European Origins?

Authors: Bart Cornelis (University of Tübingen) – Daniel Berger (Curt-Engelhorn-Zentrum Archäometrie gGmbH)
Format: Oral

Bronze metallurgy flourished in the Nordic Bronze Age during Period IB (1600–1500 BC), marking a transformative phase in metalworking. This breakthrough was driven by an unprecedented surge in metal supply and the emergence of sophisticated artifacts, particularly within "warrior assemblages." Among these, the Sögel-Wohlde metalwork stands out as a distinctive set of weaponry that gained pan-European significance. Swords of this type have been discovered across Northwest and Central Germany, southern Scandinavia, and the Low Countries, yet their sudden appearance is especially notable due to the absence of local precursors in these regions. Scholars have linked the Sögel-Wohlde swords to two major influences: the Hajdúsámson-Apa type metalwork from the Carpathian Basin and the swords of the Northern Alpine Tumulus Culture. The origins and development of these weapons, however, remain a subject of ongoing research. The project "Origin, Development, and Technology of the Sögel-Wohlde-Kreis" seeks to clarify these relationships by analyzing the chemical composition and lead isotope ratios of relevant swords, including tin and copper isotopic values of similar artifacts found throughout Northern and Central Europe. By employing multi-proxy data, the project aims to identify the ore sources supplying metal to each region and to uncover archaeometric similarities and connections between these artifacts. Preliminary results from chemical and lead isotopic analyses reveal that the Mitterberg mine, which had only recently become operational, was a major copper supplier for sword production across all regions. While Slovakian, British and southern Alpine copper was also used but to a lesser extent. The existence of extensive copper supply networks is evident, yet regional and typological variations suggest that ancient smiths either had limited access to certain copper sources or preferred distinct supplies for crafting their swords.

2384. Metallographic Insights into Early Viking Weapons from the Salme Ship Burials

Authors: Ragnar Saage (Aarhus University, Department of Geoscience)
Format: Oral

This paper presents the first results of the research project "Brothers in Arms: Provenancing Metal War Gear from the First Viking Raid to the East" (MetRa). In the 8th century AD, a battle took place near present-day Salme, on the Estonian island of Saaremaa in the Baltic Sea. The remains of one of the war parties were discovered in 2008 and 2010 in the form of two ship burials containing the remains of more than 40 male warriors. The ships were used as improvised burial structures for a mass grave and contained a

rich assemblage of grave goods, including weapons, gaming pieces, and personal items such as combs. Based on aDNA analysis, four of the warriors were identified as brothers. This exceptional find provides a unique opportunity to investigate the weaponry buried with members of the same family. The main objective of the project is to determine the provenance of the iron and copper alloys used in their weapons. As a first step in this provenance study, metallographic analyses of swords were being conducted. These analyses allow for the characterisation of the iron and steel used in their manufacture. In addition, the forging patterns of the bladed weapons were examined, as they offer valuable insights into production technologies and the deliberate choices made in combining iron and steel. This research is supported by an EC Horizon MSCA Postdoctoral Fellowship.

1795. From Ore to Slag: Interdisciplinary Perspectives on Iron Production in the Pisogne District

Authors: Elisa Grassi (National Research Council - Institute of Heritage Science)
Format: Oral

The iron mining and production district of Pisogne (Lombardy, northern Italy) provides an exceptional case study for investigating long-term technological change through an interdisciplinary archaeometallurgical approach. Documented from at least the 10th century to the mid-20th century, this landscape preserves extensive evidence of mining and ironworking activities. Within a broader project dedicated to heritage documentation and enhancement, archaeological survey, geoarchaeological analysis, and historical research were integrated to identify, map, and interpret more than 120 mining sites and approximately 30 iron-processing structures, including 15 roasting kilns. This paper focuses on the contribution of archaeometallurgical analyses within this research framework. Slags, roasted ores, and metallurgical residues collected during field survey were analysed using Scanning Electron Microscopy (SEM), X-ray Diffraction (XRD), and X-ray Fluorescence (XRF), in collaboration with industrial and research laboratories. When interpreted alongside spatial distribution, geological context, and archaeological data, these analyses enable a more nuanced reconstruction of local metallurgical practices. The slag assemblage reveals evidence for multiple production technologies, including direct smelting associated with medieval bloomery furnaces and materials linked to indirect smelting processes that became widespread in the later Middle Ages. In some instances, slag morphology and composition suggest pig-iron refining and possible steel production. Rather than representing discrete technological phases, the evidence points to gradual adaptation and technological continuity within a persistent metallurgical landscape. This study demonstrates the interpretive value of integrating laboratory analysis with landscape and historical approaches to understand innovation in long-term ironworking traditions.

2702. Challenges and case studies of Andean metalworking

Authors: Sebastian Wärmländer (Stockholm University | Cotsen Institute of Archaeology, UCLA)
Format: Oral

The history of South American metalworking still presents a number of unresolved questions, despite decades of archaeological and historical research. This is especially true for the Andean region, where in pre-Columbian times alloys of copper as well as precious metals were crafted into intricate objects of both decorative and utilitarian use. After European arrival, new methods were introduced and metal production became more industrial. Indigenous styles and techniques did not survive as independent traditions, but were modified and persisted to some extent in hybrid and Christianized expressions, such as in decorative objects crafted for churches. In this work, analytical metallographic techniques such as imaging and elemental compositional analysis with scanning electron microscopy (SEM), chemical characterization with X-ray diffraction (XRD) and infra-red (IR) spectroscopy, and optical microscopy analysis of polished and etched cross sections, are used to investigate different aspects of Andean metalworking in different case studies. By investigating both pre- and post-Columbian material, as well as studying both metal production/extraction and finished objects, we are able to illustrate the diversity of the outstanding research questions faced in South American archaeometallurgy.

2722. EDXRF Analysis of Silver Punch-Marked Coins from Bangladesh: Linking Composition to Typology and Trade in Ancient Bengal

Authors: Sabikun Naher (Jahangirnagar University, Savar, Dhaka, Bangladesh) – Mukant Bishwas – Md. Farhadur Rahman (Independent Researcher)
Format: Oral

Punch-marked coins represent the most ancient numismatic evidence in Bengal as well as in the Indian subcontinent. They are primarily made of silver or silver-based alloys, although a few examples made of copper and, rarely, gold have also been found in South Asia. The present study integrates Energy Dispersive X-Ray Fluorescence (EDXRF) analysis with numismatic studies and historical interpretation to examine thirteen silver punch-marked coins from Bangladesh, three from Mahasthan (Bogura), and ten from Naogaon; spanning Janapada (600–400 BCE) and Imperial (500–200 BCE) series. The analysis reveals a high silver content (90.47% to 95.51%) across all specimens, with trace elements such as copper, lead, gold, silicon, and iron indicating variations in metallurgical recipes. Notably, the Janapada series exhibited elevated levels of lead and gold (Pb up to 0.98%, Au up to 0.60%), suggesting the use of different ore sources or refining methods compared to the relatively uniform composition of the Imperial coins. These compositional differences may reflect regional metallurgical traditions, access to diverse mineral resources, and evolving economic integration within early South Asian polities. The presence of trace elements such as Cr, Ni, and Fe hints at specific ore signatures, supporting hypotheses of multiple supply zones and long-distance exchange networks that included silver mining and circulation routes across ancient Bengal and possibly beyond. By combining punch-mark typologies and socio-economic histories,

these archaeometallurgical findings offer valuable insights into possible coin provenance, technological choices, and the broader dynamics of trade, resource procurement, and political economy in early South Asia.

21. Medieval Copper and Copper-Alloy Circulation at Unguja Ukuu around the Western Indian Ocean

Authors: Jingyuan (Yvonne) Zou (School of Archaeology, University of Oxford)
Format: Oral

Located on Zanzibar's south coast, Unguja Ukuu (c. 6th–17th centuries CE) provides a key context for examining how copper and copper alloys circulated and were reworked within early Swahili coastal communities. This paper applies an integrated archaeometallurgical approach, combining metallography, trace-element analysis, and lead isotope analysis, to investigate metallurgical practice, material variability, and metal provisioning within a region embedded in Indian Ocean exchange networks. The study draws on a representative selection of non-ferrous artefacts from controlled excavations. Analytical attention is directed toward compositional diversity, working histories, and isotopic variability, with the aim of assessing how different forms of metal entered circulation and were transformed through use and reworking. Rather than presupposing coherent supply systems, the analysis evaluates the extent to which metallurgical evidence reflects heterogeneity in materials, practices, and knowledge transmission. By situating laboratory data within broader archaeological and historical discussions of exchange, the paper explores how metal circulation can be used to interrogate connectivity and technological decision-making along the Swahili coast. More broadly, it demonstrates the value of integrated archaeometallurgical approaches for examining economic and social processes in early Indian Ocean contexts, while foregrounding methodological questions relevant to fragmentary and possibly recycled assemblages.

299. Revisiting the metal artifacts excavated by the French Expedition at Enkomi

Authors: Edi Grabar (University of Cyprus) – Andreas Charalambous (The Cyprus Institute) – George Papasavvas (University of Cyprus)
Format: Oral

The French Expedition, which was led for its better part by Professor Claude Frédéric-Armand Schaeffer, conducted archaeological excavations at the site of Enkomi in Cyprus during the middle part of the 20th century, starting in 1934 and resuming in 1946 until 1974. Even though a good portion of the many metal artifacts from these excavations have been published, numerous other examples had not undergone any conservation or study and, therefore, remained unpublished. The repertoire of the unearthed copper-based artifacts is varied, including numerous types of tools (adzes, axes, awls, chisels, drills, knives, shovels, and sickles), weapons (arrowheads, daggers, spearheads, and swords), vessels (mainly hemispherical bowls), objects of personal use (bracelets, fibulae, mirrors, pins, razors, rings, spiral rings, and tweezers), statuettes, and even fragments of copper ingots. There is an additional problem in this situation that the excavation records do not provide sufficient information of their context. This is why a thorough revision of these bronzes, stored in the Cyprus Museum in Nicosia, including detailed presentation, measurements, metal analysis, and interpretation of well-preserved objects, will largely contribute to the understanding and reconstruction of the social and cultural environment of Enkomi and, given the importance of this site, for Cyprus in general. To reach the most reliable results, it is important to include and combine traditional methods and available typological studies, together with more advanced methodological and scientific approaches, as applied in the study of archaeological material. With the use of non-destructive X-ray fluorescence analysis (XRF) in this research, it will be possible to obtain crucial data on the elemental composition of the copper-based artifacts, which will provide new insights into metalworking activities, technological achievements, and social dynamics during the Late Bronze Age in Cyprus. With the complete XRF analysis, it's possible to interpret and present the final results of metal analysis.

1423. Density-Based Classification and Iron Content Estimation of the Bloomery Iron Semi-Products: An Experimental Approach to Post-Reduction Technological Characterization

Authors: Tena Karavidovic (Institute of Archaeology, Zagreb) – Ádam Thiele (Budapest University of Technology and Economics, Budapest)
Format: Oral

The study presents a framework for estimating metallic iron content and the degree of refinement in archaeological iron semi-products using non-destructive bulk density measurement. Visual inspection, simple metrics and conventional structural analysis reveal aspects of bloomery technology but seldom yield comparable quantitative indicators of technological practice. Moreover, structural analysis frequently includes invasive sectioning. To address this limitation, changes in semi-product density during post-reduction refining—from iron sponge to purified bars—were evaluated through a programme of experimental refining, density measurement, structural analysis and predictive modelling. On this basis, a four-stage typology with indicative density ranges is proposed: (1) uncompacted sponge, 3–4 g/cm^3; (2) compacted bloom, 3.5–5 g/cm^3; (3) reheated/consolidated bloom, 5–6 g/cm^3; and (4) purified bars with slag inclusions - 7.5 g/cm^3. A linear relation between bulk density (ρ) and metallic iron content (Fe%) was derived ($Fe\% \approx 9.2\rho + 27$), permitting estimation of metallic iron content and mass of a semi-product at any given density i.e. post-reduction processing stage. The framework standardises technological characterisation of iron production stages and supports comparative analysis across diverse archaeological contexts through a replicable, scalable protocol linking experimental archaeology with morphology-based artefact analysis.

985. Mastering metalwork: Progress and new perspectives on a recently discovered Roman armour decoration technique

Authors: Matej Kmosek – Martijn Wijnhoven (Institute of Archaeology of the Czech Academy of Sciences, Brno)
Format: Oral

Roman military equipment frequently employed tin coatings on copper alloy surfaces to create visual contrast. This decoration has traditionally been interpreted as a by-product of embossed ornamentation, with tinning confined to recessed areas. New interdisciplinary research of a Roman chest plate from Mušov (Czech Republic) challenges this interpretation and demonstrates that partial tinning could also function as an independent decorative technique. Micro-XRF mapping, SEM/EDS, metallography, and traceological analysis enabled to observe the original tin distribution and indicate that selected areas were deliberately masked during the tinning process. Experimental reconstructions tested possible masking methods using materials available in the Roman period, showing that mechanically applied organic substances can successfully reproduce archaeological material. The Mušov armour highlights a sophisticated chaîne opératoire and suggests that masked partial tinning represents a broader, previously unrecognised decorative practice in Roman military metalwork. Following its identification in the Mušov example, additional pieces of Roman military equipment were examined with similar methods, indicating that the technique is more widespread, although not always easily recognised by the naked eye. This study demonstrates the value of combining analytical techniques with experimental archaeology to better understand ancient manufacturing technologies.

1740. Expressing Personal Identity through Non-Ferrous Metal Jewellery Decoration: Silver and Tin in 5th–10th Century Lithuania

Authors: Egle Rimkiene – Audronė Bliujienė (Insitute of Baltic Region History and Archaeology, Klaipėda University)
Format: Oral

Drawing upon recent archaeometallurgical analyses and contextual archaeological data, this study presents an overview of changes in the elemental composition of copper and silver alloys over the period under discussion. Integrating compositional analyses with archaeological context, the research explores how choices in alloy composition and decorative surface treatments, including silver plating and tinning, shaped the visual appearance and social meanings of ornaments worn by communities across present-day Lithuania. Particular attention is given to silver jewellery, especially neck rings, which represent one of the most significant ornament types throughout the period. The study examines how variations in alloy quality, weight and size may have influenced the expression of personal and social identity. Silver circulation is considered in relation to Migration Period processes and the appearance and subsequent decline of Arabic dirhams in the eastern Baltic region. Analytical results obtained through portable XRF and metallographic examination of brooches, dress pins and pendants demonstrate the deliberate use of ornamented silver foil plates alongside soldering and tinning techniques to enhance the visual impact of jewellery. Such technological solutions enabled craftsmen to produce visually striking and fashionable objects. Regional variation in decorative schemes and metallurgical practices indicates the coexistence of local production traditions with wider networks of technological knowledge exchange. By integrating material analyses with archaeological interpretation, it is argued that technological decisions were not purely economic or functional but were embedded in social communication practices. The manipulation of alloys and surface treatments thus emerges as a deliberate strategy for negotiating identity within dynamically changing social structures over a long chronological span. The recurring preference for bright, silvery surfaces suggests that colour symbolism played an important role in expressing status, participating in social ceremonies and reinforcing personal and communal identities.

272. Rethinking socio-economic dynamics through metal analysis in Megara Hyblaea (Syracuse, Italy)

Authors: Beatrice Risposi (University of Rome Tor Vergata)
Format: Oral

Over the past decade, research on metal artefacts in Greek Sicily has expanded considerably. Scholars have shed light on patterns of circulation and use, as well as the role of metal objects in exchange, social interaction, and votive practices. These advances stem from the contextual analysis of typological data. Recent work at Selinus has been especially important: its agora has yielded the largest published assemblage of metal finds currently known from a Greek city in the western Mediterranean. At Megara Hyblaea, however —founded by Megarians in the late 8th century BCE on Sicily's eastern coast— this evidence remains limited. Current knowledge of metal artefacts derives mainly from necropolis contexts, leaving their role within the urban sphere poorly understood. A doctoral project launched in 2025 at the University of Rome Tor Vergata seeks to address this gap. The research examines largely unpublished metal finds from the urban area, particularly the agora and the South Plateau settlement, both excavated from the 1950s onwards by the École française de Rome. The project aims to identify supply networks for metal resources and to clarify the economic, social, and cultural processes that shaped their circulation and use at both local and regional scales between the 7th and the 3rd centuries BCE. This paper presents the project's methodological framework and discusses its first results. It focuses on the integration of typological, metrological, and use-wear analyses with spatial and contextual data to reassess the functional and contextual distribution of metal artefacts across the urban landscape over time. Preliminary evidence highlights a significant diversity of production origins and a small proportion of artefacts of Greek manufacture. This contrasts with the picture emerged from studies of the necropoleis, and points to more complex forms of access to metal resources than previously assumed for Archaic and

Classical Megara Hyblaea.

1944. Workshop origin of precious metal artefacts from Early Medieval Croatia

Authors: Mirja Jarak (University of Zagreb, Faculty of Humanities and Social Sciences) – Damir Doračić (Archaeological Museum in Zagreb) – Maja Petrinec (Museum of Croatian Archaeological Monuments in Split) – Petra Jeršek (University of Zagreb, Faculty of Humanities and Social Sciences)
Format: Oral

The paper is devoted to the recent researches into workshop origin of metal artefacts from Dalmatia, dated to the 8th and 9th century. The researches have been planned in the frame of the Croatian Science Foundation project entitled „The 8th and 9th century workshop production and imports at the territory of Northern Dalmatia". The metal objects have an important place among the project aims. Interpretations regarding their supposed origin (especially of those ascribed to the Carolingian and Byzantine workshops) will be supplemented by analyses of material and tools used in their production. The project includes different analytic methods (SEM-EDS, XRF, PIXE. PIGE, FIB SEM-EDS+EBSD) that will provide new data important for conclusions on workshop origin. In the paper, the results of investigation of several precious archaeological objects obtained so far, will be presented and discussed. That kind of knowledge has been missing in the Croatian archaeological literature, so the new data could significantly improve our insights into the provenance of Early Medieval metal objects from Croatia.

71. Analyses and interpretations of selected examples of Wielbark Culture metal jewelry from settlement zone C (DGB UŁ IDUB No. 63/DGB/2024)

Authors: Wojciech Rutkowski (University of Lodz, Institute of Archaeology) – Irena Podolska-Rutkowska (University of Lodz, Doctoral School of Humanieties)
Format: Oral

This poster presents partial results of a project involving research on Wielbark Culture jewelry discovered in women's graves dating from the 2nd and 3rd centuries AD. The proposed project is related to the Wielbark Culture settlement zone C, which encompasses several contemporary regions of Poland (the Greater Poland Lake District, the Krajeńskie Lake District, and the Tuchola Forest). Zone C is associated with the presence of Wielbark Culture cemeteries with rich graves furnished with women's jewelry made of copper, silver, and gold alloys (fibulae, S-shaped clasps, pendants, beads, bracelets, pins, and rings). The chronology of this phenomenon stretches from the early settlement of this zone by the Wielbark Culture population in phase B2a to its gradual abandonment, which concluded in phase C1b. During the study of Wielbark crafts, the trace-tracing method was applied to artifacts, based on microscopic and macroscopic analyses, which plays a key role in the interpretation of production traces, including tools and traces of use. Examining an object under multiple magnification allows one to see both craftsmanship errors and similarities in the marks left by tools. Another positive aspect of this method is the ability to determine the specific characteristics of a goldsmith's workshop inventory. Finding identical flaws or ornamental defects on different artifacts provides evidence of undeniable production using a single tool, which was tested through archaeological experiments. Also crucial to the project is the analysis of the elemental composition of metal alloys for selected artifacts using X-ray radiofrequency (XRF) spectrometry. The research resulted in a more precise definition of the craftsman's (goldsmith, foundryman, and blacksmith) production strategy and the techniques used to achieve a satisfactory result—the finished object. The overall characteristics discovered during the research allow for a broader understanding of the biographies of the objects studied.

192. Addressing gaps in understanding the metal provenance of KGK VI copper artefacts from Southeastern Romania

Authors: Adelina Darie (Archaeosciences Platform, Research Institute of the University of Bucharest | Bucharest Municipality Museum) – Dragoș Mirea (Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering) – Robert Tykot (Department of Anthropology, University of South Florida) – Valentin Parnic (Lower Danube Museum, Călărași) – Cătălin Lazăr (Archaeosciences Platform, Research Institute of the University of Bucharest)
Format: Oral

Recent analysis of radiocarbon dates distributions across the Balkans indicates significant demographic growth between approximately 4560 - 4281 BCE (Eneolithic/Chalcolithic/Copper Age), coinciding with the expansion of Kodžadermen-Gumelnița-Karanovo VI (KGK VI) communities on both sides of the Danube River by c. 4500 BC. This demographic and spatial dynamism was accompanied by increased mobility, which stimulated the production and circulation of metal artefacts through established exchange networks linking the Danube corridor, Northeastern Bulgaria, and the Black Sea coast - routes previously used for the movement of domesticated animals, flint, ceramics, and other materials. Metals were not uniformly available across the Balkans, requiring prehistoric communities to transport raw materials over considerable distances. In this context, the geological characteristics of southeastern Romania are particularly relevant, as the region lacks metal-ore deposits. Archeometallurgical research over the past three decades has documented the existence and exploitation of copper sources by prehistoric communities in the Central and Eastern Balkans. A selection of tools as well as ornaments from the Romanian plain KGK VI sites (Chitila-Fermă, Gumelnița, Glina, Măriuța-La Movilă, Sultana-Malu Roșu, Sărulești, Vidra) were the subject of XRF and PIXE analyses and a number of them will provide samples for the lead isotope analyses in order to identify the possible raw material sources used in the manufacturing process of the Gumelnița copper artefacts. The results will be correlated with the existing data on the copper ores exploited during the Eneolithic times and the copper-based artefacts from the KGK VI area, located in Northeastern Bulgaria. This work is supported by ICUB Fellowship for Young Researchers, at the Research Institute of the University of Bucharest, within the project "The impact of lead isotopic analyses in the provenance of copper objects belonging to the Kodžadermen-Gumelnița-Karanovo VI cultural complex of the last half of the 5th millennium BC" (grant no. 8227/03.09.2025).

689. Exploring Mobility and Trade Networks in the Early Bronze Age: An Interdisciplinary Investigation of an Early Bronze Dagger from Horsens

Authors: Marie Rasmussen (Museum Horsens) – Heide Noergaard (Moesgaard Museum)
Format: Oral

During an archaeological excavation near Horsens Fjord in East Jutland, Denmark, a grave dating to the Early Bronze Age (1700-1500 BC) was uncovered. While no human remains were found, three significant artifacts were recovered from the burial, offering a glimpse into the material culture of that time. These artifacts included a battle axe made of sandstone – a replica of a Fårdrup-style bronze axe, a flint dagger of Type VI, and a bronze dagger, which still retained some preserved organic material from its scabbard and handle. To unravel the mysteries behind the identity of the buried individual, a team of archaeologists and material scientists conducted several analyses. A mix of archaeological, typological and archaeometallurgical investigations (metallographic analyses, lead isotope analyses) combined with use-wear trace analyses were performed on the bronze dagger to shed light on the trade networks and active connections during this period. These analyses provided valuable insights into the dagger's materials and origins, highlighting its special position within the material culture of the early Bronze Age and suggesting long-distance interactions and trade. The results not only support the hypothesis of significant mobility and connectivity within the Danish Early Bronze Age but also emphasize the role of metal artifacts as tangible evidence of the complex networks that influenced the social and economic dynamics of Bronze Age societies.

72. Disc shaped strap-end fitting from Siemkowice. Reconstruction of the decorating process

Authors: Irena Podolska-Rutkowska (University of Lodz, Doctoral School of Humanieties) – Wojciech Rutkowski (University of Lodz, Institute of Archaeology)
Format: Poster

In the spring of 2021, a belt end fitting was accidentally discovered near Siemkowice in the Pajęczno district using a metal detector. The artefact is dated to phases D1–D2 of the Migration Period and classified as type C according to M. Sommer's typology. The find formed the basis of an experimental study aimed at reconstructing the manufacturing sequence and decorative techniques used in the production of this type of fitting. The production process began with marking the centre of the disc-shaped element and punching a reference point to ensure symmetry. Circular guidelines were drawn using a compass to assist in the placement of stamped ornamentation. Almond-shaped borders were then carved, followed by the application of almond motifs, a repeating tonsil pattern, and an S-shaped design. Additional decoration was created with a triangular punch, producing alternating triangular motifs. The upper part of the fitting was embellished with a small fan-shaped ornament. The sides were filed to form diagonally sloping edges, and the surface was finally polished with an iron needle. The experiment employed reconstructed tools based on Roman and Central European Barbaricum finds, providing insight into Migration Period craftsmanship.

185. Reproducing early Renaissance casting technologies: monumental statues

Authors: Marianne Mödlinger – Bastian Asmus (Universität Innsbruck) – Martin Fera (University of Vienna, Department of Prehistoric and Historical Archaeology) – Marc Gener-Moret (National Center for Metallurgical Research - CENIM–CSIC, Madrid) – Ursula Marinelli (Independend researcher, art historian) – Cristina Thieme (Universität Innsbruck)
Format: Poster

The 28 "Schwarze Mander" rank among the most splendid monumental copper-alloy sculptures of the Renaissance. Commissioned by Holy Roman Emperor Maximilian I for his funerary monument in the early 16th century, they were completed more than three decades after his death. Complementary study of original manuscripts and correspondence between Maximilian I and the participating artists further illuminates the enterprise. The copper and brass statues were cast using the lost wax technique. During the course of the project, we will recover and reproduce historical foundry practices. In our presentation, we will showcase the initial practical studies on recreating one of the statues: the Statue of Albert IV, Count of Tyrol (1197–1239), which was cast by Stefan Godl in 1518. Reference: Mödlinger, M., Asmus, B., Ghiara, G. The "Schwarze Mander" of the court church in Innsbruck, Austria: manufacture and production of monumental brass statues in the Renaissance. International Journal of Metalcasting 2024. doi: 10.1007/s40962-024-01299-4.

295. The earliest spur featuring a zoomorphic motif from the slavic lands. Reconstruction of the casting process

Authors: Wojciech Rutkowski (University of Lodz, Institute of Archaeology) – Irena Podolska-Rutkowska (University of

Lodz, Doctoral School of Humanieties) – Magdalena Piotrowska (Institute of Archaeology and Ethnology, of the Polish Academy of Sciences)
Format: Poster

In 2014, a fragment of a spur was discovered at the archaeological site in Kwiatków, located in the Turek District, Brudzew Commune. The artefact was found in section G75 within mechanical layer I and is believed to originate from a nearby early medieval burial ground. Typological analysis assigned the object to technotype I according to J. Żak, indicating a date between the 8th and 9th centuries, which corresponds with the pottery assemblage from the site. The spur was produced using the lost-wax casting technique. In the first stage, half of the wax model was covered with clay, and the contact surface was greased before applying the second half of the mould. In the next stage, the mould was fired to remove wax and moisture, joined with fresh clay, and filled with molten metal. After cooling, the mould was opened and the casting removed. The semi-finished spur was then filed, the pivot cut off, and finishing techniques applied to achieve its final form.

318. Intentional or accidental? The use of Steel in medieval crossbow bolts

Authors: Filip Vološin (Archaeology Institute of Slovak Academy of Sciences)
Format: Poster

This poster investigates whether the presence of steel in medieval crossbow bolts from the Czech lands (13th–15th centuries) represents intentional technological choices or incidental outcomes of ironworking practices. The study adopts an interdisciplinary archaeometallurgical approach combining metallographic analysis with typological assessment and archaeological context. A total of 46 crossbow bolts were subjected to metallographic examination. Samples were sectioned along their typological length to evaluate internal material structures, including the distribution and proportion of iron and steel components. Mechanical and chemical properties were analysed to assess forging techniques and the application of heat treatment, and to explore how material choices corresponded to functional requirements imposed by different types of crossbows. The assemblage originates from several castle sites (Rokštejn, Cornštejn, Vranov nad Dýjí, Skály, Bítov, Červená Hora, and Mokřice) and from the deserted medieval villages of Stančice and Střenčí, enabling both regional and contextual comparison. While many bolts were manufactured from relatively homogeneous iron, others display deliberate combinations of iron and steel as well as evidence of controlled heat treatment, suggesting a higher level of technological awareness. Based on these observations, the bolts were classified into several technological categories reflecting different approaches to the use of steel. These patterns can be interpreted as indicators of intentional design decisions, distinct production traditions, or local blacksmithing practices rather than accidental material variability. By integrating metallurgical data with typological and historical perspectives, the study offers new insights into medieval military technology and craft organisation, shedding light on the technological reasoning behind the manufacture of one of the most widespread weapons of the High Middle Ages.

2441. Metallurgical activities in the rock-cut coastal landscape of Myrina Kastro, North Aegean

Authors: Yorgos Facorellis (University of West Attica) – Christina Marangou (Independent scholar)
Format: Poster

On the western coast of the island of Lemnos, a long-lasting study of the Myrina Kastro hilly peninsula is carried out with the permit of the Greek Archaeological Service, the Local Council of Monuments and the Greek Ministry of Culture. The volcanic rocks of the headland have been carved at least since late prehistory and during antiquity into various structures and petroglyphs. Rock-cut features are observed in all sectors and altitudes, often suggesting symbolic behaviours, but also concrete practical uses. The study included subsurface research in selected zones (2002-2007), which allowed the collection of various mobile finds, including metal artefacts, as well as carbon14 dated organic samples. Furthermore, study and physicochemical analyses permitted to identify, in at least two areas of the peninsula, traces of iron metallurgical activities apparently related to rocky carved formations. This seems particularly promising, due to the proximity and interconnection of the site with the coast and the sea, on the island which was the "dearest of all lands" for Hephaistos, the god of metallurgy. The paper endeavours to briefly present the results of these analyses (pXRF, XRD, SEM/EDS) and suggest possible interpretative directions of the findings.

284 KEY TESSERAE OF MEDITERRANEAN HISTORY FROM ANCIENT MACEDONIA

Theme: 8. Beyond the Middle Sea: rethinking the Mediterranean in motion
Organisers: Nick Angeloff – Jessica Morris (Cal Poly Humboldt) – Engin Nasuh (Institute and Museum Bitola)
Keywords: Mediterranean, Macedonia, Lyncus, Demir Kapija, Sociopolitical, Environmental
Format: Regular session

SESSION ABSTRACT

Upper Macedonia of antiquity is a relatively under published region when compared to the literature from our colleagues studying Lower Macedonia. Partnerships between Museum Bitola, Institute Prilip, Center for Archaeological Research Skopje and Cal Poly Humboldt are producing research in two distinct regions of the Republic of North Macedonia, Lyncus and Demir Kapija. The results of this ongoing research are significant to our understanding of the Hellenistic era and the role of ancient Upper Macedonia in shaping our shared history. We present our research at Demir Kapija, a Hellenistic military fortress at a key strategic location, its architectural design, the archaeological evidence for its construction by Cassander, its operation, and ultimate destruction by the Celts within the social, political and environmental context of the late Argead and early Antigonid kingdoms. From Crnobuki, we present an analysis of a large cache of late Roman Republic coins, and the results of geoarchaeological, environmental, textile, remote sensing and ceramic analyses. This region acted to provide resources and defense of the northern borders of ancient Macedonia. From Crnobuki we see a development of trade networks linked to the Mediterranean, whether it be imported ceramics from Egypt and other coastal exchange networks, the manufacture for export of various goods, or evidence tying the location to the provision of resources to the Macedonian Kingdom and Roman Republic. The site is a significant location within the seat of power in Upper Macedonia, providing a view of social and political change from the Eneolithic through the Roman empire from a perspective outside of Pella but inextricably tied to Macedonian power. We present our combined research in the context of political and social organization from regional and global perspectives. This research represents a key tessera in the mosaic of European history.

CONTRIBUTION ABSTRACTS

2635. Markova Kula: A Hellenistic Fortress from Demir Kapija

Authors: Justin Carlson (Cal Poly Humboldt) – Ordanche Petrov (Institute for Old Slavic Culture - Prilep) – Nick Angeloff (Cal Poly Humboldt)
Format: Oral

We present the results of 2016 and 2025 excavations at Markova Kula, a Hellenistic fortress overlooking the Demir Kapija Gorge. Markova Kula lies along a major trans-Balkan Road route that connects continental Europe with the Mediterranean basin. The Demir Kapija Gorge is the last and most formidable obstacle on this route before reaching the Aegean basin. The fortress is one of the best-preserved and northernmost examples of Hellenistic architecture on the Balkan mainland. The goals of the excavations were to determine the building plan, chronology, and construction methods at both entrances of the fortress. The excavations demonstrate that the military outpost was built using ashlar masonry techniques during a single construction phase. The fortress has symmetrical measurements, rectangular layout and sharply defined wall edges, suggesting that it was built following an original architectural plan fully executed during this single phase of construction. During the fieldwork, the building plan was fully documented with scale drawings and drone imagery. Analysis of artifacts, including coins and ceramics, provides a relative chronology indicating that the fortress was erected during the reign of the Macedonian king Cassander (317/305–297 B.C.) and likely abandoned following the Celtic raids in the Balkans in 279 B.C. Because Markova Kula was located along a major transportation route, and occupied for a short period of time with no later construction episodes, it is significant for our understanding of Hellenistic military strategies and architecture during late 4th century-early 3rd century B.C.

1659. Archaeological Perspectives on Celtic Movement in the Vardar (Axios) Valley

Authors: Mollie Kauderer (Cal Poly Humboldt) – Kolbe Anderson – Asli Erem (Cal Poly Humboldt)
Format: Oral

This paper examines Celtic movement through the Vardar (Axios) Valley in Upper Macedonia. The study focuses on excavations at Markova Kula, a Hellenistic military fortress overlooking the Iron Gates gorge, alongside archaeological and historical evidence from the surrounding region. The Iron Gates represent a constricted section of the Vardar Valley, forming a strategic corridor that linked Upper Macedonia with the Aegean and facilitated movement between the Mediterranean world and the northern Balkans. At least seven known fortresses, including Markova Kula, are located in the Demir Kapija region, reflecting sustained efforts to control this landscape across multiple periods. Archaeological evidence suggests that during the early third century BCE, Markova Kula was impacted by conflict associated with Celtic movements into Upper Macedonia dated around 279 BCE. This paper highlights patterns of interaction between Celtic groups and the local Macedonian population. Emphasis is placed on how environmental features—particularly the Vardar River and its surrounding terrain—shaped migration routes, military strategy, and cross-cultural contact.

1707. Layers of Continuity: Site Formation, Landscape Use, and Cultural Persistence at Crnobuki Gradishte, Upper Macedonia

Authors: Jessica Morris (Cal Poly Humboldt) – Engin Nasuh (NI Museum and Institute Bitola) – Nick Angeloff (Cal Poly Humboldt)
Format: Oral

This paper presents the results of a multi-year investigation of site formation processes at Crnobuki Gradishte, a multi-period acropolis in the Pelagonia region of Upper Macedonia near Bitola, North Macedonia. Drawing on stratigraphic analysis, sediment and

soil studies, remote sensing, and targeted excavation, the research examines how human activity and environmental processes interacted across long-term cycles of occupation, reuse, and abandonment. Evidence points to occupation at the site spanning from the Eneolithic through the Roman Empire, providing a rare opportunity to examine continuity and transformation at a long-lived inland center. Stratigraphic sequences and depositional contexts reveal patterned rebuilding, landscape modification, and sustained use of the acropolis that reflect both local practices and broader regional dynamics. These findings are contextualized through high-resolution LiDAR, photogrammetry, and ground-penetrating radar data, which situate Crnobuki Gradishte within wider networks of settlement, resource management, and exchange across Upper Macedonia. Evidence from material culture, including ceramics, coinage, and production-related remains, further demonstrates the site's integration into Mediterranean trade networks while maintaining strong ties to regional modes of production and land use. By foregrounding site formation and landscape archaeology, this paper argues that Crnobuki Gradishte functioned as a persistent node of social, economic, and political significance over millennia. The results contribute to broader discussions of Upper Macedonia's role in shaping Hellenistic and Roman-period social and economic networks and highlight the importance of inland landscapes as active participants in Mediterranean history. This research represents a key tessera in understanding cultural continuity and transformation in ancient Macedonia.

1698. Tools of the Trade: Investigating Textile Production on the Macedonian/Roman site of Crnobuki, Macedonia - Updates from the Field

Authors: Barbara Klessig, Ma (Cal Poly Humboldt)
Format: Oral

Globally, textiles are one of the most common threads we have with other human beings. Humans have developed an intricate and amazing process in textile production that includes a variety of tools, materials and technologies. The tools used in ancient textile production may seem simplistic and crude, but in actuality, are feats of ingenuity and creativity. As ancient textiles themselves do not survive as frequently as other forms of artifactual evidence, the tools used and the technologies behind them are a critical resource for understanding the processes involved in textile production. This presentation takes a preliminary look at the evidence of textile production at the site of Crnobuki, located near Bitola, Macedonia by examining the tools found and their distribution in the excavations from three seasons: 2023, 2024 and 2025. The data being collected includes LiDAR and GPR imaging, physical data on the tools and analysis of their distribution, and soil and phosphate analysis. The aim of this research is 1) to support the proposition that textile production was a large contributor to the economy of the Crnobuki site, 2) gain a better understanding of gender dynamics, and 3) and examine the raw materials and forms used in both the creation of the tools and the production of textiles, to determine whether the materials used were sourced locally or brought in from outside the community.

2634. Lyncesti and Lyncestida A Macedonian Tribe

Authors: Engin Nasuh (Institute and Museum Bitola) – Nick Angeloff (Cal Poly Humboldt) – Slobodon Stojkoski (Institute and Museum Bitola)
Format: Oral

Lyncesti and Lyncestida –Macedonian tribe that around the 7th century BC broke through Eordaya and settled the territory around Lerin and Bitola. As the main center, Lynx is mentioned as capitol center but, we cannot say that it was a developed urban center. The archaeological site of Gradishte near village of Crnobuki could be that center, considering its strategic location, and its assumed size. During the 2021-2025 excavations, among other things, a total of 76 coins were found. To these we can add another 42 coins found in 2011/2012. during reconnaissance and excavations by Viktor Lilčić. These are coins of the Macedonian kings Philip II, Alexander III, Philip V, Perseus, coins of the autonomous cities, the Roman Republic, and of course coins of Octavian Augustus minted in Macedonian during the time of Roman reign in Macedonia. Also included here is the hoard of 217 silver Roman Republican coins found in 2022, which gives us a solid overview of coinage in the last century of the Roman Republic. In this paper, these coins will be presented typologically, and their concentration will also be presented in an attempt to identify the primary economic and civilizational routes in this region.

2605. Lynkus a City of Mediterranean Influence

Authors: Nick Angeloff (Cal Poly Humboldt) – Engin Nasuh (Institute and Museum Bitola) – Slobodon Stojkoski (Institute and Museum Bitola) – Justin Carlson – Jessica Morris – Nyah Hawkins (Cal Poly Humboldt)
Format: Oral

The capital of Upper Macedonia in antiquity has not been confidently identified in the archaeological record. The unification of Upper and Lower Macedonia is solidified with the marriage of Eurydice I, princess of Lynkestia, and Amyntas III. This event leads not only to the unification of the Macedonian Kingdom but represents the establishment of women's power and authority within the kingdom, a power that persists throughout time in Macedonia. Without Eurydice I we don't have Phillip II nor Alexander III, and not just because of the physical act of birthing, but due to the exertion of power and authority to preserve the kingdom by the women of Macedonia. The Roman and Greek sources indicate that the capital of Lynkestia was the City of Lynk or Lynkus but do not provide detailed locational information. It is clear that Upper Macedonia had only one major city, limiting the number of possible locations significantly. Cal Poly Humboldt and Institute and Museum Bitola has been conducting research at the gradishte of Crnobuki, a strong candidate to be the location of Lynkus. We have added a new partner to the team in 2025/2026, Dr.

Viktor Lilchik of the Center for Archaeological Research, Skopje. The Center for Archaeological Research provides a landscape scale perspective to the research having surveyed and tested hundreds of locations in North Macedonia. Their partnership in this research has presented a holistic view of the territory of Lynkestia and insights into the archaeological record that no one else can afford. This presentation provides our assessment of the known potential candidates for the City of Lynkus.

286 UNTANGLING RESILIENCE AND CONTINUITY ACROSS THE ARCHAEOLOGICAL RECORD

Theme: 7. Interaction, connectivity and mobility
Organisers: Giacomo Bilotti (Aarhus University) – Roberto Ragno (McDonald Institute for Archaeological Research)
Speakers: Simon Carrignon (University College London)
Keywords: Resilience, Continuity, Persistence, Settlement Archaeology
Format: Round table

SESSION ABSTRACT

Resilience research has gained momentum to understand how societies withstand and adapt to shocks, particularly given increasing climate change impacts. Archaeologists have been keen to add to this growing compendium, particularly as the archaeological record demonstrates human societies in greater time depth and diversity than provided by solely contemporary studies. This roundtable focuses on Eurasia from prehistory through late antiquity, but we welcome broader comparative perspectives (e.g., the Americas). However, establishing what is resilient, and what is not, in the hyper-heterogeneous archaeological context, is fraught with issues in operalisation, measurement, and inference. Specifically, de-tangling the relationship between the continuity of particular social forms, be it settlements, or cultural groups, and their resilience requires careful consideration. Consider these three cases: Rome started as a combination of small hilltop settlements into a single entity (synoecism) small settlement and grew to 1-1.5 millions at its peak in the 1st century BC-AD, while its size changed in lateantiquity and medieval times, the city was continuously occupied, and continues to be so to do this. In contrast, the predecessor of Ulaanbaatar, the capital of Mongolia, was a mobile monastery town, Orgoo, before settling on the location of modern Ulaanbaatar, Orgoo moved around several times in the Selenge valley. While a key characteristic of agrarian villages is their longevity and spatial fixedness, Neolithic and Bronze Age (ca. 4000 - 500 BC) northern European villages feature the consecutive rebuilding of houses, at slightly different locations, that nonetheless continue to be owned and operated by a family, living in the area continuously. How can we establish resilience when presented with the diversity of the archaeological record? How can we move away from simplified operalisations of resilience, striking the right balance between context-specificity and generalizability? What measurements, and at what resolution, are key in these efforts?

287 BREAKING BOUNDARIES: WOMEN, RELIGION, AND MOVEMENT IN THE ANCIENT MEDITERRANEAN

Theme: 7. Interaction, connectivity and mobility
Organisers: Angela Bellia (University of Palermo) – Erica Angliker – Tais Pagoto Bélo (University of São Paulo)
Keywords: women and religion, movement, ancient Mediterranean, gender/mobility
Format: Session with keynote presentation
Affiliation: Archaeology and Gender in Europe - AGE

SESSION ABSTRACT

The dissemination of religion in antiquity has drawn a great deal of scholarly attention in recent years. The phenomenon relied on the mobility of people, objects, knowledge, and ritual practices. Trans-regional cults, such as that of Isis, depended on extensive maritime and terrestrial networks linking distant Mediterranean communities. By contrast, local traditions, such as the cult of Artemis Amarysia in Euboea and neighbouring regions, were shaped by short-distance, inter-community movement. Yet in both instances, mobility was the key mechanism by which religious practices were spread, adapted, and transformed. The role of women in these processes remains underexplored. As archaeological evidence increasingly shows, the movement of women—temporary or permanent, voluntary or constrained—was central to shaping religious practices and constructing sacred landscapes across the ancient Mediterranean. This panel thus uses archaeology as the primary lens for examining female mobility in religious contexts, while drawing on epigraphy, iconography, textual studies, and digital methods whenever these can enhance the interpretation of material evidence. We invite contributions that are grounded in archaeological evidence from the Bronze Age to Late Antiquity and highlight women's active role in sustaining cult practices, transmitting religious knowledge, and transforming sacred landscapes. Relevant questions include: Who were the women who travelled, and how can we detect their presence archaeologically? Which divinities, sanctuaries, and ritual spaces drew female pilgrims, and how did spatial patterns shape their devotional experiences? What material indicators reveal the movements of priestesses, musicians, healers, prophetesses, and other ritual specialists across sacred landscapes? How do dedicatory practices, iconography, funerary assemblages, and sanctuary deposits reveal women's movement

and their ritual agency? In which contexts did women introduce, sponsor, or reshape cults through travel, diplomatic marriages, migration, and displacement? How did mobility differ across status groups—elite women, artisans, migrants, enslaved women, etc.?

CONTRIBUTION ABSTRACTS

1701. Women as Brokers, Movers, and Shakers: Facilitating Change in Bronze Age Aegean Ritual Practice

Authors: Lauren Alberti – Natalie Abell (University of Michigan)
Format: Oral

Iconography throughout the Late Bronze Age (LBA) shows women involved in ritual practices, while Linear B texts demonstrate that women could hold important religious positions in the later part of the LBA. Yet the role of women as mobile agents who could spur changes in religious ideologies or ritual practices across LBA regional networks has not been explored in much detail. Agents involved in encouraging regional changes in ideology and ritual practice are seldom analyzed through an explicitly gendered lens, and as such, are often implicitly assumed to be male. Recent explorations of mobility in the LBA Cyclades, however, suggest that women were moving between settlements, and as such, should be considered as potential agents for major changes in ritual practice, especially as part of the so-called Minoanization phenomenon. In our analysis, we consider the ways in which mobile women, who were integrated into local households, may have contributed to changes in ritual practices and ideologies. For example, as craft specialists, they would have provided important equipment for ritual and religious events. At the same time, they would have had the opportunity to facilitate ritual practice by coordinating between participating households, local organizers, and visiting participants. Through their contributions in labor and expertise, mobile women could connect different participating groups of people at multiple scales. They had significant potential to act as knowledge brokers who bridged different geographical communities and would have been deeply entangled within Aegean-wide networks. These networks witnessed increased short-term mobility in this era, driven by new patterns of exchange but also probably the development of new ritual calendars. In this environment, women would have had opportunities to shift ideologies and practices in ways that were different from the male merchants, administrators, and elite ambassadors who are usually assumed to be the primary agents of change.

174. The Persian women in attic departure scenes

Authors: Amabile Zanco (State University of Campinas)
Format: Oral

The depiction of a warrior's departure was a very common theme in Attic pottery, particularly in fifth-century Athenian red-figure ceramics. Within a domestic context, the Greek hoplite is shown putting on his equipment, performing the ritual of libation, and taking leave of his family. Although a quintessentially Greek motif, in the second half of the fifth century it is possible to find examples in which a Persian warrior — an enemy much present in Athenian memory after the Greco-Persian Wars — is depicted in this setting, surrounded by female figures who assist him throughout the ritual. Despite the frequent portrayal of Persian women as cruel and scheming in classical literature, as reported by many authors, this rather negative view is not reflected in the women depicted in Attic ceramics in the decades following the conflicts between the Greek city-states and the Achaemenid Empire. Instead, their depiction closely resembles that of the Athenian aristocratic woman, who was responsible for the proper management of the oikos.

1235. From Myth to Cult: Female Religious Mobility in Sinope

Authors: Eleni Mentesidou (International Hellenic Unverisity)
Format: Oral

The ancient Greek city of Sinope, on the southern coast of the Black Sea, emerged through processes of mobility, having been founded as a colony founded by Miletus. Ancient literary sources associate the city with the myths of the Nymph Sinope and the Amazon Sanape, whose stories of arrival at the site later occupied by the city relate to its foundation, the formation of local identity, and its religious traditions. At the same time, the funerary inscription of the priestess Saitta, whose name suggests an eastern origin rather than local Sinopean descent, documents her movement to Sinope and her association with the cult of Leucothea, a deity whose worship was probably introduced by Milesian settlers. The theological profile of Leucothea, characterized by chthonic, nurturing, fertile, and marine aspects, as well as her association with Poseidon Helikonios, situates this cult within the Ionian religious tradition. This paper examines female mobility, from the mythic figures of the Nymph Sinope and the Amazon Sanape to the cultic sphere of Leucothea and her priestess Saitta, as a mechanism in the transmission of cult practices and the formation of sacred landscapes in Sinope, integrating archaeological, epigraphic, and mythological evidence. The narratives of the Nymph Sinope and the Amazon Sanape are approached as accounts of movement that reflect the appropriation of landscape and its connection with the religious life and identity of the city, while the role of female mobility within established cult structures is explored through the case study of the cult of Leucothea and her priestess Saitta. The Sinopean evidence thus demonstrates how the movement of women operated across both symbolic narratives and formal religious structures, shaping local cult practice and sacred landscapes.

297. Rethinking Seafaring Religion: Women, Mobility, and Maritime Sanctuaries in the Hellenistic Aegean

Authors: Sabine Neumann (University of Marburg)
Format: Oral

Maritime mobility shaped the early Hellenistic Aegean, transforming not only economic and political networks but also the religious landscape of the islands. Maritime cults and seafaring deities such as Isis, Aphrodite Euploia, or the Dioscuri have long been studied as predominantly male-coded phenomena, yet women's roles within these religious interaction spaces remain underexplored. This paper argues that women were not passive participants in maritime religion. They played an active and, at times, formative role in founding, sustaining, and reshaping cults across the Aegean. Drawing on archaeological and epigraphic evidence, the paper examines women as cult founders, dedicants, and ritual agents in maritime sanctuaries and port-related cult places, as attested through dedicatory inscriptions, titles, and gendered votive signatures as well as foundation and benefaction contexts. Particular attention is paid to early Hellenistic foundations of Isis cults on Aegean islands. It asks: where do women become visible, and what kinds of action do their traces imply? Mobility here is understood in practical terms. It includes short passages between islands, repeated crossings, and temporary stays in port communities, alongside longer-distance travel. The paper asks how these forms of movement through residence, marriage, migration, or seasonal presence structured cult communities and supported the localization of transregional deities. By foregrounding women's ritual practice and founding initiatives, the paper reframes seafaring religion as a field in which female mobility mattered as a constitutive force. It offers a materially grounded way to think of seaways as gendered religious spaces in the ancient Mediterranean.

2657. Beyond Dance: Female Collective Movement in Ancient Greek Visual Culture

Authors: Marta Nicolás-Muelas (Catalan Institute of Classical Archaeology)
Format: Oral

This paper investigates women's collective movement in ancient Greece through a contextual analysis of dance and processional imagery from the Archaic and Classical periods. It examines how recurring bodily configurations in visual culture can be interpreted as indicators of structured patterns of group movement, rather than as exclusively ritual displays. The study draws on a range of material evidence, including votive plaques, architectural reliefs, and serial figurines from major civic sanctuaries and smaller local cult sites. Particular attention is given to contexts associated with Artemis and the Nymphs in mainland Greece and Magna Graecia. These assemblages frequently depict female groups arranged in ordered sequences, such as circular formations, linked-hand chains, and processions, often in the absence of explicit markers of formal dance. Rather than reading these scenes as performative spectacles, the paper approaches them as visualisations of regulated collective movement rooted in local ritual practice. Special emphasis is placed on colonial contexts in southern Italy and Sicily, where recurrent choreographic schemata appear to be adapted to new landscapes, including extra-urban sanctuaries and mixed communities. Material from sites such as Francavilla, Metaponto, Taranto, and Crotona illustrates the mobility and adaptability of these visual patterns, suggesting flexible modes of collective movement rather than fixed ritual forms. The analysis further considers internal differentiation within female groups, focusing on age categories, such as girls, parthenoi, and adult women, as well as on dress elements, including the polos. These features are interpreted not only as markers of social identity but also as dynamic visual devices that structure hierarchy and emphasise movement. By foregrounding repetition, seriality, and spatial context, the paper advances a materially grounded approach to dance imagery and demonstrates how non-canonical visual evidence can shed light on the organisation, sequencing, and social significance of female collective movement within ancient ritual landscapes.

2114. Women Playing the Aulos in Italiote Vase-Painting: Mobility, Cult, and Funerary Rituals

Authors: João Pedro Fabri – Fabio Vergara Cerqueira (Federal University of Pelotas)
Format: Oral

Italiote vase-painting, produced between 440 and 270 BCE, constitutes one of the most important iconographic corpora of the Late Classical and early Hellenistic periods. This production was organized into regional industries across Magna Graecia, conventionally identified as Apulian, Lucanian, Campanian, Paestan, and Siceliote wares. This paper examines representations of women playing the aulos in religious and funerary contexts. The analysis is structured in two parts. The first offers an overview of the types of scenes in which female aulos-players appear, focusing specifically on Apulian vases. This corpus, being numerically more substantial, allows for a broader and more quantitative assessment of iconographic patterns. The second part expands the discussion to vases from different workshops of Magna Graecia, concentrating on scenes of religious cult and cult of the dead in which women perform music. Particular attention is paid to the ways these images reflect female mobility within ritual frameworks—whether through participation in processions, attendance at sanctuaries, funerary ceremonies, or mythological settings that evoke movement between spaces, both geographical and symbolic. As a distinctive feature of Apulian vase-painting, the paper highlights the emergence of an Ariadne depicted as an auletris in the company of Dionysos during a banquet scene. This imagery not only underscores the association between women, music, and Dionysiac cult, but also suggests forms of ritual and mythological travel, in which female figures mediate between domestic, civic, and sacred spaces across the landscape of Magna Graecia.

2607. A Mother to Whom? | The Goddess Isis and Territorial Maternity

Authors: Shiro Burnette (New York University: Institute of Fine Arts)
Format: Oral

In 1979, Friedrich Solmsen claimed that, contrary to Greek deities, the Goddess Isis lacked "roots" that situated her in a particular location. This presumed freedom facilitated her mobility across the Mediterranean and her assimilation with deities such as Demeter and Aphrodite. Solmsen's characterization is not entirely incorrect as the cult of Isis spread rapidly beginning in the early 3rd c. B.C.E. Apuleius famously recounts a Roman intrigue into this goddess of magic, protection, and motherhood, and 20th century scholars, like Solmsen, similarly investigate her reception in new environments. These works build from a supposed hyper-mobility of the Goddess across space. This attribute grounds her later attestations as a "universal" mother goddess, thus allowing new groups to be adopted into her maternal aegis. Nevertheless, the identifying features of Isis defy a universal application as her throne-adorned headdress connects to her maternity over the rightful King of Egypt. Kingship in Egypt is reified for one's ability to unite the two lands of Upper and Lower Egypt; thus, Isis' dominion can be defined by the geographic parameters of local kingship. How, then, does such rigid territoriality become malleable and stretched to fit larger cultural systems? This paper argues that the agents in the diffusion of the Isis cult used the Goddess' maternal nature to uproot her from one landscape to another. The sacro-political landscape of Republican Rome, specifically, facilitated epistemic violence against its enemies through expansion and conquest. Applying evidence regarding the siting, distribution, and activity of Isis cults in Roman territory, this project underscores how the Goddess' foreign and maternal qualities rendered her suitable for extraction and diffusion. The result broadens our understanding of Roman epistemic and gendered violence against foreign ontologies.

1175. The Sibylline tradition in the Ancient Mediterranean through coins

Authors: Tais Pagoto Bélo (University of São Paulo)
Format: Oral

This presentation is about the Sibyls, priestesses of the god Apollo, who helped shape Rome during the Republic and the beginning of the Empire, through the Sibylline Books. Augustus attempted to use the figure of the Sibyl to form an imperial identity, facing a republican and Mediterranean tradition. The oracular legacy of the Sibyl is observed in the minting of coins with the Sibyls and/or elements linked to them that point to places of Apollonian oracles in various parts of the Mediterranean, such as Cyme, Erythrae, Gergis, Magna Graecia, Sicily, including Rome. This tradition was important in several places in this sea, giving a respectable character to the Sibyls. According to written sources, such as those of Livy, Virgil, Cicero, Dionysius of Halicarnassus, and Tacitus, there seems to have been an anti-Roman character in the Greek and Asian oracles, suggesting that in Rome the Sibylline Books were respected, but not the Sibyls. Through coins, it is possible to identify that this activity was common in various regions of Southern Italy, but with an overseas tradition. In this way, it is necessary to think beyond the regional to understand local issues and how this traditions and Sibyl came from the East, then Greece and finally to Rome. Such analysis will elucidate a cultural interaction within the Mediterranean and a dynamic that will allow us to understand the power relations and the acceptance of Sibylline oracular agencies locally and globally, stemming from intense connectivity and interactions between different regions over time and space. Coins will highlight how this oracular tradition was important in making Sibyls as protagonists agents in a religious legacy over a long duration and in different places of Mediterranean, emphasising contacts, connections and movements.

528. Women, sistra and inscriptions: what information and what developments?

Authors: Arnaud Saura-Ziegelmeyer (Institut catholique de Toulouse, UR CERES)
Format: Poster

This proposal focuses on ancient sistrums bearing inscriptions, both in Egypt and in the Mediterranean basin. These cult objects often feature hieroglyphic inscriptions on their handles, but also in other languages such as Greek, Latin and Meroitic. These inscriptions provide information about the gods and men who communicated through this instrument. In the traditional Egyptian context, the sistrum is most often used by women, whose status sometimes remains ambiguous, inside Egyptian temples. For examples found outside Egypt, an association with femininity can be identified, but seems to relate to different meanings and contexts. Consequently, this poster takes a diachronic approach, ranging from Pharaonic Egypt to the Greco-Roman period, in order to better understand the changes observable through the inscriptions on sistra, whether made of faience or metal. The proposed collective approach allows us to draw on a range of expertise in Egyptology and classical studies, enabling us to grasp the subject in its broad temporal context.

289 CRETAN SANCTUARIES BETWEEN MARGINALITY AND CONNECTIVITY: NEW ARCHAEOLOGICAL EVIDENCE AND REASSESSMENTS

Theme: 8. Beyond the Middle Sea: rethinking the Mediterranean in motion
Organisers: Manolis Petrakis (University of Patras) – Anna Bertelli (Ruhr-Universität Bochum)
Keywords: Crete, sanctuaries, insularity, connectivity, Mediterranean Entanglements networks
Format: Regular session

SESSION ABSTRACT

Crete—from the collapse of the Minoan palaces to the Roman Imperial era—stands out as a region that followed its own path of cultural development. The island has been viewed both as a communication hub within the eastern Mediterranean and as an insular, introverted landscape. These seemingly opposing tendencies are eloquently reflected in the material culture of Cretan sanctuaries, which occupy a distinctive place in the study of ancient religion. Within the broader framework of Mediterranean connectivity recent attention has been directed, especially toward Early Iron Age Crete. On one hand, we see the persistence of Minoan traditions, singular temple architecture, local particular pottery, and the island's distinct trajectory in the major developments of Greek history. On the other hand, the import of luxury items, influences from Egypt and West Asia, and technological innovations in jewelry production, metallurgy and terracotta production with moulds from the Early Archaic period onward underlines Crete's participation in wider Mediterranean area. The architectural and cultic particularities of Cretan sanctuaries continue into the Classical and Hellenistic periods, while we register a relatively smooth incorporation into the Roman Empire marked by cultural flourishing. New evidence has substantially revised the view of Cretan sanctuaries as isolated, modest places, revealing instead a complex picture of interaction and transformation, both within Crete and beyond. This session aims to explore these dynamics across a broad chronological span, understanding Cretan sanctuaries as focal points of social negotiation, economic exchange, and symbolic performance. We particularly welcome papers addressing the tension between marginality and connectivity. Contributions may, for example, present new excavation data, re-examinations of legacy material, or archaeometric analysis illuminating the materialities and practices of Cretan cults; provenance and petrographic studies tracing object biographies; epigraphic and iconographic studies exploring multicultural entanglements; and landscape approaches situating sanctuaries within routes of movement and visibility.

CONTRIBUTION ABSTRACTS

753. Material Elements of Cult: EIA Pottery and Terracotta Animal Figurines at the Peak Sanctuary of Mt. Juktas

Authors: Valia Tsikritea (University of Cincinnati)
Format: Oral

This paper presents the Early Iron Age (EIA) (12th-7th centuries BCE) cult practices at the peak sanctuary of Mt. Juktas in central Crete on the basis of a comprehensive examination of unpublished pottery and terracotta animal figurines. Building upon the results of the 1970s-1980s excavations, which showed that, unlike most Minoan peak sanctuaries, Juktas persisted in the EIA, my research demonstrates that frequentation at the sanctuary was uninterrupted and regular until the Protoarchaic period. Shaped like a bearded, upward-facing head, Juktas served as a prominent landmark, a familiar and stable reference point in the Knossos region, within shifting sociopolitical landscapes. Dictated by the site's strong connection with Knossos and subsequent lack of neutrality, Juktas assumed a subregional status in the EIA. The EIA assemblage from Juktas is characterized by local pottery and terracotta figurines and excludes any expensive dedications indicative of the mobilization of wealth which is attested in Pancretan sanctuaries. Figurines, especially bulls, dominate during the LM IIIC period, while in later phases figurines decline and pottery – particularly cups – increases, signaling a shift of the primary ritual toward communal drinking practices. Notwithstanding the local character of the ceramics deposited, the practice of rendering post-firing incisions on copious Late Geometric-Protoarchaic cups, including a few early attempts at the rendition of letters, situates the sanctuary within a greater Mediterranean context, suggesting that it partook in complex and multicultural interactions. Therefore, the absence of imports and rich dedications at the site cannot be taken to signal isolation. Instead, I argue that, as a subregional sanctuary, freed from the anxiety of extensive interregional social status negotiations, Juktas offers an insight into a less staged cult practice, away from the spotlight, where competitive, conspicuous consumption is neither needed nor chosen, a glimpse directly into the core of EIA Crete.

2178. The Sanctuary of Apollo Pythios at Gortyn in Crete along the Mediterranean crossroads

Authors: Anna Bertelli (Ruhr University Bochum) – Jacopo Bonetto (University of Padova)
Format: Oral

Over the last decade, archaeological investigations within the sanctuary of Apollo Pythios at Gortyn have produced significant new evidence concerning both the architectural and cultural development of the complex, as well as the presence of material with an unexpectedly early chronology. These findings provide an opportunity to reassess the origins, evolution, and role of the sanctuary within the polis of Gortyn. Beyond this, they invite a shift in scale, moving beyond an internal reading of the sanctuary to situate it within the wider Cretan and Mediterranean contexts. In this light, particularly during the Protoarchaic phase, the sacred spaces of

Gortyn display a number of features that stand out within the Cretan archaeological landscape. These include distinctive aspects of architectural layout of the buildings, the adoption of distinctive decoration, the presence of monumental legal inscriptions, and—according to recent excavations—votive assemblages that currently lack close local parallels. By presenting a revised chronology for the architectural phase of the sanctuary of Apollo Pythios and selected categories of material culture, this paper situates these features within a broader comparative framework, exploring whether these elements should be understood as the result of internal developments rooted in local traditions, or whether they reflect broader Mediterranean connections. Comparisons with material and architectural practices from other regions of the Mediterranean are used to assess the possible movement of people, technical knowledge, and ritual practices.

2172. Reassessing the "Tympanon" from the Idaean Cave: Iconography and Resemanticization in the Idaean Cave

Authors: Manolis Petrakis (University of Patras)
Format: Oral

This paper offers a reassessment of the famous bronze "tympanon" from the Idaean Cave. Since its discovery in 1884 by Halbherr, the object has attracted sustained scholarly attention and has become central to debates concerning its chronology, origin, function, and meaning. Although it belongs to the large group of bronze shields (over 2000 fragments) recovered from the cave, its iconography, combined with its shape and findspot, has led scholars to regard it as a unicum within the assemblage. Scholarly discussion has focused on the central bearded male figure who steps on a bull and grasps a lion, and especially on the two winged male figures flanking him, each preceded by two discs interpreted as drums. The scene has long been associated with the myth of the birth of Zeus and the Curetes who, according to Callimachus, clashed their weapons against their shields to drown out the infant's cries and conceal him from Cronos. The object's, drum-like form, its iconography, and the identification of the Idaean Cave as one of Zeus' birthplaces have led to the widely accepted interpretation that the image visualizes the foundational myth of the sanctuary. Given the Assyrian stylistic features of the composition, scholarship has debated whether the object was an eastern import, the product of itinerant craftsmen trained in Near Eastern traditions, or a local work under strong eastern influence. This paper re-examines the object within its broader archaeological and historical context, arguing for a Near Eastern origin while moving beyond ethnic or diffusionist models. Employing contemporary theoretical tools and drawing on the concepts of cultural memory, it approaches the "tympanon" as a medium of mnemohistory: a Near Eastern product that was resemanticized and integrated into the long-term cultic memory of the sanctuary, reshaped according to the religious needs and narrative traditions of its Cretan worshippers.

751. Shields for the Gods: Mapping Rituals and Connections through Miniature Shield Offerings in Early Iron Age Crete and the Mediterranean

Authors: Annalaura Pegoraro (Università degli Studi di Padova) – Giulio Da Villa (Sapienza Università di Roma | Università degli Studi di Padova)
Format: Oral

Between the 8th and 7th centuries BC, Cretan sanctuaries witnessed the spread of a distinctive class of artifacts: miniature terracotta shields, small-scale reproductions of bronze prototypes. Traditionally interpreted as votive offerings, these objects provide an insightful lens for examining and understanding the ritual practices, symbolic dimensions, and cultural connections that characterized Cretan Early Iron Age places of worship. Starting from the sanctuary on the acropolis of Gortyn – whose votive deposit has yielded nearly 6,000 miniature terracotta shields, the largest corpus known in the Mediterranean – this contribution offers a systematic analysis of the geographical distribution, morphological and decorative features, and ritual meanings of this category of material, with particular attention to their associations with specific deities and the cult practices connected with them. The collected data are organized and presented through a WebGIS platform, designed as a tool for analysis, sharing, and dissemination. The graphical visualization of the attestations of miniature terracotta shields allows mapping their distribution across Early Iron Age Cretan sanctuaries, facilitating comparison of ritual aspects and the identification of similarities and differences in cult practices. In conclusion, from a broader perspective, this contribution aims to contextualize this phenomenon within a Mediterranean framework. Miniature shield offerings from sanctuaries in mainland Greece, the Aegean islands, Anatolia, Magna Graecia, and Sicily, together with the probable export of Cretan examples to the eastern (Al Mina) and western (Megara Hyblaea) Mediterranean, reveal a pattern of diffusion that extends beyond Crete itself. Therefore, these findings provide further support for the view that Crete was not a marginal periphery but fully integrated into the complex network of connections that characterized the Mediterranean world during the 8th and 7th centuries BC.

1478. About Man and God: Masculine Ideologies in Early Cretan Sanctuaries

Authors: Filippos Roussos (University of Oxford)
Format: Oral

Cultic activity in Greek sanctuaries offers a valuable context for examining the construction, performance, and negotiation of gendered identities beyond the domestic and funerary spheres. Despite increasing interest in gender in Greek archaeology, early sanctuaries have rarely been approached from a predominantly gender-based perspective. This paper addresses this gap by tracing continuity, change, and regional variation in the articulation of masculine ideologies in Cretan sanctuaries from the Early Iron Age through the Archaic period (11th–6th centuries BC). The contribution draws on the exceptionally rich archaeological record of sites such as the Idaean, Psychro, and Inatos caves, the sanctuaries of Hermes and Aphrodite at Syme Viannou and of Athena on the acropolis of Gortyn, and Temple B at Prinias, to examine monuments and votive offerings that depict male figures or evoke warfare, hunting, athleticism, and other culturally constructed aspects of the Cretan male experience. The range is broad, encompassing architectural sculpture, metalwork, jewellery, pottery, and coroplastic production. These materials are analysed as active expressions of masculine ideology, communicating, among others, ideals of physical prowess, martial readiness, and group affiliation. Particular attention is paid to the social identities of the dedicants, exploring the relationship between individual self-representation and collective ideological frameworks, as well as the visibility of alternative masculinities beyond dominant elite norms.
By situating material remains from Cretan sanctuaries within their performative ritual contexts, this study highlights how dedications contributed to the shaping and perpetuation of diverse male-related ideals in some of the island's most prominent cult places. Cretan sanctuaries thus emerge as key venues for the public negotiation of masculinity, where individual and group gendered aspirations were embedded and enacted within communal systems of value and belief.

291 GENERAL SESSION I

Theme: 1. Widening perspectives in material culture studies
Chairs: Nikolas Dimakis – Vassilis Petrakis (National and Kapodistrian University of Athens)
Keywords: Archaeology, Heritage, Research, Methods, Innovation, Interdisciplinary
Format: Regular session

SESSION ABSTRACT

This session is organised by the EAA rather than external session organisers and is chaired by a selected EAA Member, representing the Belgrade Scientific Committee. The session does not focus on a specific theme but instead brings together contributions on a variety of topics, providing authors with the opportunity to share their research with a broad audience.

CONTRIBUTION ABSTRACTS

136. The "Shardana Project", Pirates and navigators in the eastern Mediterranean in the Late Bronze Age: perspectives and research

Authors: Giacomo Cavillier (University of Cairo)
Format: Oral

The Shardana project, launched in Egypt in 2008, is dedicated to Egyptian sources on the Sea Peoples and has highlighted the Pharaonic view of this phenomenon in the Ramesside period. Egyptian iconographic and textual sources reveal the role of these warriors as pirates and mercenaries as part of the international commercial and economic "system" of the time. Piracy and mercenary activity seem to have been indirect but effective instruments of conflict between the great empires of the time and the smaller kingdoms in which entities interconnected with the sea, such as the Levantines, Cypriots and Mycenaeans, operated. Egyptian sources on the subject offer interpretations of events from the Battle of Kadesh to the famous "invasion" of the Sea Peoples that reveal this state of affairs. In the aftermath of the end of internationalism, it seems that the phenomenon of piracy became more widespread, partly due to the transformation of the entire political structure of the Near East and the emergence of other civilisations in the West.

1520. Egyptian religious ideas in the Mediterranean during the Early Iron Age: the funerary and votive aspects of Egyptian amulets

Authors: Electra Apostola (University of the Aegean)
Format: Oral

This essay examines how amulets used in ancient Egyptian funerary contexts were distributed and reinterpreted across the Mediterranean during the Early Iron Age. Ancient Egyptian funerary texts and ideology revolve around death, judgement, rebirth and eternal life. This paper focuses on amulets depicting deities and symbols (e.g. Ptah-Pataikos, Osiris, Horus, Isis, Taweret, the scarab and the wedjat eye), associated with these beliefs and important funerary compositions, such as the Book of the Dead. These artefacts were originally intended to provide protection in the Egyptian afterlife, and so they were commonly found in Egyptian tombs. However, their archaeological context varies across different Mediterranean regions (e.g. the Aegean, Cyprus, Italy and Sardinia), as they were used as both votive offerings and grave goods. The funerary and apotropaic ideas associated with these objects may persist or gradually transform into new religious concepts when entering different cultural settings. This study aims to compare and interpret distribution patterns and investigate reinterpretation prompted by changes in cultural and archaeological contexts, based on statistical data and references to specific objects or groups.

378. Visibility and reconstruction of timber and daub architecture in prehistoric tell sites: the case of

Chalcolithic Yunatsite, South Bulgaria

Authors: Kamen Boyadzhiev – Tsvetana Popova (National Archaeological Institute with Museum – Bulgarian Academy of Sciences) – Mila Andonova-Katsarski (Institute of Biodiversity and Ecosystem Research – Bulgarian Academy of Sciences | University of Sofia "St. Kliment Ohridski") – Yoanna Katreva (Institute of Biodiversity and Ecosystem Research – Bulgarian Academy of Sciences)
Format: Oral

Understanding and reconstructing prehistoric architecture is a long and usually difficult process that requires the collaboration of multiple specialists and the application of different analyses. However, it always starts in the field, and proper on-site identification, excavation, and documentation are the keys to every step further. This interdisciplinary study addresses both methodological issues related to the identification of timber and daub architecture in burnt and unburnt structures on prehistoric tell sites, along with their interpretation. The case study focuses on the recent excavations of the Chalcolithic (5th millennium BC) layer at tell Yunatsite in southern Bulgaria. In the last twelve years remains of several buildings from at least four consecutive stratigraphic levels (BII – BV) have been excavated. In all of them, the use of timber and daub architecture was attested, which contrasts with the suggestion by previous excavators of the use of clay constructions in the latest Chalcolithic settlement (level BI). The state of preservation and, consequently, the basis for further interpretation and reconstruction differ a lot. However, differences in the building techniques used in different houses have been observed. Especially interesting is a partially burnt building from level BIII (No BIII-3). Well-preserved burnt elements of it provide insights into materials and techniques used in the construction of walls and ceilings, while comparison with the unburnt features is important regarding the visibility of timber and daub architecture in different archaeological conditions. Among the ceiling construction, a designated craftsman's choice was recorded: the combination of broad-leafed deciduous species along with conifer timber and monocotyledonous plants, used perhaps in at least two different techniques, while constructing the roofing structures.

1295. Early Neolithic Pit Houses in the Central Balkans: New Insights from Međureč

Authors: Olga Bajcev – Slaviša Perić – Đurđa Obradović – Ivana Dimitrijević – Ružica Savić (Institute of Archaeology, Belgrade)
Format: Oral

Pit houses are among the most characteristic architectural forms of the Early Neolithic in the Central Balkans, yet they remain poorly understood. Often treated as uniform domestic units, these structures display considerable variation in size, layout, and internal organization, raising key questions about their function, duration of use, and role within settlement life. Do they reflect permanent habitation or more mobile, seasonal, or episodic ways of life? Such ambiguities are closely linked to methodological challenges related to excavation strategies, formation processes, and the identification of occupation-related evidence. Focusing on methodological challenges and the strategies developed to address them, this paper examines the excavation methodology, formation processes, and architectural features of a pit house excavated at the site of Međureč in central Serbia. Dating to around 6200 BCE, the site represents one of the earliest Neolithic settlements in the region and occupies a key position within broader Neolithisation processes in the Central Balkans. For this reason, it is investigated within the long-term project Permanent Archaeological Workshop – Middle Morava Valley in the Neolithisation of Southeast Europe. Based on targeted excavation and a range of interdisciplinary analyses, including micromorphology, archaeobotany, archaeozoology, and absolute dating, we examine the organization of interior space, evidence for above-ground elements, oven construction and use, patterns of indoor and outdoor activities, and the life history of the pit house, including phases of occupation, abandonment, and subsequent activity. By addressing these issues, the paper contributes to a more nuanced understanding of pit houses and their role within Early Neolithic settlements, while also highlighting the challenges involved in excavating and interpreting this architectural form in the Central Balkans.

502. Say Cheese! About a special type of vessel from the Vinča settlement at Şoimuş-La Avicola (Ferma 2), Romania

Authors: Cristian-Eduard Stefan ("Vasile Pârvan" Institute of Archaeology, Romanian Academy)
Format: Oral

In this contribution we analyse a special category of clay containers, so-called strainers or sieve-vessels in the literature. They were found in good contexts (pits, pit-huts, enclosing ditches, ovens) in the Vinča settlement at Șoimuș-La Avicola (Ferma 2), Romania. The site was explored in 2011 as a rescue excavation on the route of A1 Motorway, revealing a multilayered settlement consisting of pits, pit-huts, ovens, enclosing ditches, dwellings, etc. with a huge quantity of archaeological material recovered (pottery, anthropomorphic figurines, clay altars, silex, obsidian and stone tools, bone and antler tools, animal bone, human bones scattered in different features, etc.). The radiocarbon dates place our settlement in the second half of the VIth millennium and the beginning of the Vth millennium BC. We try to document the strainers recovered from this site from the point of view of technology, morphometric attributes, but also of their most important trait: the function. A couple of them (but also some other types of vessels from Șoimuș and Radovanu-La Muscalu, another Eneolithic settlement from southern Romania) were the subject of a small project carried out by the University of Wisconsin-La Crosse (Departments of Archaeology and Anthropology and Chemistry and Biochemistry) together with Vasile Pârvan Insitute of Archaeology (Romanian Academy) a few years ago, revealing some intersting results involving some

lipids related with cheese-making. Each sample had any possible surface contaminants removed by surface ablation with a dremel tool. 5-10 gram subsamples of the pottery were taken and pulverized in a mortar and pestle. The lipid extraction and GC-MS was conducted by Dr. Desouza-Machado and his team at the University of Wisconsin-La Crosse. Lipids were extracted following methods established by Evershed and his colleagues, using ultra-sonication with an organic solvent (dichloromethane). The dominant lipids were two saturated fatty acids, palmitic acid (C16) and stearic acid (C18).

204. Clay and stew: Testing Cucuteni-Trypillia Foodways through Experimental Cooking in Coarse Ware

Authors: Maria-Cristina Ciobanu – Elena-Camelia Pintilie (University „Alexandru Ioan Cuza" Iasi, Faculty of History)
Format: Oral

The Chalcolithic Cucuteni-Trypillia culture (5th–4th millennia BC) is renowned for its splendid painted pottery, yet a distinct, coarser category – the so-called type C pottery – is ubiquitous in settlements, comprising vessels tempered with crushed shell (and other organic materials), often associated with cooking. While previous studies focused on typology or debated the "foreign" origin of this category, recent research has reoriented towards understanding its technology and function through an interdisciplinary approach. This paper presents the results of an ongoing experimental project aimed at reconstructing the prehistoric culinary chaîne opératoire, connecting materials science with the sensory experience of food. Building on initial experiments which demonstrated that the specific paste recipe (clay, organic matter, and crushed shell) confers superior thermal shock resistance and allows for slow, uniform cooking, our current endeavour shifts focus from the vessel to the actual culinary preparation. By integrating archaeobotanical and archaeozoological data from Cucuteni sites (attesting to the presence of cereals such as wheat, barley, and millet, as well as pork or game meat), we propose a "catalogue" of experimentally tested prehistoric recipes. We explore new variables such as ingredient processing (grinding vs. whole grains), vessel waterproofing methods (animal fats vs. dairy products), and thermal management in open-fire contexts. The goal is not merely to test the vessel's durability, but also to evaluate energy efficiency, cooking times, and the resulting flavours and textures. Furthermore, these experiments serve to generate a reference collection for organic residues and use-wear traces, essential for the correct interpretation of archaeological ceramics. Ultimately, "cooking up the past" allows us to bridge the gap between static artifacts and the dynamic daily life of prehistoric communities, offering a tangible perspective on how Cucuteni communities interacted with their environment and resources.

2026. Prehistoric Tumulus Architecture and Burial Organization: Evidence from Dollc (Kosovo)

Authors: Sedat Baraliu (University of Pristina) – Premtim Alaj (The Archaeological Institute of Kosova)
Format: Oral

This paper examines the spatial organization, construction typology, and architectural characteristics of tumulus necropolises in the territory of Kosovo, with a particular focus on the tumulus necropolis of Dollc. The study aims to analyze the structuring of the funerary space and the construction elements of the tumuli in order to contribute to the interpretation of prehistoric ritual practices and social organization. The necropolis consists of three tumuli located in a hilly, mountainous landscape, on a rocky plateau oriented north–south, covering an area of approximately 0.10–0.12 ha. Their close spatial arrangement forms an almost regular triangular configuration, suggesting intentional planning of the funerary space. Architecturally, the tumuli are semi-spherical and constructed mainly from locally sourced stones with minimal soil content, reflecting adaptation to the rocky geological substrate. Each mound comprises a central cairn covering the primary burial, enclosed by a circular ring of large and medium stones and overlaid with smaller stones and a humus layer (0.05–0.10 m). The tumuli measure 12–15 m in diameter and 0.50–0.85 m in height. A total of 21 stone-built graves were recorded, exhibiting oval, circular, quadrangular, and irregular plans, with side linings of one to two stone rows, slab coverings, and pebble bedding. Cremation was the exclusive burial rite, while the absence of skeletal remains prevented precise determination of funerary orientation. The spatial organization and construction typology of the Dollc necropolis show clear analogies with other tumulus necropolises in Kosovo and northern Albania, indicating a well-established architectural and ritual tradition. In conclusion, the Dollc tumulus necropolis represents a well-structured funerary unit in which spatial planning, architectural standardisation, and ritual practices intersect, making it a reference case for the study of tumulus organisation and architecture in Kosovo.

712. Practical Function of Barrel-shaped Vessels: Experimental Archaeology and Analytical Methods

Authors: Barbora Němcová (University of South Bohemia Institute of Archaeology) – Eva Samková – Eva Baldíková – Tereza Janů (University of South Bohemia Faculty of Agriculture and Technology)
Format: Oral

It is generally assumed that most ceramic vessels were associated with food at some point in their life history – whether for storage, preparation, or consumption. The functional interpretation of specific vessels often relies on ethnographic and ethnohistorical analogies. When reconstruction based on these fields is not possible, vessels are typically classified into categories based on their morphology and distinct attributes. Determining the practical function of specific ceramic forms remains one of the key themes in the study of material culture. This paper focuses on so-called "barrel-shaped" vessels appearing in Central Europe during the Late Bronze Age (1300-800 BC). In archaeological literature, these vessels are interpreted based on three primary functional hypotheses: fermentation vessels, beehives, or butter churns. To evaluate these hypotheses, a multi-stage study was conducted, combining a review of literature, experimental archaeology and laboratory analyses. In the first phase, ceramic replicas were produced based

on archaeological finds. These replicas were subsequently used in an experiment testing the feasibility of butter production and the specific function of internal knobs present in some vessels. The experiment confirmed that butter can be successfully churned in barrel-shaped vessels. For comparative purposes, the same process was conducted using a modern electric butter churn. To gain deeper understanding of entire process, the intensity of physical labour was monitored. The research also includer the determination of the physical and chemical properties of both the cream used and the resulting product, complemented by a sensory evaluation of the butter.

505. Tribal rivalries and the narrative of the sanctuaries of Gaul

Authors: Béatrice Fleury (Paris I)
Format: Oral

Tribal rivalries and the narrative of the sanctuaries of Gaul. Archaeology as a discipline closer to exact sciences, an orthodox path limiting results to the descriptive, timid interpretation lead to creeping asceticism with fewer possibilities to formulate new research hypotheses. Suggestions that description could be followed by a separate interpretation were made. As alternative, "dissident" schools may express in the form of recital; hiatus in interpretation may lead to recourse to the mythic, since lacuna underside the "Imaginaire" produces desire to seek the sensational. Renewed studies of sanctuaries responds to a rational exploration closer to narrative, as recipient of the world of thought and Collective Imaginary. Research on sanctuaries explodes after the discovery of Ribemont, as content belongs to the world of thought as well as the world of war. Traditional infatuation to study the Roman Army concurrently reniewed, albeit in relation with the instability across which Gaul is represented to us, more than a glorification of armies. The excavation of the Gallo-Roman site at Ribemont lead to the discovery of fantastical order of the Gallic sanctuary, hence reorients research previously favouring the question of the origins of towns of the Gallic civilisation. Amidst a Roman agglomeration and sanctuary dedicated to the god Mercury, a mysterious ossuary of the Gallic period comes to the fore. Calls are made on the "hard" sciences. Functionality of the sanctuary at Gournay interpreted as site of Victory rituals, imposed on Ribemont, adversely influences the modelisation of the latter. Results at Ribemont may imply differing political structures. Constraints of publication, curtails of models for sensitive ideological contexts, limits renewed methods, ways of sampling, ground investigation. To overcome a recurrent hiatus, facilitate the formulation of new research hypotheses, I praise the virtues of exploration and confrontation of myths related by authors closest to those sites.

2396. Bulls Between Eastern Hallstatt and Greece – Transfer of Ideas and/or Common Traits

Authors: Mila Erceg (Centre for Prehistoric Research) – Hrvoje Potrebica (University of Zagreb, Faculty of Humanities and Social Sciences)
Format: Oral

In the narratives of the Greek world, there are well-known instances in which Greeks, when founding new colonies, attributed a mythical ruler to a newly established territory. The connections between Central Europe and Greek cultural space were reflected in material culture from the Late Bronze Age and throughout the Iron Age. The most visible are prestigious objects that outlined the network of communication between the Iron Age elites that covered most of Europe. In most cases, these are elements of costume and personal ornaments, as well as weapons. However, the connection of Iron Age communities in this wide area is not only visible in material culture, but also in some symbolic and mythological contexts that they share. A good example is the symbolism of waterfowl that often appears in chthonic and solar motifs in the Late Bronze Age of continental Europe, as well as in Greek mythology and religion. This paper will take as an example the area of the Eastern Hallstatt circle and the bull motif that appears in the exceptional Iron Age ceramics in that area. Given that area no written sources on the religious aspect of the Hallstatt culture, the bull symbolism can only be discussed in terms of find contexts. Motifs of bulls in the Hallstatt culture are mostly represented in the form of protomes on bodies or decorations on the handles of vessels found in funerary contexts. Vessels decorated with bull motifs that may have been part of a feast set within a funerary context suggest a similarity to the chthonic and Dionysian aspects of the bull in Greek religion. The question is whether the communication between these two areas remained at the level of material goods, or cultural traits were also transferred. Using Greek narratives about the role and meaning of this animal in the religious and mythological sphere, we will show if and how the bull's cultic and mythological symbolism was shared by these two spaces.

32. PHOENSET: searching new insights into the first Phoenician communities in Lisbon, Portugal

Authors: Elisa Sousa (Uniarq - Center for Archaeology - University of Lisbon) – Benjamín Cutillas-Victoria (Complutense University of Madrid) – Alberto López López (University of Murcia) – Francisco Gomes – Patrícia Jordão – Petra Pinto (Uniarq - Center for Archaeology - University of Lisbon) – Paulo Rebelo – Ricardo Ávila (Neoépica, Lda - Arqueologia e Património) – João Luís Cardoso (Icarehb - Universidade do Algarve)
Format: Oral

PHOENSET (2026–2027), a Foundation for Science and Technology-funded project, explores the earliest phases of Phoenician activity in Lisbon and the Lower Tagus region (Portugal), aiming to reconstruct the origins, movements, and adaptations of these early settlers in an Atlantic context. The initiative builds on groundbreaking archaeological discoveries from 2014 at Lisbon's historic center, at the present-day Hotel Aurea Museum, where excavations uncovered the region's oldest dated Phoenician remains, from the second half of the 8th century BCE. The pottery assemblage comprises nearly 200 ceramic individuals, including both handmade

and wheel-thrown vessels. In this regard, our first preliminary data reveal that the wheel-thrown pottery originates from Phoenician sites in southern Iberia and potentially other regions of the Mediterranean Sea, reflecting Lisbon's integration into extensive trade networks. PHOENSET adopts a multidisciplinary framework, combining conventional archaeological methods with advanced physicochemical and petrographic analyses applied to the entire ceramic assemblage. By situating these results within Mediterranean-wide reference datasets, the project aims to trace artifact provenance, chart early Phoenician mobility, and provide new insights into how these communities adapted socially, economically, and culturally to the Atlantic periphery of the Western Mediterranean.

868. Sacred Serpents and Maternal Fertility in Macedonia: Eurydice's dedications to Eucleia and the serpent sire of Alexander as two case-studies

Authors: Stefano Paciolla (University of Siena)
Format: Oral

In this communication, the tale of the serpent sire of Alexander the Great is taken as an example of a textual representation of motherhood that is actually rooted in a broader network of beliefs, practices, and narratives that focus on the serpent as a paradigm of productive and reproductive fertility. This is due to the unique affordances of the serpent, understood, according to James Gibson, as the potential of an object to lend itself to a human project, whether symbolic or intellectual. In many cultures around the world (Mesoamerican, Australian Aboriginal, Togolese, Indian, and so on), the serpent is associated with fertility and birth. By comparison, the specificity of Greek culture in the classical and Hellenistic periods, which has similar beliefs, emerges even more clearly. This is demonstrated by narratives about the birth of illustrious figures (beyond Alexander, Aristomenes of Messenia, Aratus of Sicyon, Alexander of Abonuticus, Dionysus Zagreus), as well as some iamata from Epidaurus where the encounter with Asclepius, in the form of a snake, propitiates birth and is a cure for female infertility. The aim of this communication is to demonstrate that beliefs of this kind also belonged to macedonian religious-medical sphere concerning motherhood, through the analysis of archaeological, epigraphic, and literary sources. In fact, this interpretation seeks to reevaluate the dedications of Queen Eurydice at the sanctuary of Eucleia in Aigai, where a marble snake was also found. The hypothesis to be discussed is that in a public place such as the sanctuary of Eucleia, the self-representation of the queen and her own agency is intimately connected to the kleos of her being a mother.

78. Formalizing the Kanon: A Transferable Forensic Method for Reconstructing Proportional Systems in Ancient Sculpture

Authors: Joshua Jacobo (New Masters Academy)
Format: Oral

The Kanon of Polykleitos, a lost fifth-century BCE treatise on human proportions, is frequently described by ancient authors as a foundational articulation of a proportional ideal and is widely believed to have been paired with a didactic statue, most plausibly the Doryphoros. In prior work, we presented the full orthographic proportional measurement tables based on a cast of the Naples Roman copy and the resulting reconstructed nested grid template organizing the figure through commensurate modules, including finger breadth, palm breadth (across the knuckles), and foot depth, coordinated within a nested circle-square scaffold. The present paper builds on that established reconstruction in two ways. First, we convert the reconstruction into a repeatable construction procedure by formalizing the proportional relationships as an executable modular method rather than leaving them as a descriptive dataset. This includes a modular breakdown of key body regions, with focused treatment of the head and foot. Second, we introduce a newly reconstructed neutral reference pose presented in orthographic front, rear, and side views, designed as a stable base state for comparative analysis across copies and for controlled reposing while preserving the system's modular logic. The resulting model is intended as a practical instrument for researchers, artists, and art historians. It enables the proportional system to be reposed into new configurations while maintaining its commensurate structure, and it provides a transferable forensic methodology for reconstructing proportional programs in other classical and post-classical sculptures, including works not conceived as explicit pedagogical templates. In doing so, it supports a clearer account of how proportional systems were produced, transmitted, and transformed in ancient art.

428. Comparative Regional Behavioral Typomorphological Analysis of Byzantine Glass Goblets: Holy Land (Israel), Anatolia (Turkey) and Italy

Authors: Ofer Gat (Kaye Academic College of Education | Beit Berl Academic College)
Format: Oral

This study presents a comparative typomorphological and spatial analysis of Byzantine glass lighting vessels from church assemblages in Israel, Turkey, and Italy. Focusing on hanging goblets and standing or suspended lamp cups, the research examines how typological variability, technological choices, and spatial distribution reflect regional liturgical practices and religious conceptions of light. Using a regional behavioral typomorphological model, the study integrates quantitative and qualitative data to reconstruct patterns of lighting use within ecclesiastical spaces, particularly the nave and apse. The findings reveal both shared traditions and regional distinctions: Turkey exhibits a highly standardized and centralized lighting system linked to Constantinople, while Israel demonstrates greater functional flexibility and liturgical pluralism. Italian evidence, though limited, aligns with broader Mediterranean patterns. The study highlights glass lighting vessels as cultural mediators, carrying religious, social, and symbolic meanings across regions, and emphasizes the active role of material culture in shaping ritual experience, spatial hierarchy, and religious perception

in Byzantine church architecture.

1025. Examination of the production-distribution system in the 9th–13th centuries: observations on ceramic assemblages from Visegrád and Budafelhévíz

Authors: Dóra Csepregi Horváth (Pázmány Péter Catholic University)
Format: Oral

The examination and analysis of ceramic material from the 9th–13th centuries present a significant challenge for Hungarian archaeology. During this period, the dominance of household production resulted in substantial variability within ceramic assemblages; consequently, such material can only be interpreted within a regional framework. In the 9th–13th centuries, vessels were produced on hand-turned wheels and decorated with combinations of wavy and straight lines. From the 12th–13th centuries onwards, decoration became increasingly standardised, with most pots bearing a single line running around the vessel surface and wavy lines disappearing. Our understanding of contemporary potters and their techniques relies almost exclusively on archaeological evidence. As a result, we often face more questions than answers concerning the social background of pottery production, which explains why this subject rarely appears in publications. Approaching this issue from a production-distribution perspective can introduce new directions for further research. This approach focuses on defining production and distribution systems in the 9th–13th centuries and analysing available evidence, such as proportions of pottery types, and site context. Taken together, these allow conclusions to be drawn. For this purpose, a new-perspective study will be conducted on ceramic assemblages from two medieval sites: Visegrád, an 11th century power centre, and Budafelhévíz, located near a major port adjacent to Buda, the capital established from the 13th century onwards. At Visegrád, ceramic production took place in the suburbium surrounding the centre. Comparison of the typological and material (petrographic) characteristics of assemblages from the suburbium and the centre allows reconstruction of the local production and distribution system. Budafelhévíz predates the foundation of Buda, so it provides an opportunity to examine how this system changed before and after the establishment of the capital.

313. Reconstructing Early Buddhist Landscapes through Inscriptional and Spatial Analysis: An Archaeological Reassessment of Jambudīpa and Taprobane

Authors: Lakshman Fernando (Independent Researcher)
Format: Oral

This study presents an archaeological reconstruction of early Buddhist landscapes in Sri Lanka through a systematic analysis of pre-Christian Brāhmī inscriptions (Inscriptions of Ceylon, Vol. I), integrated with spatial mapping and landscape correlation. The inscriptional corpus is treated as a primary dataset: sites are georeferenced, distributions mapped, and clustering patterns identified across regions including Mihintale, the Vavuniya (Erupotana/Periya Puliyankulam) zone, and the Dambulla–Nalanda corridor. Recurrent personal names and monastic affiliations (e.g., Ānanda, Upatissa/Śāriputta) are examined in aggregate, revealing networked monastic landscapes that align with topography, hydrology, and route systems when plotted against one-inch Survey maps. Within this material–spatial framework, distance relationships are tested using a recalibrated early historical yojana (c. 4.5 miles), producing cartographically verifiable correspondences between inscriptional distributions and landscape features. Textual sources—Pāli canonical and commentarial traditions, together with early Greek accounts—are then evaluated against these archaeological patterns, rather than serving as primary drivers of interpretation. Greek geographical testimony, especially the description of Taprobane by Megasthenes and Arrian as a landmass separated from the mainland by a river, is reassessed in light of this dataset. Differences between nineteenth-century translations by J. W. McCrindle and later twentieth-century facsimile editions, in which the phrase 'from the mainland' is omitted, are examined solely to assess how the textual descriptions align with mapped archaeological patterns. The integrated analysis demonstrates that Jambudīpa corresponds to a spatially coherent and archaeologically recoverable landscape within Sri Lanka, with Lankādīpa (Tambapaṇṇi/Taprobane) representing a geographically coherent regional entity when measured using early historical units. By prioritising inscriptional distributions and landscape correlation, the study advances a methodological shift from text-led reconstructions towards archaeologically grounded spatial models in early Buddhist geography.

946. Constructing the Sacred: Contextualising the Buddhist Materiality of the Kushana-Period Buddhist Complex at Sanghol

Authors: Antareepa Mandal (Pondicherry University)
Format: Oral

In the study of the religious transformation of Buddhism, Archaeology presents a very different perspective in the early South Asian context. Compared to conventional historical writings, Buddhist Archaeology helps to uncover diverse aspects of the past associated with the material remains. The crucial element in the Asian landscape was the religious shrine, and it is important to situate it in a cultural context and to unravel the multiple levels at which sacred sites interacted with diverse communities and negotiated among them. The present paper focuses on the cultural tradition of the Kushana period (c.1st–3rd CE) Buddhist site of Sanghol (present-day Fatehgarh Sahib District, Punjab, India) belongs to the Mathura School of Art. This study explores the role of the "causative factors" in the formation of the 'sacred geography' of early historic Sanghol and its environs by examining the material remains. This examination helps contextualise and interpret the site's unique artistic manifestation. Using critical, analytical, and descriptive methods, this study historically analyses relevant archaeological sources, including spiritual and secular material remains, inscriptions, coins, and architectural remains. In search of the "causative factors," the essay seeks answers to the following interrelated questions: the importance of Sanghol's geographical location; its history of human habitation; its political environment; the economic activities prevalent there; its socio-cultural milieu; its cultural repertoire, the patronage of that culture, and the culture's rooted regionality. Buddhism's inherently syncretic character enabled it to absorb folk traditions or non-canonical artistic forms. By contextualising the visual remains of the Sanghol Buddhist site, the paper provides a comprehensive understanding of Buddhist materiality within socio-cultural practices in a pluralistic approach.

1504. Buddhist Landscape Archaeology of East Coast of Tamil Nadu from the Early HIstoric to the Medieval Period

Authors: Selvakumar Veerasamy (Tamil University, Thanjavur)
Format: Oral

Buddhism has been one of the important early religions to arrive along the Southeast coast of India and Sri Lanka. In the region of Tamil Nadu, Kaverippumpattinam and Kanchipuram are the two important early Buddhist centres, and in the medieval period Buddha images appeared in the hinterland across the trade routes in Tamil Nadu. The important maritime trade with Southeast Asia, cities, communities and the Buddhist ideology are described in the Tamil kappiyam (kavya) texts of Cilappatikaram and Manimekalai. In the Medieval period, Nagapattinam became an important centre of trade and it was supported by the initiatives of Sri Vijaya king who built the Culamanivarma Vihara at Nagapattinam with the support of Chola king Rajaraja I. This paper explores the nature of the Buddhist landscapes of east coast of Tamil Nadu from a temporal perspective from the early historic to the medieval period using text and archaeology. While the texts build a narrative of people with diverse interests, motives, and intentions existing in this period and the concepts of dharma and human existence, history and archaeology present another version of human existence and realities of life. We do notice that the Buddhist texts highlighting an idealized lifeways in the early historic and early medieval periods, while in the mid-medieval period Buddha images and Viharas have been idolized to witness the rituals, politics and diplomacy, embracing the reality of human existence.

1391. Up and Around the Mountains, the Lone Spruce Site and the Lithic Trade Routes of Paleoarchaic Colorado

Authors: Robert Rowe (Retired)
Format: Oral

The Lone Spruce Site (5GD126) is a series of resource processing camps and quarries within the upper reaches of the Colorado River Basin in north-central Colorado, at 2,500 meters AMSL. The site was partially excavated in 2017 with over eight thousand lithic artifacts, 32 percent of which were identified as various types of scrapers, ninety-five percent of which are locally obtained Table Mountain jasper and Troublesome chert were recovered, both of which are readily locally available. Both the Table Mountain jasper and Troublesome chert were both mined within the southern reaches of the site. Material originating out of the basin is identified as "Parker Wood" a ubiquitous material that is obtained east of the Front Range. which probably was brought into the Colorado River Basin along the seasonal "Grand Circuit of the Front Range". Radiocarbon dating from hearths and post holes place the site within the late Paleoarchaic (10,000 to 9,000 BP) into the Archaic Mountain period (9500 -1800 BP). In tracking the raw material for formal tools indicates the site supports the hypothesis of indigenous lithic trade routes from the plains to the interior mountain valleys along the river, which brings the two sources of toolstone together. Mountain sheep bones and high-altitude plant remains also gives indications of Altitudinal Transhumance occurring at the site with these activities being well established by the late Paleoarchaic period.

1705. Making Legacy Ceramic Profiles FAIR: Metadata Enrichment and a Reproducible Shape-Analysis Workflow

Authors: Yidan Zhang (University of Oxford)
Format: Oral

Many ceramic assemblages on the eastern rim of the Tibetan Plateau are known mainly from legacy excavation reports, where inconsistent terms, sparse figure metadata and variable publication scales hinder reproducible comparison and studies of inter-regional interaction. We present a FAIR-oriented workflow that enriches object-level metadata and converts unevenly published profile drawings into reusable datasets for ceramic shape comparison. We compile complete vessels with published profiles and at least one reliable metric for pixel–centimetre calibration; we record the calibration dimension and source, document missing scales as a reuse bottleneck, and exclude such cases from quantitative analysis. An image manifest captures provenance and paradata (source identifier, figure ID, page, DPI, extraction method, checksum) and links persistent record IDs to bibliographic sources and vessel entries. Interoperability is improved through a versioned controlled vocabulary (vessel class, rim form, components) and a term-mapping table aligning local labels to canonical codes with confidence scores and rule versions. Profiles are normalised (orientation, scale), vectorised, and encoded as geometry descriptors; computed measurements and derived ratios (e.g., CI, DR) are stored alongside reported values with script and vocabulary versions and calibration references for traceability. The pipeline logs parameters and outputs interoperable tables and vector contours suitable for repository ingestion and reuse. Unsupervised clustering offers an auditable comparison layer; robustness is assessed via repeated subsampling and alternative normalisation. Clusters only

partly reproduce legacy types, revealing continuous shape variation that blurs degree labels (e.g., "slightly/strongly bulging") and cross-site correspondences relevant to exchange. We summarise what worked and failed—caption inconsistency, layout variation, contour-extraction errors and manual correction costs—and show how paradata flags and vocabulary governance increase transparency for downstream reuse. By foregrounding these practices, the paper offers a transferable blueprint for turning legacy ceramic archives—whether in Europe or elsewhere—into FAIR resources that support cross-project synthesis and future contributions.

2181. A Colourful Connection: Trade, Trends and Identity through Lombard-Period Beads

Authors: Benedict Seidl (University of Vienna) – Bendeguz Tobias (Institute for Medieval Research of the Austrian Academy of Sciences)
Format: Oral

During the 5th and early 6th centuries, beads display remarkable diversity in material, size, colour, shape, production technique and decoration. Archaeological find circumstances show a wide spectrum ranging from small necklaces and bracelets with only a few beads to long, visually striking compositions featuring large polychrome beads. In graves from Lower Austria, large necklaces combine amber beads from the Baltic with millefiori and drawn beads from the Mediterranean, and some also include glass beads that may originate from the Indo-Pacific region. Beyond questions of provenance and the reconstruction of long-distance exchange networks, the beads and necklaces allow insights into social status, gender and representation of the buried individuals within their communities. The specific combinations of beads and recurring combination patterns observed within necklaces do not only reflect contemporary preferences and aesthetic trends but also form a basis for establishing relative chronologies. This presentation discusses the systematic analysis of 658 beads from eight Lombard-period burial grounds from the 5th and early 6th centuries in Lower Austria. Using typological methods, correspondence analyses, and seriation, it explores how bead choices and combinations reflect chronological patterns, identity, social connectivity, and long-distance trade networks.

201. "Shardana Project": the impact of the Sea Peoples in Egypt: perspectives and research

Authors: Giacomo Cavillier (Cairo University)
Format: Poster

The "Shardana" research project focuses on the Sea Peoples and, in particular, the warriors and navigators most frequently mentioned in Ramesside Egypt. Traces of the Shardana are also found in important Western contexts such as Sardinia and Corsica, likely used as bases and headquarters for piracy. Research conducted so far at various sites supports the hypothesis that these warriors and navigators were hired as mercenaries by the great Near Eastern empires in the Late Bronze Age and were an essential part of a "system" of trade, diplomacy, and warfare managed by kingdoms such as Mycenae, Cyprus, Ugarit, and Byblos. The Battle of Kadesh between the Egyptians and the Hittites marked a clear separation between Mycenae and Egypt, and the massive presence of these "pirates" in the Mediterranean intensified. With the collapse of internationalism and the rise of "nation states" in Syria-Palestine, this phenomenon was redefined towards territorial and cultural assimilation of the Sea Peoples.

311. What the Greeks Knew, and the 19th Century Forgot: Re-mapping Taprobane within Sri Lanka

Authors: Lakshman Fernando (Independent Researcher)
Format: Poster

Early Buddhist sources describe Jambudīpa and Lankādīpa (Tambapaṇṇi), while ancient Greek and Roman authors refer to a maritime destination known as Taprobane, situated within the Indian Ocean trade networks. The long-standing misidentification of Lankādīpa/Taprobane as the entire island arises from a twelfth-century miscalibration of the yojana value as a unit of linear measurement, compounded by the adoption of this value without sufficient critical examination by nineteenth-century British historians. While the Chinese pilgrim Fa-Hien explicitly identified the entire island as the Country of Sinhala. However subsequent historical and archaeological reconstructions failed to locate these regions, leading to distorted cartographic interpretations and the misplaced sacred geographies. This study demonstrates that recalibrating the yojana value is essential for restoring these misinterpretations. This study employs an interdisciplinary archaeological approach to address and resolve these inconsistencies by integrating Early Brāhmī inscriptional evidence, canonical and commentarial Buddhist texts preserved in Sri Lankan ola-leaf manuscripts, classical literary accounts, and independent cartographic data. According to early Indian sources, including the Arthaśāstra and the Lalitavistara, the yojana is defined as a linear measure of 4,000 dhanu, each dhanu being six feet in length—amounting to 24,000 feet, or approximately 4.5 miles. The Dīpavaṃsa describes Lankādīpa / Tambapaṇṇi as measuring 32 × 18 yojanas (144 × 81 miles), but it represents only a part of island's land mass. Fa-Hien's account of the Country of Sinhala 50 × 30 yojanas (225 ×135 miles) corresponds well to the full dimensions of the island's land mass. Independent corroboration is also provided by nineteenth-century one-mile-to-one-inch Survey of Ceylon maps, in which three sheets horizontally and eight sheets vertically reproduce precisely the 144 × 81 mile dimensions recorded in Dīpavaṃsa Chapter XVII(4th century AD). This convergence of textual, archaeological, and cartographic evidence demonstrates that ancient geographical descriptions were precise, internally consistent, and regionally grounded.

752. Mierzyn, site 1. The largest burial ground of the Pomeranian culture in Central Poland?

Authors: Magdalena Piotrowska (Institute of Archaeology and Ethnology Polish Academy of Sciences)
Format: Poster

Archaeological research at the site was carried out in the years 1972–1976 and as a result, a total area of 32 ares was surveyed, leading to the discovery of 123 graves. Some of the features had been destroyed by the road construction, sandmine, and robbery activity, which allows us to assume that originally the cemetery may have contained about 150 burials. The cemetery stands out in terms of its size compared to other necropolises of the Pomeranian culture and with high probability has been studied in its entirety. The archaeological data from this site is being analyzed now and the preliminary research results can only be presented. The discovered burials were graves in the form of stone cists as well as urns only encircled with stones, and simple urn graves. Pottery was mainly discovered in these features. Only a few metal artefacts were documented. The chronology of the cemetery points mainly to the older pre-Roman Iron Age. In future the spatial structure of the burial site, the variability of graves and urn forms, and osteological studies will be analyzed, which will allow us to supplement the state of research on the burial rituals of the Pomeranian culture's population – this is the largest "Pomeranian" cemetery known from central Poland.

1072. Developing and Applying THR-FRD: A Long-Term Flood Resilience Dataset for the Tea-Horse Road Area

Authors: Mei Ai (Department of Geography, Ludwig-Maximilians-Universität München)
Format: Poster

Historical and archaeological materials are increasingly mobilised in environmental and climate-change discussions, yet their use is often constrained by fragmented records, inconsistent terminology, changes in place names and administrative boundaries, and opaque transformations from narrative sources into structured data. The Tea-Horse Road region in southwest China spans the Hengduan Mountains and the eastern margin of the Tibetan Plateau. Over the past two millennia, the region has experienced floods of varying scales while demonstrating notable flood resilience. Although some efforts have compiled historical flood materials, they are largely presented in Chinese, dispersed across different media, and focused mainly on floods themselves; as a result, they are difficult for international scholars to discover and reuse, and long-term datasets suitable for flood-resilience analysis remain scarce. To address this gap, we developed the Tea-Horse Road Flood Resilience Dataset (THR-FRD), compiling flood-related records from AD 0 to 2025. This poster presents THR-FRD's strategy for metadata enrichment and interoperability. First, THR-FRD adopts a provenance-centred metadata model: the dataset is organised in 50-year temporal bins and uses county-level historical administrative units as its spatial framework; each entry is linked to its original source (e.g., local gazetteers, archival documents, ethnographic surveys, archaeological evidence, and observational records) and records evidential type, citation details, and interpretive confidence. Second, we provide a structured schema organised around three core components—Exposure, Vulnerability, and Risk—supported by a field-level data dictionary (variable definitions, coding rules, missingness conventions, and uncertainty annotations) to ensure consistent interpretation across users. Third, the poster outlines publication and reuse measures: the dataset will be released in downloadable open formats with full documentation and citation guidance, accompanied by clear licensing and reuse boundaries. Through bilingual (Chinese–English) presentation and structured organisation, THR-FRD lowers barriers to cross-linguistic and interdisciplinary reuse.

2615. Inland Amber-Working in the Eastern Baltic: Insights from the Zvidze Settlement (Latvia, 4th Millennium BC)

Authors: Agnese Cakare (Faculty of Humanities, Institute of Latvian History, University of Latvia)
Format: Poster

Neolithic amber-working in the Eastern Baltic region produced jewellery such as pendants, elongated and button-shaped beads, rings and discs. The production of these items took place not only along the coast but even more extensively inland, requiring access to coastal raw material. Zvidze settlement, located at the Lake Lubāns basin (Latvia), provides one of the most abundant amber collections in the region from the Middle Neolithic (c. 4th millennium BC). A technological analysis of amber rough-outs and finished products from the settlement reveals variation in the processing sequence, specifically in the stage at which drilling occurred, a pattern that has also been observed in assemblages from coastal sites in the region. In contrast, inland amber-working suggests a production focus on more technically demanding jewellery forms and a higher occurrence of repaired items. The results reveal technological nuances that may reflect differences in participation in exchange networks, resource utilization strategies, and the experience of craftspeople involved in amber working.

292 GENERAL SESSION II

Theme: 1. Widening perspectives in material culture studies
Chairs: Nikolas Dimakis – Vassilis Petrakis (National and Kapodistrian University of Athens)
Keywords: Archaeology, Heritage, Research, Methods, Innovation, Interdisciplinary
Format: Regular session

SESSION ABSTRACT

This session is organised by the EAA rather than external session organisers and is chaired by a selected EAA Member, representing the Belgrade Scientific Committee. The session does not focus on a specific theme but instead brings together contributions on a variety of topics, providing authors with the opportunity to share their research with a broad audience.

CONTRIBUTION ABSTRACTS

257. Ancient DNA from stone cities records genetic origins and kinship practices in Neolithic China

Authors: Zehui Chen (Institute of Vertebrate Paleontology and Paleoanthropology)
Format: Oral

The early big settlements that emerged from the Yellow River basin were considered to play a vital role in early society. At the same time, ancient cultures outside the Central Plain were thought to have had a modest impact, sparking a lasting debate because they lacked corresponding genetic evidence. The discovery of Shimao city (ca. 2,300–1,800 BCE), a premier state-level Neolithic fortified settlement in Shaanxi, China, played an important role in helping us understand the emergence of socially stratified urban societies. However, key questions remain regarding how ancestry and kinship shaped the hierarchy of this class-based society characterized by human sacrifice. The origins of the founding populations of Shimao and other Loess Plateau settlements, and their interactions within the broader ancestral landscape, remain to be determined. By sequencing 144 ancient genomes from Shimao city and its satellites, we present pedigrees among tomb owners spanning up to four generations. These findings reveal a predominantly patrilineal descent structure across Shimao communities and sex-specific sacrificial rituals. We also characterize the population history, revealing that Shimao culture-related populations originated mostly from a Yangshao culture-related population present at least one thousand years earlier in the local region, and the lasting inflow of Yumin-related population from Inner Mongolia did not interrupt regional genetic continuity. Which in line with the long-term influence of the steppe-related pastoralist, evidenced by continuous stone tool traditions and increasing incidence of herding animals. Broader genetic influence from southern mainland ancestry over Shimao culture-related populations supports evidence of rice farming expanding further north than previously expected. Taken together, these results uncover fine details of the regional peopling and social structure of early state establishment.

725. Reassociating Commingled Archaeological Human Remains Using 3D Geometric Morphometrics: A Quantitative, Non-Destructive Approach

Authors: Myrsini Voulgari (Kean University) – Ioanna Anastopoulou (National and Kapodistrian University of Athens) – Konstantinos Moraitis (National and Kapodistrian University of Athens)
Format: Oral

It is not uncommon in various archaeological contexts to observe commingling and fragmentation of human skeletal remains due to secondary burial practices, collective tombs, ossuaries and post-depositional disturbances. This presentation will explore the application of 3D geometric morphometrics as a quantitative, non-destructive tool for the reassociation of commingled human remains, both from archaeological material and modern cemeterial remains collections. Based on previous validated morphometric research, this study applied 3D shape analysis to the thoracic vertebrae (T2-T9) that show no morphological difference to assess anatomical compatibility and morphological similarity. This approach was used to provide an objective means where traditional visual comparison is constrained by fragmentation, handling, or limitations of distances. A total of 98 individuals from three skeletal collections in Greece were included in this study. All vertebrae were digitized using a handheld 3D scanner, and landmarks were placed on the generated models. The coordinate data resulting from the landmark placement were standardized through Procrustes superimposition to eliminate size effects and allow comparison through shape variation. Identification performance varied across all thoracic vertebrae in question, with the highest accuracy observed for T2, frequently exceeding 81% and the lowest for T6 vertebrae. To further assess sorting potential, the research focused on the two most frequently occurring adjacent vertebral pairs of the sample, T4-T5 and T5-T6. Pairs exhibiting the smallest Procrustes distances were interpreted as belonging to the same individual, with 66.2% of the cases being correctly associated within the first three possible matches. The results of this study indicate that 3D geometric morphometric methods could substantially improve the objectivity, consistency, and reliability of sequencing and reassociation of thoracic vertebrae. This approach has strong potential for application in both forensic and bioarchaeological contexts, although further research is necessary to assess its robustness and broader applicability fully.

326. Buried in iron shackles: Non-normative burial at the Greek colony Himera

Authors: Britney Kyle (Department of Anthropology, University of Northern Colorado) – Laurie Reitsema (Department of Anthropology, University of Georgia) – Mustafa Quadir (University of Wisconsin School of Medicine and Public Health) – Alissa Mittnik (Department of Human Evolutionary Biology, Harvard University | Department of Genetics, Harvard Medical School | Max Planck Harvard Research Center for the Archaeoscience Ancient Mediterranean | Department of Archaeogenetics, Max Planck Institute Evolutionary Anthropology) – David Reich (Department of Human Evolutionary Biology, Harvard University | Department of Genetics, Harvard Medical School | Max Planck Harvard Research Center for the Archaeoscience Ancient Mediterranean | Howard Hughes Medical Institute, Harvard Medical School) – Stefano Vassallo (Regional Archaeological Superintendence, Palermo)
Format: Oral

We examine three individuals buried in iron shackles at the Greek colony Himera (648-409BCE). Although funerary practices vary widely across time and space, culturally structured mortuary responses are near-universal, with well-documented ritual traditions in the Greek world. Denial of normative burial and retention of punitive shackles therefore suggest not only social marginalization, but intentional emphasis on the deviance of the deceased. At least 19 shackled individuals/groups have been identified across the Greek world, but this form of non-normative burial is rare. Interpretations in other contexts suggest individuals were political prisoners/mutineers, enslaved, prisoners of war, convicts, and/or condemned. Thoughtful interpretation of shackled individuals must be grounded in local historical and archaeological context and informed by osteological evidence of lived experiences. Using multiple bioarchaeological approaches, we reconstruct the life histories of three shackled individuals from Himera. All died in late adolescence or young adulthood and were interred in simple pit burials lacking grave goods, other than their fetters. Isotopic data indicate local origins, while ancient DNA identifies all three as biologically male with Aegean and/or Italian ancestry. One individual shows genetic evidence of recent inbreeding, indicating the parents were closely related—likely at the level of cousins—and originated from a small population with limited genetic diversity. None exhibit skeletal trauma, but evidence of physiological stress varies among individuals. These findings indicate distinct life histories and tentatively suggest the individuals were either enslaved at Himera for much of their lives and/or Himeran citizens who later became prisoners. At a large colony occupied for more than two centuries and represented by nearly 13,000 excavated burials, the presence of enslaved individuals, convicts, and prisoners would be expected. The exceptional nature of shackled burials within this extensive mortuary sample indicates that restraints were intentionally maintained in death to convey a message to the living.

533. Underwater Archaeology of the Žeimena River, Northeastern Lithuania

Authors: Gytis Piličiauskas – Elena Pranckėnaitė – Kęstutis Peseckas – Aldas Matiukas – Lukas Gaižauskas – Divonis Piličiauskas (Archaeology Department, Lithuanian Institute of History) – Grzegorz Osipowicz (Archaeology Department, Lithuanian Institute of History | Institute of Archaeology, Nicolaus Copernicus University) – Giedrė Piličiauskienė (Archaeology Department, Lithuanian Institute of History | Faculty of History, Vilnius University)
Format: Oral

Archaeological sites within the beds of present-day rivers, including fishing sites, are very rare across Europe; therefore, riverine fishing in the Holocene is known incomparably less well than fishing in lakes, lagoons, or even the sea. It would seem that the main reason for this situation is the much greater scale of bank and bed erosion in rivers caused by current action. But is this really the case? To address this question, between 2015 and 2025 we carried out a complete visual survey of the riverbed along the entire 80 km length of the Žeimena River. The river flows in northeastern Lithuania and belongs to the Baltic Sea basin. We identified 22 sites with at least 35 concentrations of wooden piles (remains of fishing weirs), dated from the Mesolithic to the Middle Ages. While medieval and Iron Age fishing sites yielded almost no other finds, the Stone and Bronze Age sites produced about 1,500 artefacts made of bone, antler, flint, and other lithic materials, as well as wooden objects and pottery sherds. The results of the research on the Žeimena suggest that the channel sediments of present-day European lowland rivers, flowing through landscapes shaped by the last glaciation, still preserve numerous archaeological sites—sometimes dating to the Stone Age and sometimes with excellent preservation of organic materials—but they remain undiscovered because systematic surveys of riverbeds are rarely undertaken.

463. The Benares Shipwreck (1872) in Okinawa: Reconstructing Maritime Histories through Material Traces

Authors: Chiaki Katagiri (Cultural Assets Division, Okinawa Prefectural Board of Education | Faculty of Social and Cultural Studies, ISGS, Kyushu University) – Hiroki Miyagi (Okinawa International University) – Miki Watanabe (University of Tokyo) – Yumiko Nakanishi (Kansai Gaidai University)
Format: Oral

The British merchant ship Benares wrecked off Okinawa Island in 1872 provides a material starting point for examining late nineteenth-century maritime circulation. The investigation began not underwater but on land, with a grave locally known as a "Dutch grave"—a conventional term applied to Western burials. Subsequent research has revealed a diverse assemblage of material culture associated with the wreck, which can be grouped into three categories. The first consists of objects salvaged after the wreck and recontextualised in terrestrial settings, including granite monuments and a recovered anchor at a nearby port. The granite elements display standardised dimensions and working techniques, suggesting a shared origin. As granite does not occur naturally on Okinawa Island, these stones are best understood as ship-related materials selectively recovered. The second category comprises artefacts discovered on the seabed that likely represent materials transported aboard the vessel, including Chinese ceramics alongside

European-manufactured items such as cutlery and ceramics. The third category consists of structural components of the hull including iron fastenings, copper sheathing plates, and a wooden pulley. Archival research has clarified that the Benares was en route from Hong Kong to San Francisco when it was wrecked in Okinawa. Further investigation in Britain has revealed that the vessel was originally constructed in the United States, adding another layer to its transoceanic biography. By integrating terrestrial remains, underwater evidence, and archival and artefactual research, this paper reconstructs the Benares not as a single maritime incident but as a set of materials whose trajectories continued across land and sea. It demonstrates that material traces associated with the wreck were reused and sustained in terrestrial contexts prior to the archaeological identification of the shipwreck itself, allowing the event to be remembered within the local landscape and ultimately contributing to the identification of the wreck site.

449. Standardizing Legacy and Newly Acquired Underwater Cave Data: A Long-Term Methodological Framework for Archaeological Analysis and Reanalysis

Authors: Julien Fortin – Samuel Meacham – Andreas Rosland (CINDAQ) – Dominique Rissolo – Loren Clark (UCSD) – Wetherbee Dorshow (Earth Analytic)
Format: Oral

Submerged karst cave systems in Mexico's Yucatán Peninsula represent repositories of cultural heritage preserving Pleistocene human and animal remains, ochre mines, Maya artifacts, and paleoenvironmental records documenting thousands of years of interaction between people, animals, and landscape. For more than 25 years, the Centro Investigador del Sistema Acuífero de Quintana Roo (CINDAQ) has conducted systematic exploration and documentation of these underwater systems, generating extensive datasets through the work of numerous divers with varied backgrounds, languages, and levels of scientific specialization. Data were collected using heterogeneous methods, including manual and semi-automated survey, sketch mapping, comments, photography and videography, photogrammetry, and Geographic Information Systems (GIS). We present a structured approach to transforming long-term, heterogeneous legacy datasets into usable and reproducible scientific resources. The workflow is organized along four axes: (1) curating legacy data through deduplication, indexing, and the establishment of Single Sources Of Truth; (2) defining standards for legacy translation and new data acquisition, such as controlled vocabularies for survey comments and image tagging; (3) developing tools integrating old and new data while enforcing standards, including image search engines, GIS analyses, automated validation scripts, and photogrammetry pipelines; and (4) documenting paradata through knowledge bases and open, software-agnostic formats ensuring long-term usability. Examples cover the reuse of standardized observations to model halocline depth and assess how environmental dynamics influence cave accessibility and preservation ; the normalization of decades of legacy comments related to ochre, calcite, and charcoal in the study of submerged prehistoric ochre mines ; and the classification of photographic archives to relocate animal and human remains sites for archaeological and paleontological documentation. This work shows how systematic standardization of heterogeneous datasets can enable new analyses while improving quality and reproducibility, and how these methods can be transferred to other fields beyond cave-related studies to any discipline managing complex, long-term field data.

690. Constructing Narratives from Clay: Integrating LIBS,0p XRF, and Archaeobotany to Decode Settlement Dynamics

Authors: Ondrej Štastný – Tereza Šálková (University of South Bohemia, Institute of Archaeology)
Format: Oral

Reconstructing the complexity of prehistoric settlement dynamics requires bridging the gap between static analytical data, spatial configurations, and the human behaviors that produced them. This contribution explores how a multi-proxy approach—integrating inorganic geochemical analyses with dual-mode archaeobotany—can transform fragmented material residues and culturally constructed soil features (choma-facts) into a coherent narrative of technological choice. We present a case study from southern Bohemia, spanning the transition from the Late Bronze Age to the Late Iron Age (ca. 1250 BC – 50 BC). The research focuses on two distinct categories of clay finds: structural daub and mondidols (fired clay objects). To reconstruct the chaînes opératoires and the spatial dimensions of these materials, we employed portable X-ray fluorescence (pXRF) for bulk characterization, and Laser-Induced Breakdown Spectroscopy (LIBS) for high-resolution surface analysis. These chemical datasets were integrated with two parallel botanical lines of evidence. We analyzed plant imprints preserved on the surfaces and matrices of both daub and mondidols to identify intentional technological choices. These results were systematically compared with standard archaeobotanical assemblages (plant macroremains) obtained via systematic flotation of the settlement features. This juxtaposition allows us to distinguish specific "recipes" used for construction materials from the broader agricultural and environmental background. We demonstrate that integrating LIBS, pXRF, and this comparative botany enables us to construct robust narratives about the spatial dynamics of resource management, specialized production, and regional adaptation, moving beyond simple typology to a deeper understanding of prehistoric decision-making.

857. How to recognise and locate the clay source through mineralogical and chemical characterisation: A case study from Rakhigarhi

Authors: Amit Ranjan (Ashoka University)
Format: Oral

This paper focuses on the mineralogical and chemical characterization of clayey raw materials to identify clay sources and address

questions of ceramic provenance at the Harappan site of Rakhigarhi. In the first part of the study, the geological origin of clays was examined through a systematic field survey designed to locate and sample potential local raw material sources within the surrounding landscape. Clay sampling was carried out in relation to sedimentary contexts relevant to ceramic production. In the second part, an ethnoarchaeological approach was employed to document traditional practices of clay procurement and preparation, providing contextual insight into raw material selection and variability. In the third part of the study, experimental replication and controlled firing tests were conducted on locally collected clays to investigate mineralogical phase transformations and firing temperature ranges. Archaeological ceramics, geological clays, and experimentally fired briquettes were analyzed using an integrated multi-analytical approach combining FTIR spectroscopy, SEM–EDX, and ICP-MS trace-element analysis, allowing the establishment of mineralogical and geochemical reference frameworks. Finally, a comparative analysis of experimentally fired briquettes and archaeological ceramics was undertaken. The results indicate a strong mineralogical and chemical correspondence between local clays, experimental products, and most red ware ceramics, particularly from the Mature Harappan phase, suggesting predominantly local production. In contrast, selected Early Harappan and Hakra ceramics, especially mud-appliqué and grey ware, exhibit mineralogical and chemical signatures distinct from the local clay baseline, indicating the use of compositionally different or non-local raw materials.

2221. Digging Geophysics Out of the Bin

Authors: Peter Turner – Andy Boucher – Sam Harrison – Lei Ding – Jacob Adams (Headland Archaeology)
Format: Oral

Geophysical techniques have been used extensively in both academic and commercial archaeology as a prospection tool to locate areas of archaeological potential and guide further investigation. However, after initial prospection, the involvement of geophysical specialists often ends and a wealth of potentially useful information contained within that data is lost. Headland archaeology has been pioneering an integrated approach to excavation where geophysicists return to survey sites that are in the process of active investigation. This allows us to uncover new details with higher resolution surveys performed closer to horizons of interest, and without the interference of soils and materials present within the plough soils. Novel mechanisms to provide this clearer data to excavators and curators in a timely and useful fashion, can allow us to identify the functions of structures, target interventions more efficiently by locating features that are invisible to excavators as well as identifying areas where cultural material may be concentrated. Detailed information about complex features can be used to inform excavation strategies. Furthermore, iterative feedback between surveyors and excavators can be used to improve geophysical interpretations both at the level of individual sites and within the wider practice of archaeological geophysics. Here we will evaluate the potential of this approach through case studies at a number of sites in the United Kingdom, and discuss the implications for interdisciplinary understanding of sites and presentation of digital data.

943. More than gift: Glassmaking in medieval Kyiv

Authors: Olena Zhurukhina (The Museum of History of the Desiatynna "Tithe" Church)
Format: Oral

The emergence of glassmaking in Kyiv is an interesting phenomenon related to the political and economic development of the new medieval state. Diplomatic and trade bonds between the Early Rus and Byzantine Empire, the adoption of Christianity as the state religion, laid the foundation for the emergence, development and spread of glassmaking production, which evolved into a large-scale industry. Intensive archaeological excavations of the city have yielded a wealth of material for research. These include equipped areas for glassmaking activities and numerous production remains, such as collapsed furnaces, tools, raw materials, production waste (e.g. slag and probes), defective and finished products, etc. which indicate the development of production. Currently, we can discuss various aspects of the glass industry: from working with finished trade/imported glass ingots to the recycling of glass products for reuse glass mass. Also, the study of natural raw materials — the main glass-forming components used in glass production — is ongoing. Sand, limestone, carbonates and so on are important for identifying the basis of local production, as well as clarifying the location of raw material deposits outside the borders of modern Ukraine (for example, lead). By using archaeometric research methods such as chemical analyses of glass, petrographic methods, mineralogical and geochemical studies of minerals and rocks, we will be able to draw conclusions about the origin of Kyiv glass, how glassmaking processes were organised, about the directions of trade routes and spread of Kyivan glass products in the 11th—13th c.

8. Monuments, memories and ritualsA case study of megalithic sites in some villages in Kerala, India

Authors: Rajan Koyu (Sree Neelakanta Government Sanskrit College, Pattambi)
Format: Oral

Death being an ever present reality, people whether in the past or present have taken utmost care to bury their dead with rituals. Megalithic building had occurred in times distant from our memory. Oral traditions from the early historic phase have been used by archaeologists and historians in south India to argue that megalith-building was undertaken as part of a wider cult of the dead, especially of the heroes and have listed some rituals associated with the monuments. This paper does not intend to reject them. The author finds the early historic Tamil poems to be of limited nature in comprehensively analyzing burial rituals. The magnificent presence of the monuments in their midst have definitely influenced people living around them. Ethnographic data collected from people from people in megalithic sites show that memories of megalithic building could not be carried into the past. There

are some traces of them, however. The same thing applies to rituals. Hill tribes seem to have maintained some rituals, distinct from the more Aryanised peoples in the plains although they too were not living in complete isolation. Megalithic monuments in some places are regarded as cult spots, while in some other places they have evoked fear. On the other hand, people generally regard their ancestors' burial mounds in their house compounds with veneration. It implies that burial centres, removed from memory, have come to be feared and worshipped. Cult of the dead itself is a legacy from cultures including that of the megaliths. Colonial ethnographic reports suggest wider prevalence of burial among people. Cremation, earlier practiced by the Brahmins and the associated castes, is now slowly catching up among the other groups. An indepth analysis of burial rituals in villages in megalithic centres is attempted in this paper.

244. The Archaeological and Cultural Landscape of Tamsa Region: From Ayodhya to Ballia (Uttar Pradesh, India)

Authors: Pushp Lata Singh (Dept. of AIHC & Archaeology, Banaras Hindu University, Varanasi)
Format: Oral

The objective of the present paper is to synthesize the archaeological and cultural landscape of the Tamsa Region from the Protohistoric Period to the Early Medieval Period. These landscapes are vital for understanding the interplay between human activities and the natural environment over time in the Tamsa Region. The Tamsa River area, stretching from Ayodhya to Ballia, covers a rich archaeological and cultural landscape with continuous human settlements from the Protohistoric through the Early Historical to the Medieval period. The Tamsa River originates from a lake in Mawai Tehsil, District Ayodhya, and passes through Ambedkar Nagar, Azamgarh, Mau, and Ballia. The confluence place of the Chhoti Saryu and Tamsa is Sahroj in Mau District. The river finally meets to the south-west of the Ganges River in Ballia District of Uttar Pradesh. The archaeological material from excavated sites of Khapura, Lakhneshwar Dih, Pakkakot, Waina, and other explored sites such as Sipah, Narsinghpur, Nahush ka Kot, Mahadeva, and Singhpur reflects broader cultural interactions through land as well as river routes from Ayodhya to Ballia/Ghaghara-Tamsa Region. The cultural milieu of the study area is represented by diverse ceramic assemblages and other artefacts, which together reveal cultural evolution across successive phases to understand both cultural continuity and change in the Tamsa/Tons Region. The ceramic remains and associated material culture of the occupational phases reveal a complex and dynamic settlement pattern in the region during the Protohistoric Period to the Early Medieval Period. Thus, the Tamsa-Ghaghara Region emerged in the past as a vibrant cultural zone integrated through the networking of ancient routes.

1341. Cultural Narrative and Material Heritage of Malana in Kullu, Himachal Pradesh : Towards a Cross-Cultural Framework

Authors: Sheetal Rana (Banaras Hindu University)
Format: Oral

Malana, a secluded village in Himachal Pradesh, has long been associated with narratives of sacred authority, cultural distinctiveness, and contested heritage. This paper, "Cultural Narrative and Material Heritage of Malana in Himachal: Towards a Cross-Cultural Framework ", explores how material culture—ritual artefacts, architectural forms, and oral traditions—mediates identity and sustains collective memory in contexts of marginality. By situating Malana within comparative heritage frameworks, the study examines resonances between local narratives of divine sanction and ancestral continuity and broader cross-cultural paradigms, particularly the thought, which emphasizes legitimacy, authority, and the transmission of cultural meaning across time. The paper argues that Malana's material heritage can be understood not only as a repository of local identity but also as part of a wider dialogue with ancient traditions of cultural legitimacy and narrative construction. Through ethnographic insights and comparative analysis, the research highlights how Malana's practices of ritual continuity, spatial organization, and mythic storytelling intersect with external perceptions of authenticity, exoticism, and heritage value. In doing so, it foregrounds the dynamic interplay between indigenous epistemologies and global heritage discourses, revealing how cultural narratives are continually reconstituted through negotiation and selective remembrance. Ultimately, the paper proposes a cross-cultural framework that bridges Himalayan and classical traditions, offering new pathways for understanding heritage governance, identity formation, and the ethics of representation. This approach underscores the importance of integrating local agency with comparative perspectives to foster inclusive and sustainable heritage practices.

349. Lambaesis during the Algerian War of Independence

Authors: Anna Walas (Institute of Classical Studies, London)
Format: Oral

Following the Algerian War of Independence (1954–1962), the future of French archaeology in Algeria, including at the Roman legionary base at Lambaesis became less certain. With its excavation history rooted in the period of French conquest of Algeria in the nineteenth century, Lambaesis offers a revealing lens through which to examine the colonial foundations of archaeological practice on Roman frontiers in Algeria, in particular, the involvement of the French Foreign Legion. This paper argues that the Algerian War of Independence constituted a second important, and largely overlooked episode in the site's modern history. As conflict intensified, the Foreign Legion once again became militarily active in the region surrounding Lambaesis, reactivating the physical and ideological proximity links between Roman frontier remains, modern military presence, and political authority. The

war meant that archaeology, decolonisation, and armed conflict intersected again, sometimes reviving older colonial patterns, and at time creating new narratives. This paper explores how Roman frontier heritage was cared for, mobilised and reinterpreted during this period. The paper focuses on how colonial administration, archaeological administration, and the Foreign Legion operated in proximity to one another, negotiating access, authority, and the use of the Roman past within shifting political and security contexts. Finally, I consider the implications of these entanglements for understanding Roman frontiers simultaneously as ancient heritage and as landscapes marked by modern conflict. In doing so, the paper contributes to broader debates on histories of archaeological missions in countries formerly colonised by European powers, cultural diplomacy, and the ethical challenges of narrating Roman frontier heritage in anti-colonial contexts.

532. Roman Algeria and the Colonial Ownership of the Classical Past

Authors: Samir Belgacem (Chris Blandford Associates Ltd)
Format: Oral

This paper examines the colonial construction of Roman heritage in Algeria as a political and archaeological project through which the French colonial state sought to legitimize territorial control, cultural authority, and historical continuity to justify colonization. Drawing on archives, conservation policies, archaeological missions, and restoration practices, it analyzes how Roman antiquity was selectively mobilized as a "classical" ancestry for French Algeria, framing the country as inherently Mediterranean, Latin, and European, while marginalizing Islamic, Arabic, Berber, and vernacular cultural histories. The paper situates French archaeology in Algeria within broader logics of imperial governance, cultural diplomacy, and identity engineering. Roman sites were not only excavated and studied, but ideologically reframed through stylistic restoration, museum display, heritage tourism, and urban monumentalization, producing a hierarchy of pasts in which Roman antiquity was elevated as civilizational heritage, while living and intangible cultures, and other types of Algerian built heritage, were rendered peripheral. In parallel, writings of French authors and officers exalted the military use of surviving Roman infrastructure, framing the invading French army as modern conquering centurions by painting the false image of undisturbed antiquity, which later required retrofitting these sites to match ideological narratives through intervention. This process transformed archaeology into a technology of political legitimacy and cultural occupation. By interrogating who was authorized to interpret, restore, and narrate the Algeria's Roman past, this paper addresses the question of ownership of heritage in colonial and post-colonial contexts. It argues that Roman archaeology in Algeria functioned as a form of cultural possession, producing enduring institutional and epistemic legacies that continue to shape heritage governance and historical narratives today. The Algerian case offers a critical perspective on how "classical" pasts are constructed, circulated, and instrumentalized within colonial and post-colonial frameworks, contributing to contemporary debates on decolonizing archaeology and rethinking the politics of cultural ownership globally.

715. From the archaeological site to the museum: French military and religious men and the objects of early Christian Tunisia

Authors: Chiara Cecalupo (University of Malta)
Format: Oral

Some museums are undoubtedly imperial institutions, spaces where colonial and Eurocentric conquest was propagated and justified, and non-European objects were exhibited in displays derived from racist political views. Archaeology also played an important role in serving colonial aims: a particular case in point is certainly that of French expansion in North Africa from the 1880s onwards. The French institutions, strengthened by their Napoleonic legacy and, above all, by the experience of the Louvre as the cornerstone of a constantly expanding universal museum, made extensive use of Algerian and Tunisian heritage for colonial purposes. The aim of this presentation is to contribute to a reflection on the rediscovery of Tunisia's early Christian heritage by French military and religious figures during the Protectorate period. In particular, the presentation will focus on the little-known history of the collection of archaeological finds from the excavations of the early Christian sites, discovered between 1880s and the 1930s. These finds were then moved to France, or to local museums that French founded in North Africa. These foundations served to reinforce the themes of French colonial policy of expansion in the southern Mediterranean. The talk will present documents and images from the period, commenting on this museum operation according to the assumptions of critical museology.

685. Unearthing Mesopotamia: Soviet Expeditions in the Middle East

Authors: Elena Vorobyeva (Koç University)
Format: Oral

This paper examines the Soviet Mesopotamian expeditions to Iraq (1969–84) and Syria (1988–2010), a body of work that remains largely absent from broader disciplinary histories and critical scholarship. Conducted under the USSR's foreign archaeological program established by the Institute of Archaeology of the Academy of Sciences in 1961, these campaigns positioned Soviet scholars in a region central to contemporary research on civilizational origins. In doing so, they enabled the projection of scientific parity with Western archaeology while simultaneously advancing cultural diplomacy with strategically significant countries during the Cold War. Drawing on archival materials, excavation reports, and scholarly publications, this paper analyzes Soviet archaeology in the Middle East through its research questions, methodologies, site selection strategies, contributions to the field, and key actors. It synthesizes a comprehensive perspective on Soviet approaches to Mesopotamia by juxtaposing the work of these expeditions with

that of Western counterparts, examining how Soviet archaeology functioned both epistemologically and politically in the landscape dominated by Western scholarship for over a century. Situated in the context of the post-Second World War expansion of foreign archaeological research in the Middle East and the development of Soviet foreign relations, this study traces a legacy that continues to shape archaeological practice in the region today.

48. Social revival of the "Kujawian Megaliths" in Poland

Authors: Lech Kościelak (FASS Academy)
Format: Oral

Many Neolithic researchers speculate that there were numerous megalithic burials in what is now Poland. This was associated with the Funnelbeaker culture. Members of this culture buried their significant members in large, trapezoidal or triangular-shaped barrows. In the 19th and 20th centuries, many of these sites were degraded and destroyed. The most interesting megalithic tombs to date have been preserved in the Kujawy region in central Poland. It is generally accepted that these barrows contained men around 40-50 years of age, clearly significant figures in these communities. At least, this was the conclusion of archaeological research initiated before World War II by Professor Konrad Jażdżewski. As it turned out, this was an erroneous hypothesis, as a woman aged 50-70 was buried in one of the barrows. Therefore, it can be assumed that women also played important roles among the Funnelbeaker culture. Megalithic sites in Kujawy are considered the best preserved, but also the most ingrained in local consciousness. In one village, a Landscape Archaeological Park was established, with designated educational trails. The burial mounds in this area are marked and well-described, allowing local residents and tourists to decipher the history left behind by people who lived here four thousand years ago. Already in the 21st century, the local government has undertaken numerous initiatives to revive this megalithic complex. A documentary film has even been produced. It can therefore be concluded that there has been a clear social revival of the "Kujawy boulders."

1503. How We Teach the Theory of Classical Archaeology in Poland at Adam Mickiewicz University (AMU) in Poznań

Authors: Ewa Bugaj (Adam Mickiewicz University in Poznań, Faculty of Archaeology)
Format: Oral

Abstract Classical archaeology has been part of the academic landscape in Poznań since 1919, initially as a secondary focus alongside prehistoric and medieval studies. In the 1970s, Poznań scholars emphasized the importance of archaeological theory, referencing indigenous methodologies from the 1980s while gradually incorporating external influences, particularly from the Anglo-Saxon academic tradition. By 1999, classical and oriental archaeology gained independent specialization, allowing for a balanced approach to archaeology theory and methodology across disciplines. The work of archaeologists at Adam Mickiewicz University (AMU) reflects a methodological diversity, spanning humanistic and natural science perspectives. Central to AMU's archaeological methodology is the understanding that research procedures and theoretical frameworks shape cognitive outcomes. This duality highlights the significance of theory as a lens through which the past is interpreted and represented. Despite some archaeologists' reluctance towards theoretical frameworks, there is a growing recognition of theory's essential role in contemporary archaeological practice, especially in understanding the nature of archaeological sources. The Poznań approach emphasizes the cultural context of archaeological findings, arguing that these sources are not merely empirical data but are imbued with meaning shaped by the archaeologist's interpretive choices. Furthermore, there is a notable inclination towards integrating humanistic analysis with natural scientific rigor, aligning with contemporary trends such as new materialism. AMU archaeologists advocate for a constructivist perspective, underscoring the symbolic significance of archaeological sources and the necessity of theory in crafting narratives about the past. This interpretive orientation aims to transcend simplistic realism, recognizing the complex interplay between culture and archaeology, ultimately enriching the field's epistemological framework.

1169. Sex-based Differences in Oral Pathologies in the Greco-Roman World: A Meta-Analytical Perspective on Methodological Potential and Limitations

Authors: Antonio Caruso (Polish Centre of Mediterranean Archaeology, University of Warsaw) – Efthymia Nikita (The Cyprus Institute)
Format: Oral

Meta-analysis is a statistical approach used to synthesize results from independent studies in order to explore broader patterns. In this study, we conducted a meta-analysis of differences in proportions to synthesize data from 45 studies investigating sex-based patterns in carious lesions, dental calculus, antemortem tooth loss, periodontal disease and periapical cavities from assemblages dating to the Hellenistic and Roman periods (~4th century BCE–4th century CE) in Italy and the Eastern Mediterranean and Middle East (EMME). The aim was to gain a better understanding of dietary practices and gender-based social differentiation as reflected in sex-based variation in oral health. The results revealed no significant differences between males and females across all examined oral conditions, a pattern that holds for both BCE and CE chronological subsets. However, our study also highlighted significant methodological limitations affecting the meta-analysis of published bioarchaeological data. A substantial number of potentially relevant studies had to be excluded due to insufficient reporting, and several analyses exhibited high heterogeneity, likely reflecting differences in recording criteria and methodological approaches rather than actual differences in disease prevalence among populations. Overall, our findings indicate that meta-analysis holds considerable yet underutilized potential in bioarchaeology; however, current research and reporting practices substantially limit its effective application.

312. The STI–ECA Model in Metacognitive Archaeology:A Poly-Theoretical Inclusive Design Technology for Higher Education Systems

Authors: Alexander Rusetsky (Georgian Technical University)
Format: Oral

This paper conceptualizes metacognitive archaeology as a theory of archaeological knowledge management and simultaneously as a technological framework for cultural heritage management. The proposed approach focuses on the accumulation of existing research, its theoretical and epistemological structuring, the initiation of new knowledge, and the integration of independently produced research into a coherent scientific and educational system. Metacognitive archaeology is defined as a meta-theoretical framework whose internal operational mechanism is the syncretic model, enabling the systematic coexistence and comparative analysis of categorically different archaeological theories without reducing their internal logic. A central theoretical pillar of the paper is the STI–ECA model, which positions scientific research and education within a six-phase system: (1) scientific research and novelty, (2) technology, (3) innovation, (4) education, (5) culture, and (6) administration. This model is applied as a metacognitive tool for understanding the cyclical movement, translation, and institutionalization of archaeological knowledge. Using the archaeological site of Gonio–Apsaros as a case study, the paper demonstrates how systematic theoretical knowledge and multi-theoretical analysis directly improve the quality of fieldwork, research decision-making, and the legitimacy of archaeological interpretations. The proposed framework is integrated across all three levels of higher education—Bachelor's, Master's, and Doctoral—establishing a stable connection between theory, practice, education, and cultural heritage management. The paper argues that the integration of metacognitive archaeology and the STI–ECA model enhances research quality, strengthens field methodologies, and contributes to the positive transformation of theoretical conflicts within archaeology.

519. From traction-complex rituals to Rappendam, paths to Nerthus in Tacitus Ger. 40

Atuhors: Frank Battaglia (College of Staten Island / CUNY)
Fromat: Oral

Tacitus described (c.98 CE) a ritual involving a cattle-drawn vehicle that carried a numen of Mother Earth. The disc wheel sacrificed at Rappendam, Seeland c.150 CE, was the youngest of some 40 specimens dating back to c.300 BCE. Ritual procession with a cart may well have originated about 3,500 BCE in northern Europe as animal traction – an innovative complex that included plows, sledges and wheeled vehicles ¬– gained widespread use. It transformed food cropping, transportation and communication between different areas, and gave rise to new rituals. As early as 4,000 BCE, ard marks, from 'scratch' plows drawn by oxen, are known all over South Scandinavia. Late in the 4th millennium BCE, symbols of yoked cattle, seen as early representations of a Nerthus cult, were inscribed in a communal gallery-grave in Züschen, Germany. Flintbek LA 3, a barrow near Kiel, Schleswig-Holstein, constructed during about a century and a half until 3360 BCE, encodes within it funeral observances with both plow and cart, and possibly a procession. Thus, Flintbek recorded rituals of cart and plow in the same monument. More than 200 stendyngegrave, "stoneheap graves," entailing the burial of cattle pulling a cart bearing a deceased, were dedicated around 3000 BCE in Northern Jutland. Over time, traction-complex materials and art began to be featured in non-mortuary contexts. Sacrifices of wagon and plow materials in areas of current Denmark and northern Europe continued for millennia, and, including some Dejberg-type wagons in bogs, were still being made at the beginning of the 1st millennium CE. Many of the ceremonies H.M. Chadwick ascribed to the Cult of Nerthus "in ancient and modern times" are connected with the northern European areas of traction-complex sacrificial deposits.

335. Tracing Pregnancy in Early Medieval Czechia: Rethinking Methodological Assumptions in the Identification of Gestation

Authors: Katarína Kapustka (University of Pardubice) – Eliška Zazvonilová – Nikola Koštová (Institute of Archaeology, Czech Academy of Sciences, Prague, v.v.i.) – Drahomíra Frolíková – Jan Frolík (University of Pardubice)
Format: Poster

Pregnancy remains one of the most methodologically elusive aspects of past human life, as gestation rarely leaves clear or direct traces in the archaeological record. This poster critically examines how pregnancy and perinatal death may be identified in early medieval Bohemia through an integrated bioarchaeological framework. The study draws on material from five burial grounds representing diverse social and spatial contexts, including peripheral rural cemeteries (Přezletice, Zeleneč, Dobrovíz), a central elite site (Prague Castle – Jízdárna), and a cemetery in its hinterland (Prague–Triangl). A key focus is placed on the widespread but often untested assumption that adult females buried with foetal or neonatal remains are necessarily the biological mothers of these individuals. By combining osteological assessment with ancient DNA analysis and radiocarbon dating, we critically evaluate this assumption and explore a broader range of possible relationships, including non-biological kinship, social motherhood, caregiving roles, or alternative funerary practices. The poster further addresses differential preservation and recovery of perinatal remains across sites, highlighting the role of taphonomy, burial customs, and excavation methodology in shaping the archaeological visibility of pregnancy. By questioning normative interpretative frameworks, this contribution advocates for a more nuanced and reflexive approach to pregnancy, motherhood, and reproductive vulnerability in early medieval societies.

1183. Preliminary results of weaning patterns at a Late Bronze Age site in Latvia

Authors: Anna Batraga – Gunita Zariņa (University of Latvia, Faculty of Humanities, Institute of Latvian History) – Lauma Buša (University of Latvia, Department of Chemistry)
Format: Poster

Historical weaning practices for infants have had significant implications for birth spacing and survival rates, thereby influencing population levels and growth in various socio-economic contexts. It is believed that breastfeeding was more prolonged among hunter-gatherers, at least partly due to a lack of suitable weaning foods compared to those available to agriculturalists. Research on Neolithic populations in Latvia shows that the average age at which children were fully weaned was around three years. Following the introduction of farming in the Bronze Age (1800 – 500 cal BC), all aspects of everyday life changed, including the health of the population, particularly women. However, little attention has been given to the impact on breastfeeding. To investigate how these changes manifested in weaning patterns during the Bronze Age, stable isotope analyses were performed by measuring carbon (13C) and nitrogen (15N) of sequential dentine samples from the first permanent molars. This method aligns tooth sampling with age by following a scheme based on average growth rates in dentine regions. The preliminary results consist of analyses of individuals from the Late Bronze Age Ķivutkalns site (800 – 680 cal BC). These results show that the period of exclusive breastfeeding was very similar to that in the Neolithic period. However, the age at which weaning is completed is approximately eight months younger overall. This suggests that the interval between pregnancies was shorter, placing an additional burden on mothers' bodies, as reflected by the higher incidence of dental pathologies in women at the Ķivutkalns site compared to hunter-gatherer communities in previous periods. Nevertheless, further studies are needed to evaluate the extent to which farming impacted weaning practices and women's health.

1301. An Analysis of Frontal Sinusitis in three Ancient Populations from the Turpan Basin, Xinjiang, China

Authors: Qingxin Fu – Quanchao Zhang – Jiaqi Jin – Dargye Lobsang (Bioarchaeology Laboratory, Jilin University)
Format: Poster

This study used computed tomography (CT) to investigate pathological manifestations of frontal sinusitis in three populations from the Bronze Age to the Early Iron Age in the Turpan Basin, Xinjiang. CT analysis of 119 individuals from the Yanghai, Jiayi, and Shengjindian cemeteries revealed a high prevalence of frontal sinusitis, with rates of 60.6% at Yanghai, 58.1% at Jiayi, and 50% at Shengjindian. Statistical analysis showed no significant differences in prevalence by sex, age group, or the three cemetery population. These findings suggest that the ancient Turpan Basin populations were exposed to comparable respiratory health risks. The development of frontal sinusitis was likely influenced by multiple environmental and cultural factors: the Turpan Basin climate, marked by arid climate, frequent dust storms, and high levels of airborne particulates, likely exacerbated the condition. In addition, exposure to animals and plants during hunting, herding, and farming, together with smoke from indoor fires, may have further contributed to the disease. Although no significant sex-based differences were detected, the underlying pathogenic exposures may have varied between males and females. Female individuals, who likely engaged more in domestic tasks, may have experienced greater exposure to indoor smoke and pollutants from cooking and textile production. Male individuals, more frequently involved in herding, hunting, and metalworking, were probably exposed to dry, dusty outdoor conditions and fumes from metallurgical activities. This study demonstrates that CT scanning is an effective, non-invasive method for identifying pathological changes in ancient human remains. The non-invasive nature of CT not only preserves skeletal integrity but also greatly increases accessible sample sizes, offering valuable insights into the respiratory health of Bronze and Iron Age populations of Xinjiang.

1476. From Household to Landscape: Multi-Depth pXRF Signatures across Chalcolithic Settlements in Eastern Romania

Authors: Radu Pirnau (Romanian Academy, Iasi Branch, Center for Geographical Research) – Felix Tencariu – Andrei Asandulesei – Vasile Cotiuga (Alexandru Ioan Cuza University of Iasi) – George Bodi (Romanian Academy, Iasi Branch, Institute of Archaeology)
Format: Poster

This paper presents a multi-scalar geochemical investigation of several Chalcolithic settlements (ca. 4500–3500 BCE) in eastern Romania. Portable X-ray fluorescence (pXRF) analyses were conducted on soils from the eponymous site of Cucuteni-Cetățuia and nearby settlements during systematic archaeological excavations, as well as on deep stratigraphic profiles (2–4 m) exposed during wind turbine foundation excavations undertaken within a preventive archaeological monitoring project. Settlement contexts display distinct geochemical signatures indicative of domestic activities, craft production, and organic waste accumulation. In contrast, deep profiles from adjacent areas establish a geochemical baseline for local lithological variability and provide insight into substrate conditions and potential raw material sources for construction and ceramic production. A methodological insight emerges from comparing pXRF-derived total P with wet-chemical extractable mobile P. Total phosphorus alone does not adequately capture anthropogenic inputs, as it is strongly influenced by lithological background. The bioavailable fraction, however, provides a more sensitive indicator of occupation-related deposition. The mobile/total P ratio increases from 4.7% in natural horizons to 7.5% in occupation layers, reaching 8.8% in krotovinas, suggesting that bioturbation has redistributed and preserved organic-derived phosphorus in deeper soil contexts. Despite these limitations, the integration of occupation-layer chemistry with multi-depth subsurface data enables the differentiation of anthropogenic signatures from geological background across spatial scales. The results demonstrate how field-based pXRF can trace cultural practices from intra-settlement organization to landscape-level resource exploitation. More broadly, the study contributes to methodological discussions on the geochemical detection of past practices in archaeological soils and Chalcolithic landscape organization in eastern Romania.

1939. A bioarchaeological case study of a 7th Century BC burial from Morenii Vechi (Republic of Moldova)

Authors: Vasilica-Monica Groza ("Olga Necrasov" Center of Anthropological and Biomedical Research, Iași | Romanian Academy, Iași Branch, Institute of Archaeology, Iași, Romania) – Sergiu Popovici (National Archaeological Agency, Chișinău) – Mariana Popovici ("Olga Necrasov" Center of Anthropological and Biomedical Research, Iași) – Alexandru Berzovan (Romanian Academy, Iași Branch, Institute of Archaeology, Iași, Romania) – Luminița Bejenaru ("Olga Necrasov" Center of Anthropological and Biomedical Research, Iași | Faculty of Biology "Alexandru Ioan Cuza" University of Iași)
Format: Poster

This paper presents a bioarchaeological analysis of a male individual recovered from Burial 1 (M1) at Morenii Vechi, Republic of Moldova, dated to the 7th century BC and attributed to the Early Iron Age in the north-western Pontic region. The study reconstructs the individual's biological profile through a detailed examination of the skeletal and dental remains, with particular emphasis on age at death estimation, morphological characteristics and pathological conditions. The osteological analysis reveals age related skeletal changes, including the presence of spina bifida occulta affecting the S3-S5 sacral segments. Dental assessment reveals the absence of carious lesions and dental calculus, while non-pathological characteristics such as dental abrasion and a diastema of the maxillary anterior teeth are observed. The diastema, occurring in the absence of antemortem tooth loss, is considered a non-pathological dental variation, indicative of genetic and dento-alveolar diversity rather than pathological alteration, and may provide information relevant to physiological development and biological affinity. Considered within their funerary and archaeological context, the combined skeletal and dental data contribute to a detailed life history reconstruction of an Early Iron Age individual and offer a detailed comparative case for bioarchaeological research in Eastern Europe. This work was supported by a grant of the Ministry of Research, Innovation and Digitization, CNCS – UEFISCDI, Funerary landscapes in the Carpatho-Dniestrian area at the beginning of the Late Iron Age, PN-IV-P2-2.1-TE-2023-0015.

293 STREAMLINING ARCHAEOLOGICAL WORKFLOWS: DIGITAL DATA ENTRY, ANALYSIS, AND PUBLICATION WITH ARCHEOBASE

Theme: 4. Transforming archaeology through interdisciplinarity
Organisers: Emmanuel Clivaz – Jean-Philippe Clivaz (ArcheoBase)
Keywords: Digital archaeology, Archaeological data management, Vectorized drawing, GIS and spatial analysis, Collaborative digital workflows, Archaeological publication and dissemination
Format: Workshop

SESSION ABSTRACT

This workshop presents ArcheoBase, a web-based digital infrastructure designed to address persistent challenges in archaeological data management: fragmented documentation practices, time-consuming post-excavation processing, limited interoperability between tools, and difficulties in long-term preservation and publication of archaeological data. Building on extensive consultations with cantonal archaeological services, universities, museums, and private institutions, ArcheoBase was developed as an end-to-end workflow environment, covering field documentation, post-excavation analysis, spatial interpretation, and scientific dissemination within a single coherent system. Participants will follow a complete documentation chain, starting with structured digital data entry in the field using customizable forms on mobile devices, progressing through stratigraphic reasoning and analysis (including the creation of stratigraphic units, sectors, and Harris matrices), and concluding with GIS-integrated interpretation, vectorized drawing tool, and publication workflows. Practical exercises will demonstrate how archaeological data, spatial geometries, images, drawings, and metadata remain interconnected throughout the process. Participants will explore ArcheoBase's innovative web-based drawing tool, which allows teams to create georeferenced vector illustrations collaboratively without requiring specialized CAD software. The workshop will also demonstrate publication workflows that support version control, editorial validation, multilingual dissemination, and seamless web embedding via iFrames. Finally, we will address critical issues of data sustainability and long-term reuse, emphasizing FAIR data principles, complete export capabilities, and structured metadata standards. The session is intended for archaeologists, researchers, and institutional practitioners seeking practical, transferable approaches to modernizing archaeological workflows, improving collaboration across teams, and ensuring durable, reusable digital research outputs. By the end of the workshop, participants will be able to: • Understand how integrated digital workflows can reduce fragmentation between fieldwork, analysis, and publication. • Use a digital recording tool that adapts to any archaeological methodology. • Create and interpret stratigraphic relationships and Harris matrices within a connected data environment. • Link GIS data, drawings, photographs, and contextual metadata into a single analytical framework. • Evaluate practical approaches for FAIR-compliant publication and long-term preservation of archaeological data.

294 BRIDGING HERITAGE AND HOPE – WORK IN CONFLICT ZONES THROUGH THE EARLY CAREER ARCHAEOLOGIST'S LENS

Theme: 2. Crossing the divide. Archaeology and the open world

Organisers: Isber Sabrine (Milá and Fontanals Institute for Humanities Research, Spanish National Research) – Eszter Bánffy (ELTE Research Centre for the Humanities) – Elin Dalen (Independent Heritage Manager) – Carsten Paludan-Müller (Cambridge Heritage Research Centre) – Hamoudi Khalaily (Israel Antiquities Authority)

Speakers: Mohammed Maher Mousa Al-Nuaizi (Première Urgence Internationale) – Maryam Aljunaid (University of Aden) – Abdulrahman Khafaji (Iraq Museum) Hassan – Hajj Ali (Sapienza University of Rome) – Ghinwa Saba (Independent researcher) – Abdallh Alhamed (University of Aden) – Fatma Salem Saleh Mohammed (University of Aden) – Ristam Abdo (Association of the East for the Protection of Syrian Cultural Heritage) – Salwa Burgeia (University of Benghazi) – Hadi Ibrahim (Pázmány Péter Catholic University) – Hanan Faroq Abdul -Wahid (University of Aden) – Issa Zaghab (Ministry of Tourism and Antiquities, Jericho & Jordan Valley)

Keywords: safeguarding heritage, post-war conflict zone, war conflict zone

Format: Round table

SESSION ABSTRACT

This EAA initiative is rooted in the belief that archaeology and cultural heritage can serve as powerful tools for peacebuilding by fostering network-building and connecting also younger generation representatives. The EAA therefore offers an opportunity for young professionals who face barriers to connect with one another and access international academic networks due to conflict, displacement, or limited resources. 12 early career colleagues present their work in current or post-conflict zones. The goal is to share their knowledge and discuss how working for our common archaeological heritage can foster dialogue and peaceful cooperation. This EAA initiative is rooted in the belief that archaeology and cultural heritage can serve as powerful tools for peacebuilding by fostering network-building and connecting also younger generation representatives. The EAA therefore offers an opportunity for young professionals who face barriers to connect with one another and access international academic networks due to conflict, displacement, or limited resources. 12 early career colleagues present their work in current or post-conflict zones. The goal is to share their knowledge and discuss how working for our common archaeological heritage can foster dialogue and peaceful cooperation.

Index of Authors and Organisers

The following index contains the list of first authors of contributions and session organisers and the corresponding sessions in which they are involved. Co-authors of contributions are not included in this index. Names are arranged alphabetically by surname and are presented in the format: *last name, first and middle name(s)*. Names are listed as submitted by the authors and session organisers. For the purposes of this index, diacritical marks are disregarded in alphabetical ordering.

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