

's Gravesande's empirical concept of laws of nature and its origins in natural law theories

As is well-known, Willem Jacob 's Gravesande was one of the most influential experimental physicists of the early eighteenth century. Equally known to specialist in eighteenth-century philosophy of science is the fact that 's Gravesande repeatedly elaborated on the philosophical foundations of his empiricism. Yet, as he is still regarded primarily as a 'Newtonian' in historiography, these foundations have almost exclusively been studied in relation to Newton's work, or, at best, to British empiricism more generally. Here, I will show that these relations are insufficient to provide a rich understanding of 's Gravesande's philosophy of science – a philosophy that had an importance influence on later Dutch, German, and French thinkers.

In this talk, I will focus on one particular element of 's Gravesande's philosophy, namely his concept of laws of nature. According to 's Gravesande, experimental physics could lead us to certain knowledge of these God-given laws. As Ducheyne (2014) has already shown, 's Gravesande's particular understanding of the laws of nature was incongruent with Newton's view on induction. However, it is also clearly incompatible with the probabilistic epistemology of for instance Boyle and Locke. I will show that instead of to the British connection, we must look at German, Dutch and French influences in order to understand 's Gravesande's interpretation of the laws of nature and his epistemology in general.

As I will argue here, of particular significance to 's Gravesande were debates on natural law between Pufendorf, Leibniz and Barbeyrac. Trained as a jurist rather than as a philosopher, 's Gravesande was well versed in these issues. Moreover, as his largely neglected works on moral philosophy show, the mature 's Gravesande continued to study new interpretations of the subject. I will pay special attention to the resemblances between 's Gravesande's concept of the laws of nature and contemporary conceptions of natural law. We will see that these were both moulded by theological debates, especially by the Scylla of Spinozist necessitarianism and the Charybdis of an arbitrary God. Particularly noteworthy is the fact that 's Gravesande, in both his moral philosophy as his philosophy of science, sided on many points with Leibniz and against his supposedly 'fellow Newtonian' Clarke. The link between moral philosophy and epistemology will furthermore enable me to elaborate on the critique of the 'voluntarism and science' thesis of Harrison (2007, 2009).