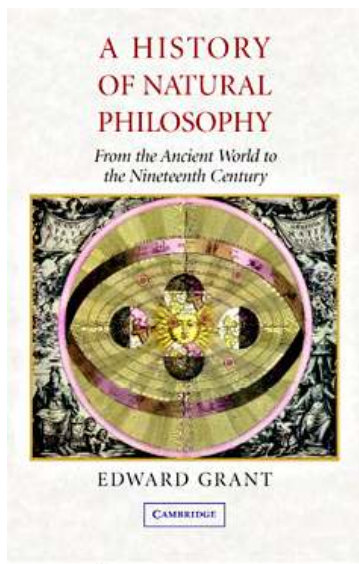


## THE ORIGINS AND DEVELOPMENT OF MODERN SCIENCE

### ORIGINILE ȘI EVOLUȚIA ȘTIINȚEI MODERNE

Edward Grant, *A History of Natural Philosophy From the Ancient World to the Nineteenth Century*, Cambridge University Press, Cambridge, 2007, ISBN 978-052-168-957-1, pp. 376

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The need to trace the origins and the development of what science – understood as a number of fully-fledged disciplines – represents today has urged historians and philosophers to undertake a thorough inquiry into the various stages of evolution natural science has run through in the past. This detailed approach has highlighted the great period of transformation which natural philosophy underwent at the dawn of the Early Modern Period – the beginning of the sixteenth century – and which lasted until the end of the seventeenth century, when all the ‘middle sciences’ in the Aristotelian tradition were incorporated in natural philosophy “making it more mathematical”. [1] Natural philosophy is for Edward Grant a way of interrogating the various parts of the natural world in a special way, freed from superstitions and religious influence, based on rationality and the analysis of the constituent parts of nature.

For Grant, natural philosophy developed in Greece in the sixth, fifth and fourth centuries AD, in the writings of the pre-Socratics, and developed into a methodical inquiry in Aristotle’s teachings. It had to await the sixteenth century to be completed by the union with the mathematical sciences and adorned with the experimental approach in Early Modern Europe.

Edward Grant’s historical narrative covers the period from Ancient Egypt and Mesopotamia to the nineteenth century, but focuses especially on the status of natural philosophy during the Middle Ages. Grant stresses the importance of Greek-Arabic science and natural philosophy which was absorbed and developed by the Western world, aided by the Latin translations undertaken during the twelfth and thirteenth centuries, and conceives it as a condition sine qua non for the emergence of the Scientific Revolution and the departure from the Aristotelian world view. Although the experimental approach to nature is the hallmark of the ‘new philosophy’ of the seventeenth century, Grant underscores the idea that Galileo and Newton would have never been able to establish its foundations if it had not been for the emphasis on reason and analysis set by medieval natural philosophy and for all the various questions about the natural world which preoccupied the medieval philosophers. That is why Grant dedicates a third of his research to the analysis of medieval thinkers and their writings insisting upon the disciplinary status of natural philosophy as thoroughly separated from theology from the middle of the twelfth century to the beginning of the sixteenth century. Nevertheless, these boundaries between theology and scientific inquiry tend to get blurred in the aftermath of the Reformation and another question arises concerning the influence that religion bears upon particular natural philosophers and the way they construct their own natural philosophies.

The answers that have been given to this problem have fueled existing debates between the partisans of a traditional view, according to which the seventeenth century is the origin of modern science and the century of the scientific revolutions, and the partisans of the continuity thesis in the history of science. More recently, the debate has shifted focus. In a series of influential studies, Andrew Cunningham has claimed that the identity of natural philosophy, a discipline pursued during the sixteenth to the nineteenth centuries, can be seen as a completely different inquiry from what we today call modern science. [2] Having a particular example in mind, Newton's *Mathematical Principles of Natural Philosophy*, Cunningham tried to suggest that even the most mathematical-oriented mind of the seventeenth century opted for a representative name for his work, [3] envisaging it rather as a philosophical inquiry than a scientific one. Moreover, Cunningham tries to argue in favour of the idea of natural philosophy as essentially God-oriented. Grant claims that Cunningham does not have a demonstration because he does not have enough arguments. [4] The debate, however, lingers on in the current history of science.

Grant's book is to be seen as an attempt to answer Cunningham's claim and to prove that not only were natural philosophy and theology two distinct fields of inquiry, regarded as such even by the natural philosophers who were churchmen themselves (as many members that were attending the London meetings of the Royal Society were), but that the relationship between natural philosophy as it was pursued during the sixteenth and seventeenth centuries and the modern science of the nineteenth century is a relationship akin to that "between the human embryo and the full-blown adult". [5] Can we replace the concept of 'natural philosophy' with that of 'science'? Grant's answer, in most of the cases, is yes. That is because Grant goes against the current historiography of science which has accepted the term 'natural philosophy' and does not talk about 'science' in the seventeenth century anymore. Even though Newton was not thinking he was doing science or physics but natural philosophy, "Newton's *Principia* was nothing less than an early version of modern physics". That is why in his view history cannot be a succession of unrelated, isolated and incommensurable time periods. In this Grant goes against the bulk of present-day history and philosophy of science. In a discipline which is still under the post-Kuhnian influence, a continuityist view is singular, but nevertheless interesting.

Grant's *History of Natural Philosophy* represents nothing less than a successful advocacy of historical continuity having at its core a significant case study which represents a major contribution to the field of the history of science. His inquiry offers new insights into the historical developments that led to the major change of paradigm during the Scientific Revolution.

## References

1. Grant, E., 'God and Natural Philosophy. The Late Middle Ages and Sir Isaac Newton', in *Early Science and Medicine*, 5, (2000), pp.279-298.
2. Cunningham, A., 'How the Principia Got Its Name: Or, Taking Natural Philosophy Seriously', in *History of Science*, 29, (1991), pp. 377-392.
3. Cunningham, A., 'The Identity of Natural Philosophy. A Response to Edward Grant', in *Early Science and Medicine*, 5, (2000), pp. 259-278.
4. Grant, E., 'God and Natural Philosophy. The Late Middle Ages and Sir Isaac Newton', in *Early Science and Medicine*, 5, (2000), pp.279-298.
5. Grant, E., 'God and Natural Philosophy. The Late Middle Ages and Sir Isaac Newton', in *Early Science and Medicine*, 5, (2000), pp.279-298.