

few pages later that, in fact, ancient science would correspond to natural philosophy employing empiricist methods, a category that Carrier rightly admits was “not yet” defined (p. 26). This reductionist view is not always maintained, but the book’s major flaw—namely, that it considers science as an activity essentially unaltered since Aristotle.

As is made clear in the first chapter and in the conclusion, Carrier’s investigation is aimed at proving that the rise of Christianity prevented the Scientific Revolution from taking place in the immediately following centuries, and he explicitly assumes (but does not demonstrate) that early modern science just resumed at the point where the ancients left it. Thus the bulk of the book, consisting of a survey of the sources indicating scientific activity in the early Roman period from several points of view, is presented as evidence for this grand thesis. Few historians would have doubts about the general Christian hostility toward science, and Carrier is to be praised for his analysis of the relevant passages from Clement, Tertullian, Lactantius, and Eusebius in the last chapter. He also challenges the position, defended by David C. Lindberg, that Christianity did not represent an impediment to science during the Middle Ages; but then it remains unclear what circumstances changed in the early Renaissance to make the Scientific Revolution possible. Faced with this question, Carrier ends up admitting that the disparity of methods coexisting in ancient scientific inquiry could have been a major difference with early modern science.

The Scientist in the Early Roman Empire can, however, prove useful in many respects. Chapter 3, devoted to showing that progress occurred in Roman science, contains a long list of technological artifacts and techniques, accompanying a sound rebuttal of the technological stagnation thesis. Carrier is particularly good at countering once-common opinions of this sort, such as those taking at face value Roman claims or anecdotes apparently implying decline. Equally welcome is the evidence brought out in Chapter 4, where Carrier reviews a broad spectrum of Roman sources expressing praise for the scientist.

In general, Carrier demonstrates a superb knowledge of the ancient texts and of modern bibliography, and it seems unfortunate that he is one-sidedly focused on proving his initial assumption. Apart from this, the reader will be discouraged by the poor editing: the text contains innumerable colloquialisms, some serious anachronisms, some mistakes, and too many repetitions; furthermore, it fails to acknowledge the authors of the borrowed translations, and there is no index of cited passages.

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Andreas Lammer. *The Elements of Avicenna’s Physics: Greek Sources and Arabic Innovations.* (Scientia Graeco-Arabica, 20.) xx + 594 pp., figs., tables, bibl., index. Berlin: Walter De Gruyter, 2018. €129.95 (cloth). ISBN 9783110543582.

Avicenna’s contribution to the history of science has sometimes been misperceived as being limited to medicine, through his *Canon*. Accordingly, other features of his thought would be connected to a genuinely philosophical *theoresis* that, in turn, appears to follow different aims and approaches. Providing a much desired and thorough study of Avicenna’s natural philosophy, Andreas Lammer’s book unfastens the linchpins of such a simplistic view, showing the profound originality and ingenuity of Avicenna’s reflections on physics through a very enjoyable yet scrupulous study.

Avicenna’s *Physics* (*al-Samā’ al-ṭabī’ī*)—that is, the part of the *Book of Healing* (*Kitāb al-Šifā’*) dedicated to natural philosophy—expounds a complex analysis of the natural world. Some of the theories therein presented, like the doctrine of corporeity, have had a long-lasting and profound impact on pre-modern natural philosophy. Dealing with Avicenna’s *Physics*, Lammer’s study opens a twofold path of research. He extensively examines Avicenna’s theories by problematizing their implications and emphasizing their originality in relation to both the main sources used by Avicenna and the Arabic philosophical

and scientific traditions. But Lammer's contribution also leads to a second path. Meritoriously choosing to focus his study on the *principles* of Avicenna's natural philosophy—that is, on those key concepts within which Avicenna's doctrines are rooted—Lammer provides scholarship with an invaluable road map through which specialists in different disciplines can engage personally with Avicenna's text, interpreting and assessing the doctrinal outcomes of those posited principles of natural philosophy and their influence on the Arabic, Hebrew, and Latin traditions.

A central thread of *The Elements of Avicenna's Physics* is Avicenna's intellectual dialogue with Aristotle and John Philoponus, one of the most important late ancient philosophers. While past scholarship tended to overemphasize Avicenna's indebtedness to Aristotle, Lammer's examination shows the high degree of Avicenna's originality in interpreting and developing Aristotle's works. As a consequence, Avicenna's positions were sometimes in opposition to most of the Greco-Arabic philosophical tradition. The exponent of that tradition with whom Avicenna mostly engaged was Philoponus. Lammer rigorously displays the tensions arising from Avicenna's readings of Philoponus, a source of major doctrinal points that inspired Avicenna's reflections and yet also the unspoken object of harsh criticism with respect to unacceptable theories, like his position on space as a three-dimensional immaterial extension.

This thread unfolding the balance, as the very title of the book suggests, between "Greek sources and Arabic innovations" shapes Lammer's analysis of the principles of Avicenna's physics. The first chapter of the book addresses the preliminary problem of the history of the transmission of Aristotle's *Physics* and its main Greek commentators to the Islamic world. Lammer scrutinizes the Arabic translations of these texts and assesses their availability to Avicenna. With the second chapter, the analysis shifts to Avicenna's text, starting with the method used in his *Physics*. Through a cross-textual examination of Avicenna's epistemology—and an intriguing analysis of his notion of *tagriba*, or "methodic experience"—Lammer shows that Avicenna's work follows a methodology of "teaching and learning," a methodological clarification that casts new light on Avicenna's *Physics* in relation to both his wider production and his interpretation of Aristotle's *Analytics*.

In the second part of his study (Chs. 3–6), Lammer engages with the principles of Avicenna's natural philosophy: the body (made of matter and form), nature, place, and time. Regarding each one of these crucial concepts, Lammer's contribution is particularly valuable, as he problematizes, deconstructs, and, finally, reconstructs Avicenna's positions through a thorough examination of recent scholarship, the Greco-Arabic sources used by Avicenna, and his originality in dealing with Aristotelian materials. Avicenna's natural philosophy is presented with new clarity thanks to Lammer's scrupulous approach. We attain a new understanding of well-known positions, like Avicenna's doctrine of corporeity and his notion of nature; Lammer makes clear the manifold implications that would mark their dissemination and reception. It is with Lammer's analysis of the theories of place and time that his study reaches its apex. Readers will find a detailed examination of Avicenna's unlikely defense of Aristotle's problematic notion of place (and also its application to "experiments" with a *clepsydra*), as well as his departure from Aristotle with regard to his theory of time. These opposite approaches help illustrate just how creative Avicenna was in his interpretation of Aristotle.

In general, Lammer's treatment provides the reader with a detailed picture of the historical and speculative context of Avicenna's reflections and succeeds in making difficult aspects of his thought accessible to a wider audience. Displaying Avicenna's originality, the author proposes a new interpretation of Avicenna's natural philosophy that opens up new perspectives and directions for research for the history of both philosophy and science—and the structural interconnection that marked their historical development.

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