

Book Reviews

Instead, as Hutchings and Ungureanu explain over the course of their nine chapters, Christianity—and especially medieval Christianity—was hyper-rational and actively engaged in scientific thought. So, despite the continued influence of Draper and White since the nineteenth century, Hutchings and Ungureanu successfully demonstrate many errors with the historiographical tradition of the warfare thesis. In fact, as the authors argue, there were ways in which science borrowed from theology. This is most noticeable in the utilization of theology to explain science in the period known as the Scientific Revolution, which the authors address in chapter eight, “Old Dogma, New Tricks.” Another helpful chapter pertains to the way the ideas of Draper and White resonated with others in the nineteenth century, thereby demonstrating how these two well-known intellectuals were not mere “lone voices.” This latter point is a particularly helpful contribution to the topic’s historiography, as this type of contextualization is oftentimes forgotten when considering Draper, White, and the warfare thesis.

It is for these reasons and others that many will find this book a helpful aid. The tone is conversational, and the citations are relegated to endnotes at the back of the book. The book also draws upon some of the best scholarship in the history of science from the past fifty years, such as the works of Edward Grant, Bernard Lightman, and the more recent contribution of Seb Faulk. One of the fortunate outcomes, then, is that the reader who reads between the lines will discover a masterful account of the ways in which the field of the history of science has effectively dismantled the warfare thesis, and in its wake established a robust understanding of the complex historical relationship between science and religion. The reader of the book will also be provided with an abbreviated version of one of the authors’ works, James Ungureanu’s *Science, Religion, and the Protestant Tradition* (2019), which is summarized in chapter seven, “Bridges Badly Built.”

For all its merits, there is one point made occasionally that gives this reviewer pause. At times, the authors come close to ascribing a causal link between Christianity and science, such that Christianity was a dominant driver of scientific development. For instance, in chapter eight, wherein the authors address the positive influence of Christianity on science, they claim that “Christian dogma has actually played a major part—indeed, many have argued the major part—in establishing the foundations of the science that is so successful today” (p. 196). It shows up similarly at the end of chapter seven, with an even greater causal connection between Christianity and science. The point in chapter eight is substantiated by a reference to Noah Efron’s chapter in *Galileo Goes to Jail*, titled “That Christianity Gave Birth to Modern Science.” While Efron does ascribe an important role to

Christianity in scientific development, he stops short of identifying it as *the* sole cause. Among the reasons for this, as Efron notes, is that it then becomes problematic to include the contributions of non-Christians to science. Yet, the reader *Of Popes & Unicorns* would not be informed regarding the potential error in over-attributing a causal connection between Christianity and science. In a book aiming to reframe the relationship between science and religion, one would have hoped that they would have nuanced this point, even if in the end they chose to argue for the importance of Christianity on scientific development.

This issue aside, the book is an important contribution to the study of the warfare thesis. Readers of this journal are perhaps aware of previous books on the topic, the most prominent one being *Galileo Goes to Jail* (2009). Those that are familiar with that book will find a certain amount of overlap in this one, though not complete synonymy. One clear merit is that this book is a comprehensive story, and not discrete chapters. As a result, its content will likely be utilized in many different contexts and read for many years to come.

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MAGIC, SCIENCE, AND RELIGION IN EARLY MODERN EUROPE by Mark A. Waddell. Cambridge, UK: Cambridge University Press, 2021. x + 220 pages, including an annotated bibliography and index. Paperback; \$25.99. ISBN: 9781108441650.

For decades, it has been commonplace among historians of science to recognize the essential interconnections between Christianity and the early origins of the natural sciences, even if some non-historians continue to struggle to relinquish the more titillating revival of a conflict between them. The reality is that the social and intellectual history of theology and natural philosophy have vast overlapping boundaries. The history of the modern natural sciences is no less continuous with the ideas and practices of magic, alchemy, and astrology. While Enlightenment sensibilities chafe at the notion, historical research, much in the same vein as studies in “Science and Religion,” is incontestable. Mark A. Waddell’s brief introduction to the subject quickly brings the reader into this consensus without sacrificing the nuance needed to avoid oversimplification.

The strongest chapters are in the first half of the book, where Waddell introduces the Renaissance interest in Hermetic philosophy (chap. 1), then newly discovered among ancient texts (though not so ancient as they were first thought to be). The author proves to be a practiced communicator, able to simplify and condense a

range of philosophical principles. He also succeeds in connecting philosophies with the perennial social problems and questions of ordinary human experience. In this way, he is consistent with a long line of scholars writing on the subject, from Keith Thomas's, *Religion and the Decline of Magic* (1971) forward. The subject of witchcraft and demonology (chap. 2) is treated as the manifestation of social anxieties within European culture more generally.

The broadest principle of magic is covered in chapter 3, "Magic, Medicine, and the Microcosm," in which Waddell explains the overarching analogy between the greater universe out there and our mundane existence down here. This forms the basis for both astrology-based medicine (noting concordances between either herbs or organs with their astrological counterparts and using them to heal) or judicial astrology, which sought to understand the past and map the future by virtue of astrological motions. And Waddell presents this as a normal part of early-modern thinking among churchmen and commoners alike.

The second half of the book covers topics which may be more easily recognized as parts of modern natural science: Galileo, Copernicus, Boyle, and Newton. Chapter 4, "A New Cosmos," uses a most creative and pedagogically sensitive introduction to the radical proposal of a world system in which the earth is not motionless and at the center of the universe. Waddell uses the demotion of Pluto from planetary status in 2006 and the subsequent public backlash, and asks the reader to imagine, *a fortiori*, how the public might react to an even greater disruption of received astronomical dogma, however empirically informed. Waddell returns again in chapter 5, "Looking for God in the Cosmic Machine," to ancient philosophy, showing how Epicurean atomism presented an old philosophical problem anew in the philosophies of René Descartes and Pierre Gassendi, focusing on the question of the nature of the soul. Here the continuity of ancient and new philosophies is maintained, illustrating the ongoing development and connected history between modern natural science, magic, and religion.

That continuity might have been better represented with more emphasis on the philosophy of Aristotle and scholasticism. While Aristotle's philosophy is discussed in several places throughout the book, such as in the discussion above on the soul, a dedicated chapter would have been appropriate given the dominance of Aristotle in Western intellectual culture from the end of the thirteenth century through the end of the seventeenth. This weakness of the book was evident in chapter 6 in the section on Francis Bacon and the inductive method. Waddell says,

Bacon founded his ideas about experience and experiment on what is known as *inductive reasoning*, or *induction* ... In choosing to focus on singular observations, Bacon was of course doing exactly what Aristotle taught his students *not* to do. (p. 166)

Aristotle never gave such instruction. In fact, Aristotle describes induction in his *Posterior Analytics*, *Book I*, in the first sentence:

All teaching and learning of an intellectual kind proceed from pre-existent knowledge ... Similarly with arguments, both deductive and inductive: they effect their teaching through what we already know, the former assuming items which we are presumed to grasp, the latter proving something universal by way of the fact that the particular cases are plain. (Barnes translation, 1975)

Waddell misses that Bacon's emphasis on induction was not novel except in emphasis. The new science was an extension of old principles newly revived.

This introduction closes with a coda, extending briefly into the Enlightenment. This section is handled a little too quickly, but well enough to present some of the subtleties necessary to link it to its past. Not only does he present how Enlightenment intellectuals were embarrassed by Newton's alchemical adventures, but how the mechanical forces of modern science themselves still betray underlying occult qualities that formerly traveled under other names.

The author often used the word "problematic" (over twenty times) throughout the book: for example, in the sentence, "It is important to note that, however problematic the idea of a mechanical universe might have been, it did not disappear." The author uses the word so often, it is unclear if he merely means something less specific, like "challenging," as in "difficult to absorb" in one's concepts of the natural world, or more narrowly as something that violates social and political norms. Since Waddell in other places in the book seeks to contextualize these events of four hundred years ago within a modern idiom, it is at least plausible that he wishes us to connect the intensity of the social dramas of today with those past events. If so, an explicit recognition of that would have been helpful to the reader.

This book is suitable for an undergraduate course in the history of science, especially if flanked by primary source readings under the guidance of the instructor. A person with no background in the subject would also find this an accessible entry point into the subject, from which they could move on to more detailed studies, such as those noted in the bibliography.

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