of equivalent forms, as found in his 1830 *A Treatise on Algebra*.

Peacock's approach to algebra set the stage for later British mathematicians such as De Morgan (Peacock's student), Boole, and others. Initially inclined to follow his future father-in-law's restrictive approach in algebra, De Morgan was soon won over to Peacock's point of view, even going beyond it in his own work. In a series of articles around 1840, De Morgan identified the basic rules governing ordinary calculations, but he also began entertaining the notion of a symbolical algebra less tightly tied to arithmetical algebra. By more completely separating the interpretation of algebra's operations and symbols from its axioms, symbolical algebra gained further independence from arithmetic. This gave algebra more flexibility, making room for subsequent developments such as the quaternion algebra of William Rowan Hamilton (1843) and Boole's algebra of logic (1847).

After exploring the foundations of algebra, De Morgan turned his attention to analyzing forms of reasoning, a topic made popular by the resurgence of syllogistic logic instigated at Oxford around 1825 by Richard Whately. Traditional Aristotelian logic parsed valid arguments into syllogisms containing categorical statements such as *every X is Y*. De Morgan treated such sentences extensionally, using parentheses to indicate total or partial inclusion between classes *X* and *Y*. Thus, every *X* is *Y* was symbolized by *X*)*Y* since the parenthesis opens toward *X;* to be more precise, one should indicate whether *X* and *Y* are coextensive or *X* is only a part of *Y*. By thus quantifying the predicate, as it was called, De Morgan allowed for these two possibilities to be symbolized respectively by *X*)(*Y* and *X*))*Y*, in compact symbolic form as ')(' and '))'. Combining the two premises of a syllogistic argument using this notation, one could then apply an erasure rule to draw its conclusion. De Morgan enthusiastically elaborated his symbolic logic by adopting an abstract version of algebra that paved the way for operating with formal symbols in logic. De Morgan's symbolism is not as inaccessible as Frege's later two-dimensional concept-writing (though the full version of De Morgan's notation is more complex than indicated here), but it is still rather forbidding and failed to find adherents.

In addition to expanding Aristotelian forms by quantifying the predicate, yielding eight basic categorical forms instead of the standard four, by 1860 De Morgan was generalizing the copula "is" in such sentences to other relations, such as "is a brother of" or "is greater than." He began to systematically investigate the formal properties of such relations and the ways in which relations might be compounded. Though intended as a way to generalize categorical statements and expand syllogistic logic, his treatment of relations was later recognized as an important contribution that could be incorporated into predicate logic. Richards's treatment gives the reader a fair sense of what De Morgan's logic was like, and while a detailed comparison is not developed, the reader can begin to see how De Morgan's system compares to Aristotelian logic, Boole's algebra of logic, and contemporary mathematical logic.

However, as indicated at the outset, exploring De Morgan's algebraic and logical work is only a subplot of Richards's story. Her book is principally a brief for how reason grounded the work and lives of several significant thinkers in an extended family over three generations. As she ties various threads together, the reader occasionally senses that the presentation may be too tidy, drawing parallels between vastly different developments to make them seem of a piece, all motivated by the same driving force of reason. Nevertheless, Richards's account forces the reader to continually keep the bigger picture in mind and to connect various facets of the actors' lives and work to their deeper commitment to reason. Her book thus offers a commendable case study for how technical trends in mathematics might be tied to broader cultural and philosophical concerns.

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OF POPES & UNICORNS: Science, Christianity, and How the Conflict Thesis Fooled the World by David Hutchings and James C. Ungureanu. New York: Oxford University Press, 2022. 263 pages. Hardcover; $39.95. ISBN: 9780190053093.

Readers of *PSCF* are familiar with the "warfare thesis" for the history of science and religion. This interpretation, framed as a historical analysis that stretches from the ancient Greeks to the modern period, explains the way in which science and religion have always been in conflict with each other. At the center of this interpretation are John William Draper's *History of the Conflict between Religion and Science* (1874), and Andrew Dickson White's *A History of the Warfare of Science with Theology in Christendom* (1896). Since the publication of these books, numerous professional historians as well as the general public have accepted and perpetuated many of the claims made within them. The problem with this line of interpretation, however, is that Draper and White were often wrong. For instance, Christopher Columbus (and people in the medieval period) did not think the earth was flat. Christians did not oppose anesthesia. There was no Dark Ages. Christians did not believe in unicorns. Premodern medical diagnosis did not merely appeal to supernatural causation. And the list could continue.

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 synonymity. 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