

INTRODUCTION

THE most tenacious, if not ubiquitous, view of the relationship between science and religion is that they are in perpetual “conflict” or “warfare,” and in which a triumphant science ultimately displaces religion. In recent years, no group has propagated the image of warfare between science and religion more than the so-called “new atheists.” These authors, which include Sam Harris, Richard Dawkins, Christopher Hitchens, Daniel C. Dennett, Victor Stenger, Jerry A. Coyne, Lawrence Krauss, and others, contend throughout their popular writings that religion has been the relentless foe of scientific progress. While most of their arguments are philosophical in character, they tacitly and explicitly appeal to the historical record. In various writings, for example, Harris often refers to the “clash of science and religion,” describing the conflict as “inherent and (very nearly) zero-sum.” He even postulates that if “reason” had emerged at the time of the Crusades, “we might have had modern democracy and the Internet by 1600.” Provocatively, Harris proclaims that “science must destroy religion.”¹ Similarly, the late journalist and social critic Christopher Hitchens referred to “the terror imposed by religion on science and scholarship throughout the early Christian centuries,” and that “all attempts to reconcile faith with science and reason are

consigned to failure and ridicule.”² Physicist and former Catholic Victor Stenger also argued that “the totality of evidence indicates that, on the whole, over the millennia the Christian religion was more of a hindrance than a help to the development of science.”³ While there are many differences between each author, the new atheists all share the view that science and religion have been and still are implacable foes.

A veritable industry has emerged responding to the claims of the new atheists.⁴ Crucially, these studies accuse the new atheists of misreading or even falsifying the historical record, pointing out that numerous historians, philosophers, and theologians have long disclaimed notions of an endemic conflict between science and religion. Indeed, while notions of conflict or warfare between science and religion remain surprisingly resilient—especially in popular historical writing, the media, and even science textbooks—decades of scholarship demonstrates that such essentialist tropes are wholly inadequate.

Surely, to write about how “science and religion” relate—or should relate—is a formidable challenge, and one that remains a highly contentious subject. But since the beginning of the twentieth century, scholars from various disciplines have demonstrated that no matter how visceral such conflicts appear to be, there is little if any historical basis for the “conflict thesis,” the overarching view that science and religion are irrevocably at odds. The following section of this introduction, mainly historiographical, is intended to give a taste of this scholarly literature by capturing some of the vital changes in the historiography. It also illustrates the range of conclusions historians and other scholars have reached that explicitly undermine the conventional conflict historiography employed by the new atheists. Finally, and not without some irony, it will also indicate the need to completely reevaluate this revisionist historiography.

A SHIFTING HISTORIOGRAPHY

Starting in the 1920s, when the nascent discipline of the history of science was first emerging, a number of scholars were already arguing that the historical relationship between science and religion was far too complicated to categorize as one of “conflict.” English mathematician and philosopher Alfred North Whitehead (1861–1947), for example, warned readers of the difficulty in approaching the subject. Although “*conflict* between religion and science is what naturally occurs to our minds when we think of its subject,” he wrote, “the true facts of the case are very much more complex, and refuse to be summarised in these simple terms.” The terms in question, “religion” and “science,” according to Whitehead, “have always been in a state of continual development.” While theology exhibits “gradual development,” science “is even more changeable.”⁵

Whitehead also observed that the very foundations of modern science were

laid in the soil of medieval religious thought, which had insisted “on the rationality of God,” and concomitantly on a rational and orderly creation. Science arose in Europe, according to Whitehead, because of the “faith in the possibility of science.” Modern scientific theory, in short, was “an unconscious derivative from medieval theology.”⁶ Indeed, in the early decades of the twentieth century, a number of scholars were beginning to question one of the most salient features of conflict historiography: that medieval Christianity suppressed the growth and progress of science. For example, French physicist and philosopher Pierre Duhem (1861–1916) discovered massive medieval precedents to modern physics, particularly the work of medieval mathematician Jordanus de Nemore. As he continued his research, he discovered the scientific achievements of other fourteenth-century thinkers, such as Albert of Saxony, Jean Buridan, and Nicole Oresme. Duhem became convinced that, far from being a period of scientific stagnation, the medieval period actively laid the foundations of modern science and that consequently the entire concept of the “dark ages” had to be reassessed.⁷

Duhem’s revolutionary discoveries had “rehabilitated” medieval science and was soon joined by a number of other prominent scholars, including Charles H. Haskins (1870–1937), Lynn Thorndike (1882–1965), Alexandre Koyré (1892–1964), and Marshall Clagett (1916–2005). This continues to be a fertile area of investigation for historians of science.⁸ At roughly the same time, other scholars were beginning to reexamine another aspect of standard conflict historiography: that the scientific advances in the early seventeenth century stood independently from theological views of man, God, and the cosmos. American philosopher of religion Edwin Arthur Burt (1892–1989), for instance, found the foundations of modern physical science in the philosophical or “metaphysical” assumptions of a number of seventeenth-century thinkers.⁹ Central to Burt’s argument was that the seventeenth-century conception of the absolute “uniformity of nature,” a basic premise of modern science, was grounded in the constancy and fidelity of God. For example, Nicholas Copernicus and Johannes Kepler were thoroughly convinced, for religious reasons, of the uniformity of motion. Galileo believed God was a “geometrician” and that he made the world through a “mathematical system.” Similarly, René Descartes’s geometrical conception of the physical universe saw God as extending and maintaining things in motion by his “general concurrence.” Ralph Cudworth was also confident that the new mechanical philosophy would reveal “incorporeal beings, especially one supreme spiritual Deity.” Robert Boyle believed that some divine ends were readable to all, and that God’s admirable “workmanship” was displayed throughout the universe. Finally, Isaac Newton’s absolute space and time are God’s “sensorium.”¹⁰ According to Burt, “human nature demands metaphysics for its full intellectual satisfaction [since] no great mind can wholly avoid playing with ultimate questions.”¹¹

Rather than oppressive or obstructionist, scholars were beginning to view religious values and beliefs as important, if not essential, to the growth of modern science. But by the 1930s, scholars had shifted from the medieval world to Protestant forerunners of experimental science. Works by Dorothy Stimson (1890–1988), Michael B. Foster (1903–1959), and Robert K. Merton (1910–2003) all argued that English Protestantism in particular had shaped, nurtured, and encouraged science as a noble pursuit in the early modern period. The American sociologist Robert Merton, for instance, adopting the theoretical work of R. H. Tawney and Max Weber, famously argued that the “Puritan ethic” was an important element in increasing the “cultivation of science.”¹²

While Merton wrote on how the Puritan *ethos* cultivated modern science, later studies by Paul H. Kocher (1907–1998), Richard S. Westfall (1924–1996), John Dillenberger (1918–2008), Reijer Hooykaas (1906–1994), and others defended the claim that Protestant *theology* in seventeenth- and eighteenth-century England inspired a new empirical and experimental approach to understanding nature. Paul Kocher’s study on science and religion in Elizabethan England found that most theological writers during Queen Elizabeth’s reign believed scientific studies were amicable to theological ones, and often proclaimed that “natural science is a gift of God to man.” Natural philosophy had revealed to mankind the wonders of God’s handiwork, glorifying God and promoting religious faith. Richard Westfall, examining the late seventeenth-century figures known as the “English virtuosi,” many of whom were founders of the Royal Society of London, similarly concluded that not only were they enthusiastic promoters of natural philosophy, but deeply religious men who regarded natural phenomena as revelatory of God’s glory and power.¹³

If the work of early twentieth-century scholars rejected the conflict thesis, by mid-century many more apologetically inclined scholars were arguing that Christianity, in fact, made science possible. These scholars went so far as to argue that, historically, science and Christianity were essentially harmonious. Dutch historian Reijer Hooykaas, for instance, exemplified this harmonist position. He argued that Reformed theology inspired a new empirical and experimental approach to natural philosophy and maintained that the rise of modern science “is more a consequence than a cause of certain religious views,” particularly a “biblical world view.” Indeed, Christianity, and especially its Protestant variety, taught that, “in total contradiction to pagan religion, nature is not a deity to be feared and worshipped, but a work of God to be admired, studied and managed.” The recovery of the biblical worldview by Protestants led to the “‘de-deification’ of nature, a more modest estimation of human reason, and a higher respect for manual labour,” and thence to the rise of modern science.¹⁴

Other scholars sought a more fruitful balance that avoided the triumphalist

INTRODUCTION

narratives of both “conflict” and “concord” in the history of science and religion. A young and relatively unknown scholar, Herbert Butterfield (1900–1979), published his essay *The Whig Interpretation of History* (1931), which objected to presentism in historical writing.¹⁵ More precisely, what Butterfield disapproved of was the habit of taking the present as the standard of what is “good,” the test of “progress,” and then tracing the line of that progress toward the good, by way of, for instance, Luther and the Protestant Reformation, the French Revolution, or whatever other men and events appear to have “contributed” to the present good. In short, “Whigs” studied the “past with reference to the present,” treating history as a series of stepping-stones to human progress—progress, that is, toward their own point of view. Although not a professional historian of science himself, Butterfield nevertheless called upon historians of any subject to forget the present and study the past “for its own sake.” Butterfield’s rejection of Whig history is directly relevant to the historiographical question, for as historian of religion Thomas McIntire recently put it, the historiography of science is “riddled with Whiggish history.”¹⁶

In point of fact, Butterfield did indeed contribute his own substantive treatment to the history of science in his *The Origins of Modern Science* (1949).¹⁷ While not immune to charges of “whiggism” of his own, Butterfield nevertheless carried over a new and important historiographical approach to studying the relationship between science and religion. If we avoid using present constructions and definitions of “science,” he argued, we discover that scientific change and revolution occurred not by new facts or observations, “but by the transpositions that were taking place inside the minds of the scientists themselves.” Examining the canonical figures of Copernicus, Kepler, Galileo, and others, he contended that their achievements were not the discovery of new data, but the placement of old or current data “in a new system of relations with one another by giving them a different framework, all of which virtually means putting on a different kind of thinking-cap for the moment.”¹⁸ To understand the development of modern science, then, one must not merely report discoveries and ideas, but trace the development and succession of philosophies and worldviews.

By the mid-1970s, another major historiographical shift occurred within the scholarship. It became clear that the notion of “conflict” between science and religion had been mostly confined to the nineteenth century, to the controversies that broke out in the fields of geology and biology, and specifically to religious reactions to the publication of Charles Darwin’s *On the Origin of Species by Means of Natural Selection* (1859). But even here things were not so clear-cut. In an early statement on the topic, for instance, theologian Charles E. Raven (1885–1964) contended that the controversies amounted to little more than a “storm in a Victorian tea-cup.” The conflict was a clash of personalities, between old and new

worldviews, not between some reified “science and religion.”¹⁹ Historian of science Charles C. Gillispie (1918–2015) similarly argued that controversy arose not between science *and* religion but from religion *in* science—that is, from religious attitudes within the new science of geology.²⁰ Church historian Owen Chadwick (1916–2015) concurred, arguing that one of the most conspicuous features of Victorian England was, in fact, its religiosity. If there was religious doubt (and undoubtedly there was), it had existed before the *Origin of Species*. “Darwin was only a sign of a movement bigger than Darwin,” he wrote, “bigger than biological science, bigger than intellectual enquiry.” He insisted that scholars need to make the important distinction “between science when it was against religion and the scientists when they were against religion.”²¹

By the end of the decade, scholars were making just such distinctions, investigating specific themes, concepts, events, and people of the nineteenth century. Some of the most important studies were produced by Walter F. Cannon (1925–1981), Robert M. Young (1935–), and Frank M. Turner (1944–2010). Cannon, for example, argued that “science and religion had developed a firm alliance in England.” This unity was shattered, however, when theologians began attacking Darwin. It was not until the collapse of what Cannon called the “truth complex” in the second half of the nineteenth century that science and religion really first came into conflict.²² Similarly, Young urged the importance of what he termed the “common intellectual context,” which viewed science as integrated within the ideology of the Victorian social, political, and religious middle class. He argued that this shared context was largely defined by the enterprise of natural theology. Each new discovery of science, he contended, was to the early Victorians “a separate additional proof of the wisdom, power, and goodness of the Deity.”²³ Turner transferred the apparent hostility between science and religion to a “shift of authority and prestige . . . from one part of the intellectual nation to another.” He maintained that the conflict in the nineteenth century was the result of the rising power of a new professional scientific class vying for cultural hegemony. “The primary motivating force behind this shift in social and intellectual authority,” he argued, “was activity within the scientific community that displayed most of the features associated with nascent professionalism.” This “young guard of science,” which consisted of figures such as Thomas H. Huxley, John Tyndall, Joseph D. Hooker, George Busk, Edward Frankland, Thomas A. Hirst, John Lubbock, William Spottiswoode, Herbert Spencer, and others, “had established themselves as a major segment of the elite of the Victorian scientific world.” They advocated a new and exclusive epistemology that came to “discredit the wider cultural influences of organized religion.” This exclusivity eventually came to serve as a weapon against the cultural influence of religion in general. While in previous generations science and religion were both compatible and even complementary,

INTRODUCTION

by the 1840s a “naturalistic bent of theories in geology, biology, and physiological psychology drove deep wedges into existing reconciliation of scientific theory with revelation or theology.”²⁴

Working within this revised historiographical framework, at the turn of the decade James R. Moore (1947–) published his seminal book on the *Post-Darwinian Controversies* (1979), perhaps the most exhaustive treatment of Protestant reactions to Darwin’s theory of evolution. Moore contended that the “baneful” effects of such notions as “conflict” had made historians “prisoners of war,” blinding them from seeing how easily leading Christian thinkers accepted, absorbed, and accommodated Darwin’s theory of evolution. Indeed, he provocatively argued that Calvinists in particular were more willing to accept the outcome of Darwinism than liberal Protestants.²⁵ Moore’s work made a significant impact on later historians, and subsequent studies by David N. Livingstone, Jon H. Roberts, and Ronald L. Numbers, for instance, continued to show the complexity of religious responses to Darwin.²⁶

The notion of a “complex” relationship between science and religion became the clarion call of most historians of science in the later part of the twentieth century. In 1981, an international conference of historians met at the University of Wisconsin-Madison. The essays presented at the meeting were collected, edited, and published by historians of science David C. Lindberg and Ronald L. Numbers with the purpose of providing “the best available scholarship” on the historical relations between Christianity and science. The volume collectively dismantled a web of narratives developed by a conflict historiography, from the patristic period to twentieth-century Protestant theology. As Lindberg and Numbers observed in their introduction, “almost every chapter portrays a complex and diverse interaction that defies reduction to simple ‘conflict’ or ‘harmony.’”²⁷

Eschewing triumphalist narratives of either conflict or concord, historian of science John Hedley Brooke consolidated almost a century of scholarship on historical perspectives on science and religion in his magisterial *Science and Religion: Some Historical Perspectives* (1991). Brooke aimed to “reveal something of the complexity of the relationship between science and religion as they have interacted in the past.” He emphatically rejected any generalizations about the relationship between science and religion. Following Whitehead’s insight, Brooke similarly maintained that the shifting nature of the boundaries between science and religion over time makes it impossible to analyze their relationship according to any single conceptual model, be it “conflict” or “harmony.” At the same time, he demonstrated that religious and metaphysical beliefs had provided a number of important presuppositions, sanctions, and motives for studying nature. Despite this challenging typology, Brooke concluded that “serious scholarship in the history of science has revealed so extraordinarily rich and complex a relation-

ship between science and religion in the past that general theses are difficult to sustain. The real lesson turns out to be the complexity.”²⁸

Brooke’s revisionist historiography and his call to “relish in the differentiation” has issued numerous dividends.²⁹ Complexity is now the central theme of most historical scholarship on science–religion relations. Indeed, since the turn of the millennium, there has been a seemingly endless stream of articles, books, and surveys published almost every year emphasizing the complex historical relationship between science and religion.³⁰ Celebrated episodes of conflict, such as the so-called Galileo affair, or the religious response to Darwin’s theory of evolution, have been reinterpreted and reappraised. What historians of science have demonstrated is that for every particular episode where religious faith seemed to obstruct scientific progress, there are a host of other variables to consider, including political, philosophical, theological, and even scientific.

Brooke held the first Andreas Idreos Professor of Science and Religion at Oxford University from 1999 to 2006, where he also served as Director of the Ian Ramsey Centre for Science and Religion. Upon retirement, he was replaced by Peter Harrison, a leading intellectual historian of the early modern period whose unequivocal affiliation with Brooke’s revisionist historiography is obvious. In his *The Bible, Protestantism, and the Rise of Natural Science* (1998), for example, Harrison reasserted a revised version of Merton’s thesis, paradoxically locating the hermeneutical preconditions of modern science in the Protestant, literal understanding of Scripture. When Protestants stripped the Book of Scripture from its symbolic or emblematic meaning, all texts, including the Book of Nature, became open to new interpretation. Whereas we may view biblical literalism as an obstacle to science, according to Harrison, in the seventeenth century it “brought with it an alternative conception of the natural order,” and this new conception was “the precondition for the emergence of natural science.”³¹

Harrison has also spoken of the significance of the Augustinian doctrine of the Fall and how it influenced methodological developments in the natural sciences. In his *The Fall of Man and the Foundations of Science* (2007), Harrison argued that for many seventeenth-century natural philosophers, the accumulation of knowledge of the natural world was seen as ushering in the prelapsarian world of Adam before the Fall. This was once again a particular Protestant emphasis. According to Harrison, “contrary to first impressions, the anthropology of the reformers, informed as it was by the biblical account of Adam’s Fall, had the potential to promote a new, more critical, appraisal of human intellectual capacities.” The Protestant doctrine of the priesthood of all believers, moreover, led seventeenth- and eighteenth-century natural philosophers to see themselves as priests of the book of nature tasked with interpreting God’s creation.³²

More recently, building on the work of Whitehead, Brooke, and many others,

including history of religion scholarship, Harrison offers a philological critique of conflict historiography in his *The Territories of Science and Religion* (2015). Harrison writes that “much contemporary discussion about science and religion assumes that there are discrete human activities, ‘science’ and ‘religion,’ which has had some unitary and enduring essence that persists over time.” But according to Harrison, both *scientia* (“science”) and *religio* (“religion”) are historically unstable concepts. That is, the contours or “territories” of science and religion are themselves historically contingent. Traditionally, “science” and “religion” began as “inner qualities of the individual,” or “virtues,” before becoming concrete and abstract entities in the sense of doctrines and practices. Thus modern conceptions of the relationship between science and religion, whether in terms of conflict or concord, are in fact a “distorting projection of our present conceptual maps back onto the intellectual territories of the past.” In this sense, Harrison views contemporary debates between science and religion as “proxies for more deep-seated ideological or, in the broadest sense, ‘theological’ battles.” In short, the conflict between science and religion seems irresolvable only “because the underlying value systems—which are ‘natural theologies’ of a kind—are ultimately irreconcilable.”³³

THE “FOUNDERS” OF CONFLICT

In criticizing conflict historiography, most historians of science have traced the origins of these narratives to two late nineteenth-century works: 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). Indeed, as early as 1970, Robert Merton accused Draper and White of propagating the belief that the “prime historical relation between religion and science is bound to be one of conflict.”³⁴ Four years later the first professor of history of science at the Open University Colin Russell more directly associated the conflict thesis with the work of Draper and White.³⁵ But it was James Moore’s monumental study of the post-Darwinian controversies that led almost every other subsequent historian of science to designate Draper and White as the “co-founders” of the conflict thesis. According to Moore, Draper and White set “the terms of the debate,” and therefore must be “regarded as the principal *casus belli*” of the conflict narrative.³⁶

By the 1980s, it had become abundantly clear that Draper and White were now the official whipping boys of the new revisionist historiography. A consensus emerged among historians of science that Draper and White developed, defined, and defended the conflict thesis. Numbers, Lindberg, and Russell in particular have placed a good deal of blame on these two historical figures. In an early statement on the subject, Numbers wrote that “Military metaphors have

dominated the historical literature on science and religion since the last third of the nineteenth century, when the Americans Andrew Dickson White and John William Draper published their popular surveys of the supposed conflict between religion and science.³⁷ In their joint projects, Numbers and Lindberg declared that no work has done more to “instill in the public mind a sense of the adversarial relationship between science and religion” than that of Draper and White.³⁸ Russell agreed, tracing the “social origins” of the conflict “myth” to the “whiggish” historiography of Draper and White.³⁹

In the following decades and up to the present, numerous revisionist historians continued to cite Draper and White as instigators of the conflict thesis. Brooke thus adhered to the precedent when he argued that Draper and White put “forward a principle of interpretation that still enjoys popular support.”⁴⁰ In several places, Harrison also designates Draper and White as the “chief architects” of the “conflict myth,” arguing that the “general tenor” of their positions can be “gleaned” from the titles of their respective works.⁴¹ At a more popular level, revisionist historiographical surveys continued to beat the same drum, citing the *bêtes noires* Draper and White as the principal exponents of the conflict thesis. Indeed, in introducing the subject, it has almost become obligatory to begin discussion by citing Draper and White as its cofounders. Numbers has perhaps put it most succinctly, writing that “no one bears more responsibility for promoting this notion [of conflict] than two nineteenth-century American polemicists: Andrew Dickson White and John William Draper.”⁴²

Scholars have also attempted to make distinctions between Draper and White. In most of the scholarly literature, the pervading assessment is that while Draper regarded “the struggle as one between Science and Religion,” White saw it as “a struggle between Science and Dogmatic Theology.” More precisely, Draper’s work has been characterized almost exclusively as a diatribe against Roman Catholicism, prompted by the encyclical *Quanta Cura* (1864) and the assertion of papal infallibility at the first Vatican Council (1869–70). White, scholars maintain, recognized Draper’s rhetoric as exaggerated, and therefore argued instead that the conflict resided in religious dogmatism, not religion, and that his position was a reaction against the sectarian opposition he encountered as cofounder of Cornell University.⁴³

DEMYTHOLOGIZING THE “CONFLICT THESIS”

As the above historiographical survey demonstrates, Draper and White remain consequential figures today. While this volume agrees that tenuous and tendentious “myths” about science and religion need to be discredited, it challenges a number of basic assumptions about the nineteenth-century origins of the conflict thesis. My own research convinces me that Draper and White, con-

trary to conventional interpretations, did not in fact posit an endemic and irrevocable conflict between “science and religion.” Indeed, if we examine more carefully their lives and writings, rather than perfunctorily repeating past scholarly assessments, a more nuanced interpretation emerges. A more generous reading reveals that, unlike the new atheists, who intentionally write to advance unbelief, Draper and White hoped their narratives would actually preserve religious belief. For Draper and White, science was a reforming agent of knowledge, society, and religion. Indeed, for Draper and White, science was ultimately a scapegoat for a much larger and much more important argument, one in which they pitted two theological traditions against each other—a more progressive, liberal, and diffusive Christianity against a more traditional, conservative, and orthodox Christianity. They thus conceived of conflict as occurring within a religious epistemology, between two distinct “modes” or “epochs” in human thought—one scientific or progressive and the other theological or traditional. Conflict was in this sense positively beneficial, as it would assist in the progress of religion. The titles of their most well-known works, then, were only tangentially related to their content and aim.

Their “conflict” was thus not the mere caricatures Moore, Numbers, Lindberg, Russell, and so many other revisionist historians of science have made it out to be. In fact, it is not without some irony that the actual conflict Draper and White envisioned is remarkably similar to how such historians have sought to redefine the idea of “warfare” or “conflict” between science and Christianity as one *within* religion—what Moore called, for instance, “cognitive dissonance.” For his part, Moore bewailed the “zealous defenders of biblical literalism” who indulged in “monkey business” in their “campaign against evolution in education.” He thus sought to “come to terms with Darwin” by redefining Christian “orthodoxy” to the total exclusion of “Biblical fundamentalism” and “literalistic” hermeneutics, and essentially concluded that Christians needed to “come to terms with Darwinism.” Indeed, Moore argued that if only Christianity could be “transformed” and “rightly viewed” there would be no conflict with science.⁴⁴

Even Whitehead, who first warned historians against using the trope “science and religion,” followed Draper and White in arguing that “religion will not regain its old power until it can face change in the same spirit as does science.”⁴⁵ Religion, like science, “requires continual development,” and indeed “must be continually modified as scientific knowledge advances.” Like Draper and White, Whitehead believed that religion “emerged into human experience mixed with the crudest fancies of barbaric imagination,” and only “gradually, slowly, steadily the vision recurs in history under nobler form and with clearer expression.”⁴⁶

In more recent proposals for mapping out the historiographical way forward,

Draper and White continue to haunt the pages of scholarship. In a recent *Festschrift* honoring the scholarship of Brooke, for instance, Numbers identifies five “mid-scale patterns, whether epistemic or social, demographic or geographical, theological or scientific,” where conflict remains. Similarly, in reconceptualizing the conflict narrative, historian and philosopher of science Geoffrey Cantor also highlights the tensions created within the mind of an individual when confronting “engagements with science and religion.” Like Draper and White, Cantor envisions conflict as the necessary catalyst for change, for “helping sweep away a corrupt regime.” As he puts it, “in the context of science and religion, conflict has been the engine of change, even perhaps of what we might call progress.”⁴⁷

Moore’s cognitive dissonance theory, Numbers’s small-scale patterns, Cantor’s conflict as change, and even Whitehead’s belief that religion continually develops are not so different from the concept of “conflict” or “warfare” that Draper and White promoted. How could such a serious error occur in otherwise excellent and exciting revisionist scholarship? This oversight raises the intriguing question of whether a scholar’s religious biography plays some role in misunderstanding or obscuring the origins of the conflict thesis. For instance, Numbers and a host of other revisionist historians self-identify as either atheist or agnostic, while others come from a more liberal Protestant tradition.⁴⁸ Draper and White also considered themselves advanced “theists” of a liberal Protestant variety. Thus, while historians of science have debunked many of the “myths” found in the narratives of Draper and White, their central thesis remains, either rising again in smaller scale struggles or internal, mental dissonance. No scholarship to date, however, has explored the potential of undermining the conflict thesis by showing that Draper and White themselves did not adhere to it in its simplified form.

RELOCATING THE CONFLICT

My contention is not that historians of science are being inconsistent. Complexity, of course, allows for episodes of both concord and conflict in the history of science and religion. Rather, my point is that numerous historians have not only mischaracterized the position of Draper and White but have also mislocated the provenance of the conflict. The rift Draper and White envisioned existed long before they ever put pen to paper. Moreover, many contemporary authors discussed conflict in similar terms. Draper and White thus drew from a variety of disparate traditions, in addition to discussions and themes from contemporaries who expressed similar views. The similarities between Draper, White, and others does not necessarily demonstrate direct influence but rather convergence. As we shall see, such narratives have a long religious pedigree that can be traced back to as early as the sixteenth and seventeenth centuries, in Protestant polemics against

INTRODUCTION

Roman Catholicism, which often deployed a rhetoric of history, reason, and new knowledge to undermine its cultural and religious authority.

It must be immediately emphasized that arguments directed at Catholics also appeared in disputes between Protestant sects. Similar rhetorical strategies were adopted between contending Protestant groups, particularly between the Established Church and Dissenters or Nonconformists, and even between High, Low, and Broad Church Anglicans. In defining or redefining “religion,” Draper and White embodied the characteristic qualities of two distinct theological traditions. From the seventeenth to the eighteenth century, “rational” theologians attempted to solve issues surrounding faith and reason by associating or accommodating religion to reason and rationality, often reducing it to what they believed was its most essential elements. But by the late eighteenth and early nineteenth century, this way of solving the conflict proved unsatisfactory for many, for it abstracted the intellectual content of religion and ignored its more concrete reality found in experience, feelings, emotions, sentiments, intuitions, and morality. Significantly, both traditions emphasized minimal doctrinal attachments and were thus indispensable elements of a more liberal Protestant faith. As we shall see, the language Draper and White employed throughout their writings is remarkably similar to how liberal Protestants responded to the advances of the new sciences, from astronomy and zoology to biblical historical-critical scholarship.

Draper and White must be placed firmly within this Protestant heritage. The origins of the conflict narrative can thus be found in an internal, religious critique—or more precisely an intra-Protestant self-critique. By the nineteenth century, there was a long-standing tradition of theology being subject to the authority of history, reason, and science. Draper and White wished to persuade readers that history was on their side and that their minimal religious creed would ultimately not only reconcile science and religion but save religion from itself. Their narratives, therefore, were less descriptive than prescriptive.

This book also examines how the narratives of Draper and White were disseminated, popularized, and ultimately appropriated by others during a time of marked expansion in science publishing. Edward Livingston Youmans, science editor of D. Appleton and Company, one of America’s most influential publishing houses in the second half of the nineteenth century, was among the chief promoters and popularizers behind this expansion. An innovator in publishing, Youmans ensured that Draper’s and White’s ideas would reach the widest readership. As other scholars have demonstrated, the “communication revolution” of the nineteenth century, which included new printing technologies, higher literacy rates, improved systems of transportation, and a reduction in the cost of paper, enabled publishers to communicate to a broader audience.⁴⁹ Youmans

began publishing the work of Draper and White just as British and American publishing was undergoing this remarkable revolution. Indeed, he was at the forefront of this revolution, establishing new international copyright agreements and popularizing scientific knowledge in his extremely successful *Popular Science Monthly* and “International Scientific Series,” both of which were ambitious projects started in the 1870s with the intent of diffusing the latest advances in science to a global audience.

In his various publishing ventures, Youmans consistently advertised, defended, and clarified the ideas of Draper and White. Like them, he too believed there was no intrinsic conflict between science and religion. It was Youmans who commissioned Draper to write the *History of the Conflict* for his International Scientific Series, which became one of the most successful books in the series. It went through fifty printings in the United States alone, twenty-four in England, and was translated into ten languages, including French, German, Italian, Dutch, Spanish, Polish, Japanese, Russian, and Portuguese. Youmans also published White’s articles on the “New Chapters in the Warfare of Science” in his *Popular Science Monthly*, which ran for a decade between 1885 and 1895. Later White expanded these articles into his famous *History of the Warfare*, also published by Youmans. Thus Youmans must be seen as a central figure in the diffusion and popularization of their ideas.

But while Youmans agreed with Draper and White that science and religion were not in conflict, he did not share their hopes of a final reconciliation between modern thought and Christianity. Rather, as one of the leaders of the Free Religious Association, an organization founded in 1867 that called for the emancipation of religion from all “dogmatic traditions,” and as an advocate of scientific naturalism, as defined by Huxley, Tyndall, and Spencer, Youmans appropriated the narratives of Draper and White in support of his own vision of the new religion of the future. As we shall see, the reconciliation Youmans described was the end of “orthodoxy,” a term by which he meant Protestant as well as historic Christianity broadly defined. He believed that the history of science demonstrated not only the progress of knowledge but also the progress of religion. Youmans strongly believed that traditional Christianity was no longer tenable. Thus, while he appropriated the histories of Draper and White in support of his vision of the religion of the future, he believed the future of religion went beyond Protestantism. While he retained the language of Protestantism, it was bereft of any doctrinal beliefs of traditional Christianity. Youmans’s new religion, in short, was a Protestantism-minus-Christianity.

Finally, this study also examines the early public reception of Draper and White. Their narratives received extensive commentary in periodicals and private letters. In examining this material, I hope to demonstrate that the positive

aspects of their projects ultimately failed. How Draper and White envisioned their reformed, minimal religion was deeply contested by readers. More religiously conservative or orthodox reviewers did not accept their attempted reconciliation, for they could not accept their redefinitions of religion. They thus warned that any such attempt would only lead to a greater perception that science and religion were indeed at war. This was a prescient warning, for, by the end of the nineteenth century, freethinkers, secularists, and atheists appropriated their narratives as a weapon against all religion. As we shall see, a number of late nineteenth-century and early twentieth-century antireligious authors and publishers took up the narratives of Draper and White without any of their nuances. More remarkable still, it was this simplistic way of relating science and religion that provided the very foundations of the incipient discipline of the history of science, which was first emerging during the early decades of the twentieth century.

Draper and White, therefore, did not set “the terms of the debate.” Their understanding of the conflict turns out to be remarkably more complicated than what modern historians of science lead us to believe. Indeed, the nineteenth century is in fact too late a date for the origins of that conflict. That the conflict thesis emerged out of an internal religious struggle within Protestantism should give pause to historians of science who routinely accuse Draper and White of cofounding that narrative. That accusation is yet another myth in the historiography of science.⁵⁰

Rather than attempt to discredit their historical narratives as myths about science and religion, I aim to remedy a scholarly oversight by assessing the work of Draper and White as primary sources, explicating not only their own sources of inspiration but also examining the cultural functions they performed.⁵¹ What Draper and White provided was a synthesis and codification of ideas about nature, man, and God—ideas, moreover, that can be traced all the way back to sixteenth-century debates between Protestants and Catholics. As such, this volume confirms a number of other studies that have maintained that the boundaries between Protestantism and secularism were remarkably porous and that certain elements of Protestant theology eased the transition from belief to unbelief. The conflict Draper and White envisioned turns out to be an incredibly sophisticated array of nested stories and myths that Protestants have told each other from the beginning of the Reformation. By the 1860s, the narrative of conflict preceded Draper and White by many years—even centuries. In one of those remarkable ironies of history, what we shall discover in this investigation is that the language of conflict was largely drawn from centuries of Protestant polemic.

This reinforces what a number of scholars have tacitly or explicitly argued

in more general studies.⁵² Indeed, the narratives of Draper and White are examples of what philosopher Charles Taylor (1931–) has called “social imaginaries,” constructed narratives that shape how we relate and are attuned to the world. They are also related to what Taylor called “subtraction stories,” which narrate the inevitable erasing of religious belief. Ironically, such stories were first articulated not in the salons or coffee houses of atheists and freethinkers but within a particularly theistic environment. Thus the separation of theology from religion can be traced to specific locations and permutations in the history and development of the theological discourse.

It is often supposed that conflict historiography had existed in the anticlerical spirit of eighteenth-century French *philosophes*. The “prophets of Paris,” as Frank E. Manuel once called them, presented grand narratives of progress, with religion and science in opposing roles.⁵³ François-Marie Arouet, or Voltaire, Julien Offray de La Mettrie, Denis Diderot, Jean le Rond d’Alembert, Anne-Robert-Jacques Turgot, Baron de Laune, Marie Jean Antoine Nicholas de Caritat, marquis de Condorcet, Claude Henri de Rouvroy, comte de Saint-Simon, François Marie Charles Fourier, Auguste Comte, and their followers, all supposedly proclaimed the old orthodoxy as stultifying moral, scientific, and material progress. While this is no doubt true, what distinguished the French *philosophes* from English intellectuals is that by the nineteenth century, Britain had already possessed a 200-year tradition of historical narratives of progress, framed within a Protestant anti-Catholic polemic. A number of studies over the last fifty years have demonstrated the ubiquitous nature of anti-Catholicism among the English. Indeed, as early as Elizabethan theologian Richard Hooker, English reformers interpreted history as the progression from the irrationality of “papism” to the light of reasoned Protestantism. Perhaps more importantly, beginning with Francis Bacon, natural philosophy and, subsequently, natural science became linked to religious themes, tacitly aligning campaigns for scientific progress with reformers’ campaign for the restoration of Christian purity, and thus bestowing upon men of science a “prophetic” authority.

I hope this study encourages historians of science to take theology more seriously. Much of the narrative found in Draper and White was drawn from centuries of Protestant Christian polemic, particularly from seventeenth- and eighteenth-century English writers. To be sure, while Draper and White inherited this English tradition, there were also elements of French and German thought in the formation of their narratives. Draper, on the one hand, was educated at London University (later called University College, London), where he came under the direct influence of Unitarianism, utilitarianism, and Comtean positivism, and all this would have a lasting impact on his understanding of historical progress. White, on the other hand, was greatly influenced by German historical thought

during his time at the University of Berlin, and indeed found his calling as scholar and teacher while studying under Gustav Droysen, August Böckh, Leopold von Ranke, and Friedrich von Raumer, among others. Nevertheless, the conflict thesis is part and parcel of a Protestant heritage. Despite their marked differences in temperament and background, Draper and White both promulgated a particularly English Protestant narrative of progress.

This narrative, of course, was not antireligious. Indeed, both Draper and White are clear on this. But by the nineteenth century, a new understanding of “religion” was emerging. Draper and White sought to salvage the cardinal values of their religious heritage by reconstituting them in a way that would make them intellectually acceptable, as well as emotionally pertinent. Perhaps one of the most neglected areas of research in current historiography is the failure to recognize the rapid and significant changes in religious thought that occurred during the nineteenth century. Throughout their writings, Draper and White relied heavily on the then-emerging comparative study of religion and the increasingly challenging historical-critical scholarship of the Bible. Numerous works appeared during the nineteenth century that ushered in dramatically new perspectives on religion in general and Christianity in particular. Much of this new scholarship depended on developments in the study of religion during the seventeenth and eighteenth centuries, which was largely produced by Protestant writers.⁵⁴ For Draper and White, almost every episode of conflict in their overarching narratives begins with some comment on comparative mythology, anthropology, or biblical criticism. Their dependency on these new scholarly traditions is clear throughout their work. By emphasizing these elements in the narratives of Draper and White, we shall see that the conflict thesis has always had unacknowledged antecedents in Protestant polemics. But by the mid-nineteenth century, religious challenges and reconceptualizations brought on by comparative religious studies transformed this essentially Protestant narrative into a more general antidogmatism. In short, the narratives constructed by Draper and White found a ready audience. By reexamining the origins, development, and dissemination of the nineteenth-century conflict thesis, I hope to demonstrate that Draper and White were not the “embattled founders” of this narrative, but rather inheritors and codifiers of an already existing narrative. The conflict thesis, in other words, was a received narrative.

In chapters 1 and 2, I offer an intellectual biography of Draper and White, one that pays particular attention to their religious background and development. I discuss the people who influenced them most—family, friends, and associates. With the exception of their biographers, few historians of science have carefully engaged with these sources of inspiration, and fewer still have shown how Draper and White constructed their narratives based on those sources.⁵⁵ In tak-

ing account of their intellectual and religious development, I also draw from new archival material that further redresses the gap in current scholarship.

After calling attention to the unique background, cultural heritage, and intellectual predecessors of Draper and White, in chapters 3 and 4 I place their thoughts in a wider historical context. These pages are devoted to accounting for the intellectual and religious changes in England and America, from the beginning of the Reformation to the end of the nineteenth century. The goal is not to trace the rhetorical genealogy of each particular episode of conflict recorded in their respective narratives. Rather, my aim is to explain how views like those found in Draper, White, and many others were even possible. Indeed, Draper and White should not be viewed as founders of the conflict thesis but rather as representatives of tensions within Protestantism. Whereas Draper's thoughts were rooted in the "rational" Christianity of seventeenth- and eighteenth-century English Protestant thinkers, White's ideas can be traced to more romantic and idealistic conceptions of religious progress found in the writings of early nineteenth-century German thinkers and in American transcendentalism. In short, certain changes or transformations in religious thought had occurred during the seventeenth and eighteenth centuries that enabled Draper, White, and others to construct such narratives, and their overarching arguments make sense only in light of these historical developments.

In chapter 5, I examine how Youmans disseminated and popularized the narratives of Draper and White. However, Youmans, who was also a friend and publisher of many of the scientific naturalists, including Huxley, Tyndall, and especially Spencer, ultimately appropriated the narratives of Draper and White for his own purposes. Thus an examination of their relationship with Youmans is crucial to understanding the emergence and popularization of the conflict thesis. Finally, in chapter 6, I examine the public reception of Draper and White. As we shall see, their redefinition of religion was deeply contested by readers. More importantly, it shall be evident that Draper and White lost control of their narratives to secularists, freethinkers, and atheists, who used their work to support their own efforts at secularizing society.

Draper and White are no doubt guilty of using ambiguous language that could easily be misconstrued and appropriated for purposes they never intended. This ambiguity has misled many readers, including modern historians of science, into believing that they, in fact, did posit a conflict between science and religion. But the ambiguity of their words was shared with many other liberal Protestants before and after them. By the nineteenth century, the divide between liberal and conservative Christians was becoming sharper, and the gulf between faith traditions would only widen in the early part of the twentieth century to become even more significant than other intra-Protestant denominational divisions in

INTRODUCTION

preceding generations. More progressive Protestants sought to formulate a version of Christianity adapted to the critical demands of the modern age—one that worked in consonance with, rather than in opposition to, Enlightenment philosophy, science, historical research, and culture as a whole. One crucial strategy liberal Protestants used was the history of science. They told narratives and popularized anecdotes of how traditional religious beliefs obstructed the progress of liberal ideas, whether in science or religion. As we shall see, this strategy ultimately backfired. In the late nineteenth century and early twentieth century, secularized versions of their narrative emerged, thus giving credence to the view that the conflict between science and religion is just a secularized polemic developed between Protestants and Catholics.

The more complicated reality is that the notion that “science” and “religion” are in a constant state of conflict or warfare is a more recent invention, found not in Draper and White but in their promulgators near the end of the nineteenth century and the beginning of the twentieth century, by those who appropriated liberal Protestant narratives in their campaign to discredit all religion and secularize society. A better understanding of the context of their work, including its subsequent reception, demonstrates that Draper and White envisioned a conflict not between science and religion, but one within the religious conscience, between what they praised as a progressive or diffusive Christianity against a more orthodox or traditional Christianity. The irony in all this is that the reconciliatory prescriptions offered by Draper, White, and many others to the tensions within the religious conscience at the end of the nineteenth century had the unintended consequence of undermining the very religion they maintained to preserve.