
“Science” and “Religion”: Constructing the Boundaries

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Over the past decade, a number of historians of science have expressed strong reservations about whether their particular subject of interest actually has much of a history. Science, as the discipline is currently understood, emerged only during the nineteenth century they tell us. Prior to that, students of nature had thought of themselves as pursuing “natural philosophy” or “natural history”—disciplines with a somewhat different orientation from that of twenty-first-century science. This claim has obvious ramifications for those whose concern lies with the past relationship between science and religion, for, if it is true, such a relationship cannot be older than the nineteenth century. Similar historical sensitivities are evident in the sphere of religious studies, in which increasing numbers of scholars have suggested that the idea “religion,” like “science,” is a modern development. “Religion” and the plural “religions,” it is claimed, did not begin to take on their present meanings until the seventeenth century. The notion that there are “religions,” distinguished by discrete sets of beliefs and practices and linked by a common and generic “religion,” is actually a product of the European Enlightenment. During that period, the acute need to arrive at some criterion to adjudicate between different faiths led to the construction of “religions” as sets of propositional beliefs that could be impartially compared and judged.

In this article, I shall explore in some detail the historical circumstances of the emergence of the dual categories “science” and “religion” with a view to showing their direct relevance for contemporary discussions of the science-religion relation. As we shall see, to a degree both categories distort what it is they claim to represent, and such distortions inevitably carry over into discussions of their relationship. Consideration of the historically conditioned nature of “science” and of “religion” brings to light a number of unspoken assumptions in some main-

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stream science-and-religion discussions and highlights the need for serious revision of common approaches to this issue.

HISTORY OF SCIENCE: A SUBJECT WITHOUT AN OBJECT?

Until relatively recently, it was quite uncontroversial to claim a venerable history for the discipline of science. The classic histories of science, for example, customarily begin their accounts with the science of the ancient Greeks. Indeed, George Sarton's monumental *History of Science* (1927–59), a work of nine projected volumes, scarcely progressed beyond them, ending prematurely with the Hellenistic age in the third volume.¹ Most accounts, it must be said, concede a long hiatus during the Middle Ages in the West, but in the seventeenth century, according to the standard view, science once again found itself back on track, with the birth of “modern” science. If the progenitors of the modern discipline—typically identified as Galileo or Newton—were of much more recent vintage, their spiritual forebears were nonetheless identified as those investigators of nature who had pioneered the scientific enterprise in antiquity.

Over the past few decades, however, many historians have expressed reservations about presumed continuities in the history of science. These reservations have been expressed in a variety of ways, but common to them all is a plea against the anachronistic assumption that the study of nature in earlier historical periods was prosecuted more or less along the same lines as those adopted by modern scientists. Margaret Osler, for example, has questioned the uncritical assumption “that disciplinary boundaries have remained static throughout history.”² In a similar vein, Paolo Rossi has charged historians of science with having concerned themselves with “an imaginary object,” arguing “science” is a quite recent invention.³ Philosopher of science David Hull reinforces this point, observing that “science as a historical entity no more has an essence than do particular scientific theories or research programs. The sorts of activities that are part of science at any one time are extremely heterogeneous, and they change through time.”⁴ Andrew Cunningham, perhaps

¹ George Sarton, *A History of Science* (New York: Norton, 1970).

² Margaret J. Osler, “Mixing Metaphors: Science and Religion or Natural Philosophy and Theology in Early Modern Europe,” *History of Science* 35 (1997): 91–113, 91.

³ Paolo Rossi, *The Dark Abyss of Time: The History of the Earth and the History of Nations from Hooke to Vico* (Chicago: University of Chicago Press, 1984), vii.

⁴ David Hull, *Science as a Process* (Chicago: University of Chicago Press, 1988), 25.

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the most vocal critic of the traditional view, bluntly asks whether, when we study science in the past, it is science in any meaningful sense.⁵

These viewpoints are supported by an impressive range of evidence, but perhaps the clearest indication of the relative novelty of the discipline can be seen in broad connotations of the term “science” prior to the nineteenth century. It is often assumed that science began with the ancient Greeks, but, as one of the foremost authorities on the thought of this period has pointed out, “science is a modern category, not an ancient one: there is no one term that is exactly equivalent to our ‘science’ in Greek.”⁶ David Lindberg, in his magisterial survey of the study of nature in antiquity and the Middle Ages, has similarly pointed out that, even if we could agree on a definition of modern science, to investigate only those aspects of classical and medieval disciplines “insofar as those practices and beliefs resemble modern science” would give rise to a “distorted picture.” We must therefore avoid “looking at the past through a grid that does not exactly fit.”⁷ Thus, while it is not absurd to regard Aristotle, for example, as having practiced “science,” it must be remembered that the activities so described bear only a loose genealogical relationship to what we would now consider to be science. The same is true for the Middle Ages, when, owing largely to the influence of Aristotelian classifications, philosophers spoke of three “speculative sciences”—metaphysics (also known as “sacred science” or theology), mathematics, and natural philosophy.⁸ Strictly, to speak of the relationship between theology and science in this period is to ignore the categories that the historical actors themselves were operating with. Again, this is not to deny that there can be fruitful historical exploration of the relationship between natural philosophy and theology during this period. But the fact that both of these disciplines were speculative sciences makes an important difference to our inquiry.

In the era that is most commonly associated with the birth of modern science, similar considerations apply. Nicholas Jardine has observed

⁵ Andrew Cunningham, “Getting the Game Right: Some Plain Words on the Identity and Invention of Science,” *Studies in the History and Philosophy of Science* 19 (1988): 365–89, 365.

⁶ G. E. R. Lloyd, *Early Greek Science* (New York: Norton, 1970), iv.

⁷ David C. Lindberg, *The Beginnings of Western Science* (Chicago: University of Chicago Press, 1992), 2ff.

⁸ See, e.g., Boethius, *De Trinitate* 2; Thomas Aquinas, *Expositio supra librum Boethii De Trinitate* (translated as *The Division and Methods of the Sciences*, trans. Armand Maurer, 4th ed. [Toronto, 1986]), Q.5, A.1. Compare Aristotle, *Metaphysics* 1025b-1026a; Plato, *Republic*, 509a–511d. For the medieval and Renaissance understanding of “natural philosophy,” see William Wallace, “Traditional Natural Philosophy,” in *The Cambridge History of Renaissance Philosophy*, ed. Charles Schmitt and Quentin Skinner (Cambridge: Cambridge University Press, 1988), 201–35.

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that “no Renaissance category even remotely corresponds to “the sciences” or “the natural sciences” in our senses of the terms.”⁹ In the early modern period, the study of nature took place within a number of disciplines, the most important of which were “natural philosophy” and “natural history.”¹⁰ It was natural philosophy, for example, that Isaac Newton understood himself to be undertaking, as the title of his most famous work bears witness: *Philosophiæ naturalis principia mathematica* (1687)—“The Mathematical Principles of Natural Philosophy.” Curiously, at this time neither natural history nor experimental natural philosophy were thought exact enough to warrant the label “science,” the former because it was a historical enterprise, the latter because it was thought to lead to knowledge that was merely probable and not demonstrable.¹¹ John Locke, a champion of the empirical approach to knowledge, thus observed that “natural philosophy is not capable of being made a science.”¹² Neither were natural history and natural philosophy synonyms for what we now call natural science. Rather, they entail a different understanding of knowledge of nature: they were motivated by different concerns and were integrated into other forms of knowledge and belief in a way quite alien to the modern sciences. The provinces of these enterprises were not coextensive with that of “science” as it was understood then or now.

Nowhere is the difference between these disciplines and modern science more apparent than in those religious elements that were integral to the practice of the early modern study of nature. Natural history and natural philosophy were frequently pursued from religious motives, they were based on religious presuppositions, and, insofar as they were regarded as legitimate forms of knowledge, they drew their social

⁹ Nicholas Jardine, “Epistemology of the Sciences,” in Schmitt and Skinner, *Cambridge History of Renaissance Philosophy*, 685. See also Nicholas Jardine, “Demonstration, Dialectic, and Rhetoric in Galileo’s *Dialogue*,” in *The Shapes of Knowledge from the Renaissance to the Enlightenment*, ed. Donald R. Kelley and Richard H. Popkin (Dordrecht: Kluwer, 1991), 101–21; Pierre Wagner, ed., *Les philosophes et la science* (Paris: Gallimard, 2002), intro.

¹⁰ Cunningham, *Getting the Game Right*, 384. See also Andrew Cunningham, “How the *Principia* Got Its Name; or, Taking Natural Philosophy Seriously,” *History of Science* 28 (1991): 381; Christoph Lüthy, “What to Do with Seventeenth-Century Natural Philosophy? A Taxonomic Problem,” *Perspectives on Science* 8 (2000): 164–95.

¹¹ See, e.g., Francis Bacon, *Advancement of Learning*, I.i.3 and II.xvii.7, in *The Works of Francis Bacon*, ed. James Spedding, Robert Ellis, and Douglas Heath, 14 vols. (London: Longman, 1857–74), 3:267, 405; John Sergeant, *The Method to Science* (London, 1696), sig. d1r. See also Ernan McMullin, “Conceptions of Science in the Scientific Revolution,” in *Reappraisals of the Scientific Revolution*, ed. David C. Lindberg and Robert Westman (Cambridge: Cambridge University Press, 1990), 27–92.

¹² John Locke, *An Essay Concerning Human Understanding*, ed. A. C. Fraser, 2 vols. (New York, 1959), IV.xii.10 (2:349). See also Locke, *Essay*, IV.iii.26 and IV.iii.29; John Locke, *Some Thoughts Concerning Education*, §190, ed. John W. Yolton and Jean S. Yolton (Oxford: Clarendon, 1989), 244.

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sanctions from religion. This was particularly so in England, where up until the mid-nineteenth century natural history was internally ordered according to the theological principle of design. The intimate connections between the study of nature and religious notions are apparent in the ubiquity of early modern images of nature as God's book. Physician Thomas Browne provides us with a typical statement of this approach: "There are two books from whence I collect my divinity," he wrote, "besides that written one of God, another of his servant Nature—that universal and public manuscript that lies expanded into the eyes of all."¹³ In a similar vein, Johannes Kepler described astronomers as "priests of the most high God, with respect to the book of nature."¹⁴ Naturalist John Johnston also spoke of "Nature's book, wherein we may behold the supreme power." "God," he continued, "is comprehended under the title of natural history."¹⁵ Best known of all is the stance of seventeenth-century virtuoso Robert Boyle, who described natural philosophy as "the first act of religion, and equally obliging in all religions." Boyle regarded his own activities and those of his peers as "philosophical worship of God."¹⁶ According to one historian, natural philosophy in the early modern period was about "God's achievements, God's intentions, God's purposes, God's messages to man."¹⁷ The legitimacy, or, as its seventeenth-century practitioners would have it, the "usefulness," of natural philosophy in the English context derived in large measure from this religious orientation.¹⁸

¹³ Thomas Browne, *Religio Medici*, 1.16, in *Religio Medici Hydriotaphia, and The Garden of Cyrus*, ed. Robin Robbins (Oxford: Clarendon, 1982), 16ff.

¹⁴ Johannes Kepler, *Gesammelte Werke* (Munich: C. H. Beck, 1937–45), 8:193. On this metaphor and how early modern naturalists differ from modern scientists, see Peter Harrison, "'Priests of the Most High God, with Respect to the Book of Nature': The Vocational Identity of the Early Modern Naturalist," in *Reading God's World*, ed. Angus Menuge (St. Louis: Concordia, 2005), 55–80.

¹⁵ John Johnston, *Wonderful Things of Nature* (London, 1657), sig. a3v.

¹⁶ Robert Boyle, *Some Considerations Touching the Usefulness of Experimental Natural Philosophy*, in *The Works of the Honourable Robert Boyle*, ed. Thomas Birch, 6 vols. (Hildesheim: Georg Olms, 1966), 2:62ff.

¹⁷ Cunningham, "Getting the Game Right," 384. On the essentially religious nature of the discipline, see also Peter Harrison, *The Bible, Protestantism, and the Rise of Natural Science* (Cambridge: Cambridge University Press, 1998), 169–76; John Brooke, *Science and Religion: Some Historical Perspectives* (Cambridge: Cambridge University Press, 1991), 192–225; Osler, "Mixing Metaphors"; Andrew Cunningham and Perry Williams, "De-centring the Big Picture: The Origins of Modern Science and the Modern Origins of Science," *British Journal for the History of Science* 26 (1993): 387–483.

¹⁸ See, e.g., Boyle, *Usefulness of Experimental Natural Philosophy*; Thomas Sprat, *History of the Royal Society* (London, 1667), pt. 3; Joseph Glanvill, "The Usefulness of Real Philosophy to Religion," in his *Essays on Several Important Subjects in Philosophy and Religion* (London, 1676). There is room for debate over the extent to which natural history and natural philosophy were intrinsically religious. These activities might have been "about God," but they were not just about God. For recent discussions of Cunningham's view, see Peter Dear, "Religion,

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So inextricably connected were the dual concerns of God and nature that it is misleading to attempt to identify various kinds of relationships between science and religion in the seventeenth and eighteenth centuries. “Science” and “religion” were not independent entities that might bear some positive or negative relation to each other, and to attempt to identify such connections is to project back in time a set of concerns that are typically those of our own age. As historian Charles Webster has expressed it, “Conclusions about the independence of scientific activity in the seventeenth century are based not on the impartial and exhaustive examination of evidence, but are rather dictated by the requirements of current ideology, and describe not the relationship which actually existed, but the relationship which it is felt ought to have existed on the basis of present-day opinion about the methodology of science.”¹⁹

The birth of the modern discipline, it is now generally agreed, took place during the nineteenth century. According to Simon Schaffer, it was the nineteenth century that witnessed “the end of natural philosophy and the invention of modern science.”²⁰ Andrew Cunningham agrees that the “invention of science” was “an historical event of the period c1780 – c1850.”²¹ The term “scientist” was coined by William Whewell in 1833, and, while it was not widely adopted until the end of the century, it is indicative of an important new alliance of once distinct disciplines. During this time, also, the first professional bodies for scientists came into existence.²² The British Association for the Ad-

Science, and Natural Philosophy: Thoughts on Cunningham’s Thesis,” *Studies in History and Philosophy of Science* 32A (2001): 377–86; Andrew Cunningham, “A Response to Peter Dear’s ‘Religion, Science, and Philosophy,’” *Studies in History and Philosophy of Science* 32A (2001): 387–91; Peter Harrison, “Physico-theology and the Mixed Sciences: Theology and Early Modern Natural Philosophy,” in *The Science of Nature in the Seventeenth Century*, ed. Peter Anstey and John Schuster (Dordrecht: Springer, 2005).

¹⁹ Charles Webster, *The Great Instauration: Science, Medicine, and Reform, 1626–1660* (London: Duckworth, 1975), 494. For similar observations about other historical periods, see Wolfgang van den Daele, “The Social Construction of Science: Institutionalisation and Definition of Positive Science in the Latter Half of the Seventeenth Century,” in *The Social Production of Scientific Knowledge*, ed. E. Mendelsohn, P. Wengart, and R. Whitley (Dordrecht: Reidel, 1977), 39; Robert M. Young, *Darwin’s Metaphor* (Cambridge: Cambridge University Press, 1985), 167; Amos Funkenstein, *Theology and the Scientific Imagination* (Princeton, NJ: Princeton University Press, 1986), 3.

²⁰ Simon Schaffer, “Scientific Discoveries and the End of Natural Philosophy,” *Social Studies of Science* 16 (1986): 387–420, 413.

²¹ Cunningham, “Getting the Game Right,” 385.

²² Sydney Ross, “‘Scientist’: The Story of a Word,” *Annals of Science* 18 (1962): 65–86. Compare *Dictionnaire historique de la langue française* (Paris: Dictionnaire Le Robert, 1992), s.v. “Scientifique”; Wagner, *Les philosophes et la science*, esp. intro. and chap. 6; Helmut Holzhey, “Der Philosoph im 17. Jahrhundert,” in *Die Philosophie des 17. Jahrhunderts*, ed. Jean-Pierre Schobinger and Friedrich Ueberweg (Basel, 1998–), 1:3–30, 13ff.

vancement of Science, for example, was established in the early 1830s. With the founding of such associations came a new status for scientific practitioners and, accompanying this status, a new set of professional commitments.²³

The transformation of natural history into scientific “biology” was a vital part of this process. Whereas natural history had traditionally been dominated by the clergy, the new scientific disciplines of biology and geology gradually achieved independence from clerical influence while at the same time legitimizing a new set of nonecclesiastical authorities.²⁴ This was in fact the explicit mission of such figures as Thomas Huxley and his colleagues in the “X-Club,” who sought with an evangelical fervor to establish a scientific status for natural history, to rid the discipline of women, amateurs, and parsons, and to place a secular science into the center of cultural life in Victorian England.²⁵ It served the political purposes of this clique to deploy a rhetoric of conflict between theology and science, a conflict that was supposedly not unique to the nineteenth century but had characterized the ongoing relation of these two hypostasized entities. Largely as a consequence of the efforts of those who sought to promote the political fortunes of “science,” there emerged the historical thesis of an ongoing science-religion conflict—a view epitomized in the now unfashionable histories of Andrew Dickson White and John Draper. A good sense of the general tenor of these works can be gleaned from their titles, respectively, *A History of the Warfare of Science with Theology in Christendom* (1896) and *History of the Conflict between Religion and Science* (1875).²⁶ The enduring legacy of this group, however, has been the perpetuation of the myth of a perennial warfare between science and religion.

This is not to assert that the new nineteenth-century discipline had uncontested boundaries. A number of Victorian naturalists were initially reluctant to identify their activities as something distinct from philosophy, ethics, and theology. Herbert Spencer, the evolutionist who coined the phrase “the survival of the fittest,” considered the Victorian

²³ Frank Turner, “The Victorian Conflict between Science and Religion: A Professional Dimension,” *Isis* 49 (1978): 356–76; Brooke, *Science and Religion*, 5, 50.

²⁴ Turner, “The Victorian Conflict”; Brooke, *Science and Religion*, 5, 50; Patrick Armstrong, *The English Parson-Naturalist: A Companionship between Science and Religion* (Leominster, Herefordshire: Gracewing, 2000); David Livingstone, “Science and Religion: Toward a New Cartography,” *Christian Scholar's Review* 26 (1997): 270–92.

²⁵ Ruth Barton, “‘An Influential Set of Chaps’: The X-Club and Royal Society Politics, 1864–85,” *British Journal for the History of Science* 23 (1990): 53–81; T. W. Heyck, *The Transformation of Intellectual Life in Victorian England* (London: Croom Helm, 1982).

²⁶ A. D. White, *A History of the Warfare of Science with Theology in Christendom*, 2 vols. (New York, 1896); John Draper, *History of the Conflict between Religion and Science* (London, 1875).

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classifications of the sciences to be artificial, particularly in the separation of science and art and of science and common sense.²⁷ But such misgivings did not prevail. By the end of the century, there was an almost universal, if tacit, understanding that the term “science” excluded the aesthetic, ethical, and theological. By 1922 Max Weber was thus able to speak of the scientific vocation as one that was narrowly specialist and one in which no place could be found for the broader questions of value and meaning.²⁸ Thus, while disagreements persist into the twenty-first century about precisely which activities might be included under the rubric “science,” there is a general consensus that certain things are to be excluded.

With the benefit of hindsight, we can now see that over the course of the past 150 years a remarkable reversal has taken place. Whereas once the investigation of nature had derived status from its intimate connections with the more elevated disciplines of ethics and theology, increasingly during the twentieth century these latter disciplines have humbly sought associations with science in order to bask in its reflected glory—whence bioethics and science-and-religion. The nineteenth century saw the baton of authority pass from those pursuing the religious vocation to the new breed of scientist. As historian A. W. Benn observed firsthand, “A great part of the reverence once given to priests and to their stories of an unseen universe has been transformed to the astronomer, the geologist, the physician, and the engineer.”²⁹ At the same time, the “wonders of nature” increasingly came to be regarded as the “wonders of science.” The coalescing of this new alliance of disciplines under the banner “science” made possible for the first time a relationship between “science” and “religion.”

It was almost inevitable that in historical accounts of the relevant human activities various aspects of the new nineteenth-century relation would be projected back onto the past. As we have already noted, this approach is epitomized in the writings of Draper and White. Other historical developments were also to feed the myth of a perennial conflict between science and religion. The emergence of the scientific pro-

²⁷ Herbert Spencer, “The Genesis of Science,” *British Quarterly Review* 20 (1854): 108–62, 152–59; Richard Yeo, *Defining Science: William Whewell, Natural Knowledge, and Public Debate in Early Victorian Britain* (Cambridge: Cambridge University Press, 1993), 49ff.

²⁸ Max Weber, “Science as a Vocation,” in *Max Weber’s “Science as a Vocation,”* ed. Peter Lassman and Irving Velody (London: Unwin, 1989). This work highlights the impact of Weber’s conception of “the scientist.” See also William A. Durbin, “What Shall We Make of Henry Margenau? A Religion and Science Pioneer of the Twentieth Century,” *Zygon* 34 (1999): 167–93.

²⁹ A. W. Benn, *A History of English Rationalism in the Nineteenth Century*, 2 vols. (London: Longmans, Green, & Todd, 1906), 1:198.

fession meshed neatly with progressivist conceptions of history such as that of positivist Auguste Comte, who believed that his own age was witness to humanity's transition from the "metaphysical stage" to the higher scientific or "positive" level of development. A. D. White provides a classic example of this view of history, making reference to "a conflict between two epochs in the evolution of human thought—the theological and the scientific."³⁰ Moreover, with the growth in popularity of the "great man" theory of history, there arose a tendency to identify heroic figures in the past, credit them with great achievements, and pit them against unyielding institutions and dogmatic traditions. The demise of natural philosophy and the emergence of science, writes Simon Schaffer, "was marked by the reification of heroic discoverers and prized techniques."³¹ "Galileo versus the Inquisition" is the stock example here. This mode of presenting the history of science is still today the one that most excites the popular imagination, and indeed not all scholarly historians are immune to its attractions.³²

From this history we can arrive at some provisional conclusions about the "science-religion" relation. Perhaps the most obvious lesson to be drawn from this analysis is that the notion that there can be a relationship between science and religion prior to the nineteenth century is to run the risk of anachronism. To some degree, there has been a recognition of this fact among more discerning historians. John Brooke has warned that "the very enterprise of abstracting 'science' and the 'theology' of earlier generations with a view to seeing how they were related can lead to artificial results."³³ Claude Welch, too, speaks of "the hypostatization of 'science' and 'religion'" that the works of Draper and White represent.³⁴ However, at times critics of Draper and White seem to imply that their mistake lay only in characterizing the past relationship between science and religion as negative when the true picture was that the relation was positive or "complex." In fact, their more fundamental error lay in the assumption that science and religion are categories that

³⁰ White, *Warfare of Science with Theology*, 1:ix.

³¹ Schaffer, "Scientific Discoveries and the End of Natural Philosophy," 413.

³² See, e.g., John Brooke, "Does the History of Science Have a Future?" *British Journal for the History of Science* 32 (1999): 1–20.

³³ Brooke, "Science and Theology in the Enlightenment," in *Religion and Science: History, Method and Dialogue*, ed. W. Mark Richardson and Wesley J. Wildman (London: Routledge, 1996), 23; cf. Brooke, *Science and Religion*, 6–11. See also David Wilson, "On the Importance of Eliminating *Science and Religion* from the History of Science and Religion: The Cases of Oliver Lodge, J. H. Jeans, and A. S. Eddington," in *Facets of Faith and Science*, ed. Jitse van der Meer (Lanham, MD: University Press of America, 1996), 1:27–47.

³⁴ Claude Welch, "Dispelling Some Myths about the Split between Theology and Science in the Nineteenth Century," in Richardson and Wildman, *Religion and Science*, 29–40, 29.

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can be meaningfully applied to all periods of Western history and, to a degree, to the historical development of non-Western cultures.

It is not only historians who need to heed the lessons of their own discipline. To a degree, the dangers of the “artificial results” against which Brooke warns bulk just as large for those currently engaged in relating science and religion, for to speak of some generic entity “science” is to be committed to a vast oversimplification. The history of the term shows that “science” is a human construction or reification. This is not necessarily to say that scientific knowledge is socially constructed: rather, it is the category “science”—a way of identifying certain forms of knowledge and excluding others—that is constructed. These historical claims about the origin of the discipline are thus quite independent of any claims that might be made on behalf of the activities it describes. However, an inevitable consequence of the construction of the category is that science will have a disputed content and contested boundaries.³⁵ The persistence of questions about the unity of science, which arise out of either an awareness of the histories of the sciences or present-day analyses of the objectives and methods of the various sciences, suggests that there can be no normative science-religion relation as such, for the sciences are plural and diverse. As Fraser Watts has observed, “There are many different sciences, and each has its own history, methods and assumptions. Each also has a different relationship to religion.”³⁶

A preferable course of action might seem to be the discussion of distinct sciences in relation to religion, but this too is not without its difficulties. Apparent affinities between science and religion are in some measure a function of where the relevant boundaries are drawn. Speaking of the kinds of disciplines that have been included in the sciences, philosopher of science David Hull uses a familiar biological metaphor, pointing out that “more often than not, more variation exists within a species than between closely related species.”³⁷ In other words, there may be greater differences among the sciences themselves than between a particular science and some other, nonscience disci-

³⁵ Peter Galison and David Stump, eds., *The Disunity of Science* (Stanford, CA: Stanford University Press, 1996); R. G. A. Dolby, *Uncertain Knowledge* (Cambridge: Cambridge University Press, 1996), pt. 2; Joseph Margolis, *Science without Unity* (Oxford: Blackwell, 1987); S. Jasonoff, “Contested Boundaries in Policy Relevant Science,” *Social Studies of Science* 17 (1987): 195–230; Charles Taylor, *Defining Science: A Rhetoric of Demarcation* (Madison: University of Wisconsin Press, 1996). For a vigorous argument against the notion that there is methodological uniformity in science, see Paul Feyerabend, *Against Method: Outline of an Anarchistic Theory of Knowledge* (London: Verso, 1975).

³⁶ Fraser Watts, “Are Science and Religion in Conflict?” *Zygon* 32 (1997): 125–39.

³⁷ Hull, *Science as a Process*, 512ff.

pline (say, theology). That cosmology and quantum physics in recent times have been grist to the mill of theologians says less about some general relationship between science and religion than it does about the proximity of these sciences to the border with theology. Indeed, in no instance does Paul Feyerabend's claim that "science is much closer to myth than a scientific philosophy is prepared to admit" seem more true than in the case of quantum cosmology.³⁸ To draw attention to these affinities is thus to make a point about the boundaries of the respective disciplines rather than to assert something about a genuine substantive relation between independent entities. There is still a point worth making here, but we need to be clear about what it is.

To sum up the argument to this point, while the study of nature in the West has a long ancestry, "science" as we currently understand it is a category that took on its characteristic form during the nineteenth century. To speak of a relationship between science and religion prior to that time requires a number of careful qualifications. Moreover, what "science" includes and excludes is attributable to some extent to accidents of history. Thus, any relationship that "science" has with other human institutions is going to be conditioned by the circumstances of its origins. As we are about to see, this is particularly the case when the other party to the relationship, in this instance "religion," may itself be regarded as an intellectual construction.

"RELIGION," THEOLOGY, AND "THE RELIGIONS"

While a number of historians of science have been conscious of the conditions that generated the modern notion "science," few have been aware that a number of historians of religion have claimed that the modern idea "religion" emerged only 150 years prior to this. If "science" was invented in the nineteenth century, "religion," it may be said, was invented during the course of the European Enlightenment, in the wake of the post-Reformation fragmentation of Christianity. Wilfred Cantwell Smith, who first drew attention to the artificial nature of the category "religion," writes, "The concept 'religion,' then, in the West has evolved. Its evolution has included a long-range development that we may term a process of reification: mentally making religion into a thing, gradually coming to conceive it as an objective systematic entity."³⁹ As Smith's pioneering work demonstrated, the religious emphasis of the medieval West had been faith or piety—an inner dynamic

³⁸ Feyerabend, *Against Method*, 295.

³⁹ Wilfred Cantwell Smith, *The Meaning and End of Religion* (London: SPCK, 1978), 51.

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of the heart. In early modern religious controversy, however, attention was increasingly focused upon those external, objective aspects of the lives of the faithful as it became an urgent matter to identify those crucial differences upon which eternal salvation was thought to depend. As a consequence, specific creeds and ritual practices became the essence of the newly ideated “religion.” True religion now had less to do with sincerity of commitment than with whether or not the propositions to which one gave intellectual assent were true. In keeping with the developing spirit of the Enlightenment, reason came to be the ultimate arbiter of true religion, thus confirming the objective, rationalist, orientation of the new entity. Since the first appearance of this thesis, a number of historians have further developed its major implications.⁴⁰

If the invention of science in the nineteenth century made possible for the first time a relationship between science and religion, the birth of “religion” and “the religions” during the Enlightenment made possible a comparative exercise of a different kind—the comparison of one “religion” with another. Once again, reason was given a role in the “impartial” comparison of the religions and in theory enabled adjudication of the relative merits of competing creeds and cults. The science of comparative religion thus emerged out of the objectification of early modern faiths, and the process was in due course extended from Christianity to the other three “religions”—“Mahometanism,” “the Jewish Religion,” and the catchall category, “Heathenism”—each of which had been constructed, in varying degrees, as an inferior version of the original paradigm, Christianity. In each case, the faiths and ways of life of whole peoples tended to be reduced to bodies of dogma, and the chief characteristic of a religion became what it was that its adherents believed. “Religion” thus became the conceptual grid through which knowledge of exotic peoples was filtered into the Western imagination.

In the era of colonization that followed upon the voyages of discovery, more and more empirical data were gathered from distant lands,

⁴⁰ See, e.g., Michel Despland, *La religion en occident: Évolution des idées et du vécu* (Montréal: Fides, 1979); Ernst Feil, *Religio: Die Geschichte eines neuzeitlichen Grundbegriffs vom Frühchristentum bis zur Reformation* (Göttingen: Vandenhoeck & Ruprecht, 1986), and “From the Classical Religio to the Modern Religion: Elements of a Transformation between 1550 and 1650,” in *Religion in History: The Word, the Idea, the Reality*, ed. Michel Despland and Gérard Vallée (Waterloo, Ontario: Wilfrid Laurier University, 1992), 31–43; Peter Harrison, “Religion” and the Religions in the English Enlightenment (Cambridge: Cambridge University Press, 1990); John Bossy, “Some Elementary Forms of Durkheim,” *Past and Present* 95 (1982): 3–18. See also Russell McCutcheon, “The Category ‘Religion’ in Recent Publications: A Critical Survey,” *Numen* 42 (1995): 285–301; Nicholas Lash, *The Beginning and End of “Religion”* (Cambridge: Cambridge University Press, 1996).

which led to the generation of particular kinds of “heathenism.” In time, “the Eastern religions” coalesced as inferior and incomplete versions of Christianity, with their imperfect deities, their erroneous scriptures, their fraudulent miracles, and superstitious cults. These entities had their birth in the imaginations of Western thinkers for whom distant and exotic locations came to form a backdrop onto which could be projected the parochial confessional concerns of Europe.⁴¹ Crucially, just as the multiple forms of Christianity were presumed to be mutually exclusive, so too were these other “religions.” The world religions, in short, were created through a projection of Christian disunity onto the world. Their fabrication in the Western imagination is registered in the terms that indicate their birth: “Boudhism” makes its first appearance in 1821, “Hindooism” in 1829, “Taouism” in 1829, and “Confucianism” in 1862.⁴²

Finally, if the nineteenth century witnessed the creation of the Eastern religions as reified entities, it also represents a further stage in the development of “religion.” For if this is the period during which “science” was eventually to emerge as a discipline evacuated of religious and theological concerns, logically “religion” was itself now understood as an enterprise that excluded the scientific. The birth of “science” was part of the ongoing story of the ideation of “religion.”

The consequences of these not altogether happy historical processes are these. First, there are a number of fracture points that highlight the fragility of the dual categories “religion” and “the religions.” Notoriously, most scholars have considerable difficulty in providing an exact definition of religion.⁴³ Failure to arrive at a consensus of what

⁴¹ As Edward Said writes of the process of “orientalism”: “The imaginative examination of things Oriental was based more or less exclusively upon a sovereign Western consciousness out of whose unchallenged centrality an Oriental world emerged, first according to general ideas about who or what was an Oriental, then according to a detailed logic governed not simply by empirical reality but by a battery of desires, repressions, investments, and projections”; Edward Said, *Orientalism* (London: Routledge & Kegan Paul, 1978), 8. See also Talal Asad, *Genealogies of Religion: Discipline and Reasons of Power in Christianity and Islam* (Baltimore: Johns Hopkins University Press, 1996); Richard King, *Orientalism and Religion: Postcolonial Theory, India, and “The Mystic East”* (London: Routledge, 1999).

⁴² Smith, *Meaning and End of Religion*, 61. For more detailed accounts of the inventions of these traditions, see Philip C. Almond, *The British Discovery of Buddhism* (Cambridge: Cambridge University Press, 1988); P. J. Marshall, ed., *The British Discovery of Hinduism in the Eighteenth Century* (Cambridge: Cambridge University Press, 1970); and Tomoko Masuzawa, *The Invention of World Religions* (Chicago: University of Chicago Press, 2005).

⁴³ See, e.g., Thomas Lawson and Robert McCauley, *Rethinking Religion* (Cambridge: Cambridge University Press, 1990); J. Samuel Preuss, *Explaining Religion: Criticism and Theory from Bodin to Freud* (New Haven, CT: Yale University Press, 1987); Stewart Guthrie, “Religion: What Is It?” *Journal of the Scientific Study of Religion* 35 (1996): 412–20, and “Buddhism and the Definition of Religion,” *Journal for the Scientific Study of Religion* 32 (1993): 1–17; Brian K. Smith,

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“religion” really is or what counts as “a religion” can reasonably be taken as evidence of the problematic nature of the category. Furthermore, we can also call upon categories that cut across the various traditions yet retain some integrity. “Mysticism,” for example, describes adherents of a variety of faiths, and it might be said that some Christian, Jewish, Islamic, and Buddhist mystics have more in common with each other than they do with others who subscribe to the same “religion.”⁴⁴ The category “fundamentalist” likewise seems to identify some core set of attitudes that, again, does not respect the neat boundaries of “the religions.” Indeed, the term “fundamentalist” can be applied with some justification to more extreme proponents of scientific naturalism.

Second, the philosophical problem of religious pluralism—that the world religions make competing truth claims and thus cannot all be true—is in part a creature of the category “religion.” The conflicting truth claims of the world religions arise not out of the way in religious individuals practice their faith but out of classification of what they are doing as practicing a “religion.” By classifying beliefs as doctrines and imposing upon them the kind of status that they might have within post-Enlightenment Christianity, conflicts are generated. The consequences of this process are most apparent in the so-called Eastern religions. The common Western assumption that there are three religions in China—Confucianism, Taoism, and Buddhism—forces upon the Chinese categories that they themselves would not recognize. Many Chinese combine aspects of these three traditions without any conscious confusion. This makes nonsense of the notion that Confucianism, Taoism, and Buddhism are discrete and mutually exclusive “religions.” This confusion is to be attributed to the category. As Smith observes with respect to one of these traditions, the question of whether Confucianism is religion is a question that the West has never been able to answer and the Chinese never able to ask.⁴⁵

Third, and following on from the previous point, the categories are frequently rejected by those whom they purport to characterize. Christianity is not a religion, insisted neo-orthodox Protestant theologian Karl Barth. Dietrich Bonhoeffer advocated a “religionless Christianity.”⁴⁶ To reduce Judaism to a religion “is a betrayal of its true nature,”

“Exorcising the Transcendent: Strategies for Defining Hinduism and Buddhism,” *History of Religions* 27 (1987): 32–55.

⁴⁴ On the history of the category “mysticism,” see Leigh Eric Schmidt, “The Making of Modern ‘Mysticism,’” *Journal of the American Academy of Religion* 71 (2003): 273–302.

⁴⁵ Smith, *Meaning and End of Religion*, 69.

⁴⁶ Karl Barth, *Church Dogmatics* (Edinburgh: T&T Clark, 1936–69), I/2, 288; Dietrich Bonhoeffer, *Letters and Papers from Prison* (New York: Macmillan, 1962), 161–69, 194–200, 226.

declares Milton Steinberg. Adherents of other so-called religions are equally adamant: “Buddhism is not a religion”; “Islam is not merely a ‘religion’”; “It is hardly possible to say whether Hinduism is a religion or not.”⁴⁷ While it must be conceded that the concepts “religion” and “the religions” have considerable currency in their place of origin, the West, it can be argued that this acceptance, in particular by those who identify themselves as religious, has led to an impoverishment of the religious life.

If we take the history of Christianity as an example, we can gain some impression of what was lost to the tradition in the early modern transformation from “Christian faith” to “*the* Christian religion.” The first expression had referred to a faith that was Christlike; the second denoted a religion—a set of beliefs—supposedly preached by Christ. The Christian life, in this new conception, was less about emulating Christ than it was about giving intellectual assent to the doctrines that he had preached. The concept of revelation underwent a parallel transformation. Whereas God was thought once to have revealed himself in Christ, now he revealed doctrines.⁴⁸ Epitomizing these changes, seventeenth-century comparative religionist Nathaniel Crouch claimed that “Christianity is the Doctrine of Salvation, delivered to man by *Christ Jesus*.”⁴⁹ Thus the early modern confessional controversies, in the heat of which the Christian religion was forged, focused not on the best way to lead a Christlike life but on identifying those particular doctrines that Christ and his legitimate heirs were supposed to have promulgated. This is the view according to which Christianity is a religion and indeed the paradigmatic religion that provided the pattern for the construction of the “other religions.”

While many contemporary Christians conceive of themselves as subscribing to a “religion” in the modern sense, and certainly this is how they are perceived by outsiders, protests have been raised against the categorization. The reservations of Barth and Bonhoeffer about “religion” have already been noted. Raimundo Panikkar has made similar observations, evincing a nostalgia for premodern piety: “Christian faith must strip itself of the ‘Christian religion.’”⁵⁰ Panikkar points to important distinctions between Christendom (a civilization), Christianity (a religion), and Christianness (a personal religiosity): To be a Chris-

⁴⁷ Examples cited by Smith, *Meaning and End of Religion*, 125ff.

⁴⁸ On these transformations, see Harrison, “*Religion*” and *the Religions*, 19–28.

⁴⁹ Nathaniel Crouch, *The Strange and Prodigious Religions, Customs, and Manners of Sundry Nations* (London, 1683), 27ff.

⁵⁰ Raimundo Panikkar, *The Trinity and the Religious Experience of Man* (Maryknoll, NY: Orbis, 1973), 2–3.

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tian, he argues, does not necessarily entail subscribing to “the Christian religion.” Hence, “to be a Christian can also be understood as confessing a personal faith, adopting a Christlike attitude inasmuch as Christ represents the central symbol of one’s own life. I call this Christianness. Christianness differentiates itself from Christianity, as Christianity extricated itself from Christendom.”⁵¹

While we have focused mostly upon the subtle transformations of Christian self-understanding brought about by the emergence of the concept “religion,” there is sufficient evidence to suspect similar distortions in the other traditions. “Religion,” like “science,” has a history, and this history has a crucial bearing on claims made about its relationship with other human activities and forms of knowledge. There is no suggestion in this historical analysis that doctrinal commitments play no legitimate role in religious life or that religious beliefs should be regarded as “nongenerative.” It is rather that the concept “religion” leads to an elevation of the importance of propositional claims and that the subsequent comparison of “religions” or of “religion” and “science” similarly promotes the idea that these enterprises have essences that are to be identified solely with their cognitive content.

A comprehensive analysis of what has taken place in other traditions must necessarily be the subject of other studies, but brief comment can be made on some recent work on Buddhism and science. The case of Buddhism is particularly pertinent to the argument presented in this article because the Western construction of an ideal textual Buddhism in the Victorian period coincided with the invention of modern science.⁵² Not surprisingly, perhaps, a number of influential Western apologists for Buddhism were to present this newly “discovered” religion as especially compatible with Western science. In light of the controversies generated by evolutionary theory, it was claimed that Buddhism was more consonant with recent scientific developments than Christianity. Helena Blavatsky, leader of the Theosophical movement, boldly declared Buddhism to be more scientific and philosophically pure than any of the religious alternatives. The American advocate of a “scientific Buddhism,” Paul Carus, also highlighted the scientific credentials of Buddhism, claiming it to be “a religion which recognises no other rev-

⁵¹ Raimondo Panikkar, “The Jordan, the Tiber, and the Ganges,” in *The Myth of Christian Uniqueness*, ed. John Hick and Paul F. Knitter (London: SCM, 1988), 104, 105.

⁵² On the discovery, or construction, of modern Buddhism, see Almond, *British Discovery of Buddhism*, esp. 24–28. I am indebted in this paragraph both to Almond’s book and to David L. McMahan, “Modernity and the Early Discourse of Scientific Buddhism,” *Journal of the American Academy of Religion* 72 (2004): 897–933.

elation except the truth that can be proved by science.”⁵³ These claims were matched by some Asian Buddhists themselves, most notably by Anagarika Dharmapala, who aligned notions of evolution, laws of nature, and the principle of cause and effect with basic Buddhist teachings. There is a sense in which Dharmapala was invoking a kind of inverse orientalism or, to use James Ketelaar’s term, a “strategic occidentalism.” As David McMahan has suggested, each side—both Western appropriators and indigenous apologists—“constructed Buddhism in scientific rationalist terms in response to separate crises in their various cultural contexts.” In one case, this was the Victorian crisis of faith, in the other, a crisis engendered by colonialism.⁵⁴ However, even these attempts to promote a Buddhism that was uniquely consonant with modern science—and on that account enjoying advantages over Christianity—did so by imposing on Buddhism those deep structures of Protestant religion that had played so significant a role in the creation of the concept “religion.”⁵⁵ What is interesting about the case of Buddhism is that its reconstruction into a scientific form was one that was not merely imposed from without but appropriated as an apologetic strategy by some within. In this latter respect, there is a curious similarity between “scientific Buddhism” and “scientific Christianity,” both of which have become self-inflicted categories.

RELATING “SCIENCE” AND “RELIGION”

The history of the cultural construction of each category in the pairing “science and religion” is of profound importance for any present attempt to discern putative relationships between them. While, as we have seen, a few commentators have been attuned to the reified nature of one of the terms in the relation—“science”—most often it has been assumed that the other term in the relation is relatively unproblematic. We are now in a position to see that this is not the case. One possible response to the history of “religion” would be to focus attention on

⁵³ Paul Carus, *Buddhism and Its Christian Critics* (Chicago: Open Court, 1897), 114, quoted in McMahan, “Early Discourse of Scientific Buddhism,” 917. Also see Almond, *British Discovery of Buddhism*, 84–93.

⁵⁴ James Ketelaar, “‘Strategic Occidentalism’: Meiji Buddhists at the World’s Parliament of Religions,” *Buddhist Christian Studies* 11 (1991): 37–56; McMahan, “Early Discourse of Scientific Buddhism,” 908, 924ff.

⁵⁵ Stephen Prothero, *The White Buddhist: The Asian Odyssey of Henry Steel Olcott* (Bloomington: Indiana University Press, 1996), 7–9; McMahan, “Early Discourse of Scientific Buddhism,” 924ff. See also Don Lopez Jr., *A Modern Buddhist Bible: Essential Readings from East and West* (Boston: Beacon, 2002), intro.

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the relation of individual religious traditions to science (or more properly to individual sciences). This would address, to some extent, the misleading view that there is a generic something—"religion"—shared by all those traditions we label as "religions." To a degree this option is already in play, for the vast majority of works purporting to address the relationship between science and religion actually deal with science and Christian theology. Given the nature of the category "religion," this may seem to be a promising development. However, it may serve only to perpetuate the distortions of the more general category, for it is often assumed both that "the Christian religion" can be unproblematically identified with Christian theology and that a consideration of Christian theology and science will throw light on the broader question of science and religion.

For example, in an influential account of the relationship between science and theology, Arthur Peacocke has claimed that the relation of Christianity to science "has a special significance for all forms of religious experience and cultures."⁵⁶ In his justification of this claim, Peacocke alludes to the unique history of Christianity:

The second reason why the Christian religion merits special attention as a paradigm case of a religion operating in the new cultural climate associated with the rise of science is that the Christian religion has had to take up the gauntlet thrown down by what is loosely called the "Enlightenment." It, almost alone among the major world religions, has been subject within its own culture to critical, historical, linguistic and literary analysis of its sacred literature and its sources; has had its beliefs exposed to sceptical philosophical critique; its attitudes to psychological examination; and its structures to sociological enquiry.⁵⁷

It can be affirmed that "the Christian religion" is indeed a "paradigm case," such that an explication of its relationship to science is worthy of "special attention." Yet we are now in a position to see why and in what sense this is true. Christianity is the paradigmatic religion because the "other religions" were constructed in its image. Moreover, the subjection of Christian faith to the various forms of rational inquiry described by Peacocke does not represent the history of the Christian religion in its relationship with a critical culture. Rather, this process is actually the coming into existence of "the Christian religion" conceived as a body of propositional truths that can be subjected to the canons of rational inquiry. "The Christian religion" is thus constituted by these interactions, rather than being one of the correspondents in

⁵⁶ Arthur Peacocke, *Theology for a Scientific Age*, enlarged ed. (London: SCM, 1993), 3.

⁵⁷ *Ibid.*, 4ff.

a relationship. It was precisely the Enlightenment development of the supremacy of rational authority that produced the idea of religion and its archetype, “the Christian religion.”⁵⁸

The problem of the relation of Christianity to science is thus a problem generated to a large degree by the categories in question. In much the same way that the objectifying and logocentric tendencies of the Enlightenment produced the “other religions,” creating at the same time the vexed question of their relation to each other, so too “science and religion” is a relationship that has come about only because of a distorting fragmentation of sets of human activities. With the production of each category has come an unhelpful abstraction from reality. Historian Andrew Cunningham has argued the point with respect to science: “The customary focus of our attention as historians of science has not primarily been on people in the practice of this human activity ‘science,’ but on one or other abstraction of a different kind—abstracted, that is, from the human activity which constitutes it.”⁵⁹ Not only is this observation true for the category “religion” as well, but its consequences for the activities that it is supposed to represent are even more damaging than in the case of “science.” Unreflective use of “religion” thus serves to perpetuate an Enlightenment ideal of “the Christian religion” as an enterprise that is primarily intellectual and (while this consequence is less obvious) serves also to preserve a privileged position for Christianity among the world religions. Both tendencies are to a large extent unconscious and perhaps even undesired consequences of uncritical use of the categories.

Consider again Arthur Peacocke’s *Theology for a Scientific Age*.⁶⁰ Here

⁵⁸ Variations on this move are not uncommon in the science-and-religion literature. John Polkinghorne opens the discussion in *Belief in God in an Age of Science* (New Haven, CT: Yale University Press, 1998) by stating that different religious communities have different answers to the question of what it means to believe in God. Thus at the outset polytheistic and atheistic religions seem to be excluded. The chapter “Science and Religion Compared,” with its discussion of Christology, inexorably moves to a discussion of “science and [Christian] theology” (45–47). Philip Clayton states that the God-world relation “is a question shared by numerous religious traditions, each of which turns to a different set of scriptures for its answer,” again implying the paradigmatic nature of monotheistic “religions of the book”; Philip Clayton, *God and Contemporary Science* (Grand Rapids, MI: Eerdmans, 1997). Admittedly, elsewhere Clayton seems more sensitive to the difficulties generated by religious pluralism (see, e.g., x, 58, 66 n. 12, 155), but these difficulties are, in effect, put aside. Keith Ward is also attuned to the problem of religious pluralism, but his sympathetic treatment of “other religions” is not really integrated into his account of the relation of Christianity to science. See Keith Ward, *God, Faith, and the New Millennium: Christian Belief in an Age of Science* (Oxford: Oneworld, 1997), 10ff., 152–71.

⁵⁹ Cunningham, “Getting the Game Right,” 372.

⁶⁰ I return to Peacocke’s work not because I consider it to be especially vulnerable to criticism. On the contrary, I believe it to be one of the best examples of the genre. Nonetheless, it is the presuppositions of that genre that I wish to investigate.

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we find the early disclaimer that its conclusions are in no way “meant to imply that other non-Christian religions cannot be a path to that reality which is, as I shall argue, God.”⁶¹ Yet this statement sits oddly with a number of topics discussed in the book: “God’s Interaction with the World,” “God’s Communication with Humanity,” “The Long Search and Jesus of Nazareth,” “Divine Being and Becoming Human.” If contemporary science is shown to be compatible with the existence of a personal Deity who interacts with the world, who communicates with humankind, and who became Incarnate in the person of Christ, what are the implications for the truth claims of atheistic Buddhism, polytheistic Hinduism, and the strict monotheism of Judaism and Islam? Pace Peacocke, the closer the affinities established between science and Christian beliefs, the more one seems committed to Christian exclusivism—the position according to which the truth claims of Christianity are true, while those of other religions are false. Thus, one of the unforeseen implications of this common approach is that if science can validate certain religious convictions it will necessarily rule out others.

I am not assuming here that Christian exclusivism is necessarily wrong. It is not clear that there is any philosophical or moral impropriety in religious exclusivism, though some have mounted cases to this effect. However, it may be that the desire to seek rapprochement between Christianity and science will reduce the prospects of meaningful dialogue between Christianity and other faiths. The argument of a close fit between modern science and the Christian religion perpetuates the Enlightenment ideal of a rational Christianity as the religion best able to withstand the assaults of reason and natural philosophy. The appeal to reason, we should remind ourselves, was not primarily to defend Christian beliefs against the assaults of atheism or natural philosophy but to establish the truth of Christianity, or one of its confessional forms, against rival modes of religiosity. Arguably, these past victories for Christianity were achieved only at the cost of distorting both Christian faith and the religious lives of those who were unwillingly enrolled in the other “religions.”

The dilemma faced by those who would provide a rational and dispassionate account of science and Christian belief parallels almost exactly that faced by those who, during the Enlightenment, sought to compare “the religions” objectively, only to conclude, almost invariably, that Christianity was superior. As I have suggested, the categories in question are largely responsible for this situation, but these categories,

⁶¹ Peacocke, *Theology for a Scientific Age*, 3.

in turn, represent conflicting commitments—on the one hand, to the truth of a single tradition; on the other, to a set of rational, critical, procedures that will enable a disinterested comparison of the alternatives. Without the element of neutrality, the comparison is pointless. But is such neutral objectivity compatible with religious conviction? The Enlightenment argued that it was, a position that, as we have seen, resulted in the transformation of Christian faith into “the Christian religion”—a set of doctrines that could sustain rational criticism—and, in its train, the construction of “other religions,” similarly conceived, though less able than the original to withstand the assaults of reason.

The difficulty with such a view of religion is that it effectively sidelines those personal and affective commitments that might reasonably be argued to be important to faith communities. It reduces faith to theology; it turns piety into “a religion.” Even as these transformations were being effected, this marginalizing of piety and faith did not pass without protest. Witness the rise of evangelicalism in the early eighteenth century and even before this Blaise Pascal’s famous distinction between the God “of Abraham, Isaac, and Jacob” and “the God of the Philosophers”—one inhabiting the realm of faith, the other that of reason and “religion.”⁶² It is, I suspect, the God of the philosophers who figures in many discussions of the science-religion relation—the God who is necessary cause for the existence of the universe, who sustains the created order and its mathematical laws, who works, if necessary, within quantum uncertainties, in short the God in whom reason induces belief. This God is also the God of “religion” and thus of “science and religion”: whether he is compatible with the God of faith remains an open question.

Ultimately, normative responses to questions of this kind cannot be provided by the historian. It is quite conceivable that the kinds of conceptual transformations sketched out in this article might be welcomed by some of the faithful. A scientifically oriented Christianity may well be regarded as a positive development by those whose Christian commitments are not in serious doubt. Neither can it be ignored that some

⁶² Blaise Pascal, “The Memorial,” in his *Pensées* (Ringwood: Penguin, 1976), 309. Søren Kierkegaard alluded to a similar quandary faced by the advocate of an objective and rational religion: “The inquiring subject must be in one or the other of two situations. *Either* he is in faith convinced of the truth of Christianity, and in faith assured of his own relationship to it; in which case he cannot be infinitely interested in all the rest, since faith itself is the infinite interest in Christianity, and since every other interest may readily come to constitute a temptation. *Or* the inquirer is, on the other hand, not in an attitude of faith, but objectively in an attitude of contemplation, and hence not infinitely interested in the determination of the question.” Søren Kierkegaard, *Concluding Unscientific Postscript*, trans. David Swenson and Walter Lowrie (Princeton, NJ: Princeton University Press, 1968), 23.

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advocates of a “scientific Buddhism,” for example, have impeccable Buddhist credentials—after all, the Dalai Lama has enthusiastically embraced the scientific vindication of aspects of Buddhist practice. What historians can do, however, is provide data that those with religious commitments may find helpful in evaluating certain historical transitions and their impact. It is important, at the very least, to be aware that these transitions have taken place. The subsequent question of how well these developments—specifically the emergence of the modern ideas “science” and “religion”—cohere with the long history of the traditions should be a question of considerable importance for those who identify themselves with those traditions.

CONCLUSION: WHAT FUTURE FOR “SCIENCE AND RELIGION”?

In the light of all of these considerations, what can be said about the future prospects of science-religion discussions? In concluding, let me make some brief and tentative proposals. First, it must be conceded that abstractions of various kinds are a necessary condition for knowledge. So too with “science” and “religion.” While these categories, like many others, have a tendency to take on a life of their own and to overshadow the realities they are meant to represent, they nonetheless occupy so secure a position in the present-day lexicon that it would be futile to attempt to dispense with them completely. What should by now be evident, however, is that those who rely on these terms need to deploy them with a renewed sensitivity to their limitations and to the inherent distortions to which they inevitably give rise. Religious dogmas do not comprise the totality of the religious life; neither do scientific theories embody all that there is to the scientific enterprise. It should also be clear that once the constructed nature of the categories is taken into consideration, putative relationships between science and religion may turn out to be artifacts of the categories themselves. Whether science and religion are in conflict, or are independent entities, or are in dialogue, or are essentially integrated enterprises will be determined by exactly how one draws the boundaries within the broad limits given by the constructs.⁶³ Indeed, the fact that at this point in history each of these stances can attract adherents is suggestive of the artificial nature of the terms in the relation.

Second, and following directly from the first point, it is important

⁶³ I have relied here on Ian Barbour’s familiar typology for categorizing science-religion relations: conflict, independence, dialogue, and integration. Ian Barbour, *Religion and Science: Historical and Contemporary Issues* (San Francisco: HarperSanFrancisco, 1997), chap. 4.

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to pay attention to the political dimensions of the categories and their relations. As John Bowker has succinctly put it, the issue between science and religion is less to do with propositions than with power.⁶⁴ Viewed in this light, some well-meaning attempts to promote science-religion dialogue, or the integration of theology and science, may tacitly reinforce the cultural authority of the sciences, distort Christian and other faith traditions, and perpetuate the problematic features of the category “religion.” Sometimes what passes for interaction between religion and science turns out to be, in reality, a disguised appeal to the prestige of the sciences, with the attendant danger of a loss of what is distinctive about religious traditions. Symptomatic of this tendency is a recent rash of studies of Christian beliefs and practices that purport to show that forgiveness is good for one’s health, that church attendance increases longevity, or that petitionary prayer has been shown to be medically efficacious. Such studies are harmless enough at one level, but the common assumption, albeit unspoken, that this empirical research has significant religious implications arises out of a deep confusion. Promotion of such programs from religious motives is indicative of the extent to which agendas of material progress and physical health have come to displace traditional religious values. Buddhism has also suffered from occasional tendencies to surrender its epistemic autonomy to scientific experts. One of the growth areas of empirical studies of Buddhism has been studies of meditative states using magnetic resonance imaging (MRI) machines. The outcomes of such studies—which report, for example, high activation of the “pleasure centers” of the brains of meditating monks—are often presented as vindications of Buddhist teachings, as if religious practices and beliefs remain conditional until granted the imprimatur of empirical verification.⁶⁵

A related instance of an unseemly collusion between science and religion concerns the religious and moral sanctioning of biotechnological “advances.” Bioethics, whether in its theological or secular guise, has thus frequently (though not invariably) been a source of legitimation for contemporary medicine, contributing to the perpetuation of questionable models of scientific medicine and to the medi-

⁶⁴ John Bowker, “Science and Religion: Contest or Confirmation?” in *Science Meets Faith*, ed. Fraser Watts (London: SPCK, 1998).

⁶⁵ See, e.g., Richard Davidson and Anne Harrington, eds., *Visions of Compassion: Western Scientists and Tibetan Buddhists Examine Human Nature* (Oxford: Oxford University Press, 2001); Cary Barbour, “The Science of Meditation,” *Psychology Today* 34 (May (2001): 54–60; Daniel Goleman, “Taming Destructive Emotions,” *Tricycle: The Buddhist Review* 47 (2003): 75–78; McMahan, “Early Discourse of Scientific Buddhism,” 927ff.

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calization of Western society in the name of scientific progress.⁶⁶ The lesson in this is the need for a critical distance to be maintained between theology and science. This is not an advocacy of the kind of independence model that sets out discrete spheres in which theology and science can operate without fear of mutual interference. Far less is it a criticism of those many individuals who seek to provide moral and religious signposts in an arena in which such guidance is arguably more necessary than ever before. The suggestion is rather that it will be impossible for theology to exercise a critical or, in religious terms, “prophetic” role in a society unless it maintains an appropriate distance from dominant cultural forces. This is an independence of theology from science that leaves room for legitimate conflict.

Third, it should be clear that discussions of the relation of science and religion cannot be considered in isolation from the issue of religious pluralism. The common nineteenth-century assumption that all of the “religions” share some common essence or represent various manifestations of some central truths has become increasingly difficult to sustain in our own era. Science-religion dialogue cannot be conducted on the assumption that the religion pole of the discussion is a kind of generic natural religion that is essentially neutral with regard to the more specific contents of various faiths. Assertions made about the compatibility of scientific claims with the religious dogmas of one tradition are bound to have implications for the truth claims of other traditions. Those committed to discussions of the relationship between science and religion cannot ignore this dimension. It is tempting to think that the solution to this dilemma lies in exploring the relations of each tradition to the sciences. However, the historical considerations set out in this article suggest that “science and religion” is primarily a Western problem, for it is here that the respective categories emerged and are most potent. Science-religion issues impinge, for example, on “the Eastern religions” only to the extent that those in the East consider themselves to be subscribing to “a religion.” There is something to be learned from the relative indifference of those in other faith traditions to the issue of science and religion—and I refer here to those who have remained immune to the Western concept “religion” and the cultural authority of science. It might be better simply to emulate this indifference than to export a set of problems that are to a large degree creatures of the categories of Western knowledge. As for the growing profile of science-related issues in traditions such as Islam

⁶⁶ Stanley Hauerwas, “Styles of Religious Reflection in Medical Ethics,” in *Religion and Medical Ethics: Looking Back, Looking Forward*, ed. Allen Verhey (Grand Rapids, MI: Eerdmans, 1996).

and Buddhism, these would make interesting test cases for the thesis outlined in this article.

Fourth, the personal dimensions of both scientific and religious activities ought to be taken more seriously. There is a sense in which we need to read abstract discussions of theology and science more as personal statements than as assertions about the relationship between two independent systems of thought. Theoretical accounts of science and theology are perhaps best understood as autobiographical statements about how individuals who take religious beliefs seriously have personally come to terms with a powerful and dominating view of the natural world that they find themselves unable to ignore. To a degree, such a reading is merely an extension into the contemporary debate of the historical “case study” approach, and, on the assumption that this is a fruitful avenue for coming to an understanding of the past, there is no reason why it should not also be so for the present. This suggested reframing is not intended as a devaluing or denigration of works purporting to address substantive issues. After all, there is in the West a long tradition of religious biography and autobiography, though admittedly this practice suffered a setback with the Enlightenment invention of propositional “religion.” Perhaps we need also to think of “scientific” critics of religion in a similar, autobiographical, light. Historian Owen Chadwick, referring to the putative conflict between science and religion in the Victorian era, distinguished “between science when it was against religion and the scientists when they were against religion.”⁶⁷ Such a characterization is no less appropriate now. There are still those in the early twenty-first century who, with an endearing quaintness, carry a torch for the “warfare model” of the relationship between science and religion. There is strong sense in which such convictions betray more about what such individuals personally conceive “religion” and “science” to be than they do about two supposedly conflicting approaches to the world. The power of their rhetoric, moreover, is often less to do with the coherence of their views than with their cultural authority as scientists.

Finally, and in a sense related to all of the previous points, historical analysis has a central role to play in contemporary science-religion discussions. It is history that gives insights into the power dimensions of human activities, whether they concern religious faith or the study of the natural world, and it is through historical studies that the human element that is fundamental to both scientific and religious activities can become more visible. John Brooke, among others, has already

⁶⁷ Owen Chadwick, *The Victorian Church* (Oxford: Oxford University Press, 1970), 2:3.

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called for more case studies in the history of science, the better to capture the nuances and complexities of the variety of relations, and this seems entirely appropriate.⁶⁸ While historical considerations are often thought marginal to arguments about the contemporary status of the science-religion relation, historians can make significant contributions to the ongoing discussion by drawing attention to the historical conditions that gave rise to the categories presently in play. It is history, moreover, that shows the settings in which human actors are at work and that can provide unique insights into the ways in which various aspects of their lives—including the “scientific” and “religious”—are related.

⁶⁸ John Brooke, “Religious Belief and the Natural Sciences: Mapping the Historical Landscape,” in van der Meer, *Facets of Faith and Science*, vol. 1; Durbin, “What Shall We Make of Henry Margenau?”; Geoffrey Cantor, *Michael Faraday* (London: Macmillan, 1991); John Brooke and Geoffrey Cantor, *Reconstructing Nature: The Engagement of Science and Religion* (Edinburgh: T&T Clark, 1998), 247–81. Compare Michael Shortland and Richard Yeo, eds., *Telling Lives in Science: Essays on Scientific Biography* (Cambridge: Cambridge University Press, 1996).