Disentangling the Histories of Science and Religion

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Abstract: In this review essay, I examine in detail Nick Spencer's recent book, *Magisteria: The Entangled Histories of Science and Religion* (2023). While there is much to commend in Spencer's narrative, there are some glaring omissions. These omissions can lead the reader to assess the "entangled" relationship between science and religion incorrectly, despite Spencer's promotion of a complexity thesis. This essay endeavours to disentangle the "entangled histories of science and religion." It also seeks to correct the still-common view that the "conflict" between "science and religion" first emerged during the nineteenth century. It did not. In fact, the conflict between science and religion has a long history of contending theological traditions. In short, to understand the entangled histories of science and religion one must be aware of the complex history of theological thought.

Keywords: conflict thesis; history of Christianity; nineteenth-century theology; science and religion; John W. Draper; Andrew D. White.

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> *It is dangerous to show man too clearly how much he resembles the beast, without at the same time showing him his greatness. But it is also dangerous to show him too clear a vision of his greatness without his baseness. It is even more dangerous to leave him in ignorance of both.*

So begins Nicholas Spencer's imposing study on the "entangled histories of science and religion."[1] The quote is taken from French mathematician and philosopher Blaise Pascal (1623–1662), who, after his "memorial" religious experience in 1654, abandoned the god "of the philosophers and the scholars" for the God of Abraham, Isaac, and Jacob. Pascal sought to humble "impotent reason" and argued in his notable *Pensées* that although the human being is steeped in sin, it remains a fallen king. Humanity, according to Pascal, is thus a living oxymoron—both wretched and great.

Pascal's anthropological dualism is evident throughout Spencer's narrative. Spencer has joined a large chorus of recent work seeking to debunk the commonly held belief that "science and religion" are inherently at odds with one another. This idea, often referred to as the "conflict thesis," maintains that science and religion have always been and will always be in conflict. This is a history of war. So, in that sense, the conflict thesis is a historical argument—an argument allegedly drawn from history. Indeed, proponents of the conflict thesis argue that throughout history, religion (particularly, the Christian religion) has opposed scientific progress. They believe that Christianity was responsible for the demise of ancient Greek science, that the medieval period was an age of intellectual darkness, that Galileo was imprisoned and tortured for advancing Copernicanism, that Christian theologians opposed Charles Darwin's theory of evolution, and so on. The list seems endless.

But, according to Spencer, this conflict is a "myth."[2] The truth is much more complex, he says, if not convoluted. In a book that spans

1 Nicholas Spencer, *Magisteria: The Entangled Histories of Science and Religion* (London: Oneworld Publications, 2023).

2 Spencer, *Magisteria*, 2.

over 400 pages, he debunks myths and prejudices that have been adopted by many. In the beginning of the book, Spencer aptly outlines how historians have been rejecting such simplistic views since the 1920s. This scholarship—which includes such luminaries as Alfred North Whitehead, Pierre Duhem, and Alexandre Koyré, and more recently John Hedley Brooke, Alister McGrath, Sam Berry, Denis Alexander, and the late Tom McLeish—has "undermined many of the myths that have long disguised themselves as history in the field," he writes.[3] In reality, religion, and particularly the Christian religion, for much of its history, has actively supported, legitimised, preserved, encouraged, and developed scientific ideas and activities.[4] It is important to have a nuanced understanding of these issues, and Spencer's book is an excellent starting point for anyone interested in exploring them further.

But while he admits that "the relationship of science and religion has not only not been one of relentless conflict but has also been characterised by profitable collaboration," Spencer also contends that it has not been "a picture of unspoiled harmony." And this is where the truth of Pascal's epigraph becomes most evident. While there has been concord between the two, there has also been plenty of discord and disagreement. Spencer's aim is not simply to defend the Christian faith, but to provide a comprehensive account of the intertwined, deeply entangled relationship between science and religion—which often reflects our conflicted, Pascalian predicament. Especially important in this context is the issue of "authority," of who has the right to make pronouncements about the nature of reality and what it means to be human. Thus, Spencer's book is not merely about science and religion but about the complex (and conflicting) history of humanity itself—a history that Pascal would surely have appreciated.

Before he begins his narrative, Spencer explains the meaning behind his title. It pays homage to famous palaeontologist Stephen Jay Gould's "Non-Overlapping Magisteria," a concept which suggests that science and religion should be seen as separate domains, with science

3 Spencer, *Magisteria*, 4.
4 Spencer, *Magisteria*, 5.

dealing with empirical facts, and religion tackling moral and spiritual issues.[5] While this idea may seem appealing, Spencer points out that, in reality, humans do not always adhere to theoretical boundaries, making it difficult to implement.[6] Despite its good intentions, Gould's scheme is not entirely feasible, and thus may not be enough to prevent a conflict between science and religion. Indeed, according to Spencer, science and religion have *always* been intertwined, overlapping and influencing each other in various ways.

At its most elementary level, then, positions of either "conflict" or "concord" between science and religion are undermined by an abundance of historical evidence that precludes a complete description of how the two have interacted. The historical record, in short, reveals that the relationship between science and Christianity has always been incredibly complicated.

Early Christianity to Medieval Judaism

Spencer's account begins, naturally, at the beginning of Christianity, or at least thereabouts, with the tragic tale of the young pagan philosopher and mathematician Hypatia of Alexandria (ca. 350–370), who was brutally murdered by Christian zealots. Rather than simply debunking the myth, which was done long ago, Spencer uses the story to introduce the changing meaning of "science" and "religion." During the time of Hypatia, for instance, the "study of nature and the cosmos were entangled with the wider objects of philosophy, such as identifying the true way to life and worship," he writes.[7] Thus, science, including the science that Hypatia practised, was neither disinterested nor naturalistic. Indeed, the purpose of natural philosophy was to inform human life, ethics, religion, and politics. Spencer here is following Peter Harrison,

5 See Stephen Jay Gould, *Rocks of Ages: Science and Religion in the Fullness of Life* (New York: Ballantine Books, 1999).
6 Spencer, *Magisteria*, 11.
7 Spencer, *Magisteria*, 18.

who argues that before the seventeenth century, both *religio* and *scientia* were considered virtues rather than a set of propositional beliefs.[8]

Both Spencer and Harrison have also been influenced by the work of Pierre Hadot.[9] Hadot maintained that ancient philosophy was an art of living and a spiritual exercise, rather than what it has become in modern philosophy departments. This "entanglement" is counterintuitive to many of us, who are often trained to read philosophy as a construction of technical jargon reserved for specialists. Spencer agrees with Harrison's use of Hadot, stating that in the classical world, religion focused more on piety and correct forms of life and worship, rather than doctrine or belief.[10] While this is generally correct, it should be noted that a propositional approach to faith is not new. Read parts of the Westminster Confession or, for that matter, the Nicene Creed. Indeed, there are propositional statements throughout the biblical text. God seems to reveal himself to humanity in a number of truth statements. At the same time, it is true that equating Christian faith with *logical* propositions is something that appeared much later and reflects a climate of thought that first emerged during the late seventeenth century. More on that later.

Spencer proceeds to give a standard account of how some of the early church fathers held an ambiguous attitude toward pagan philosophy, including "natural philosophy"—what we would now call "science." Many refer to Tertullian's (160–220) famous rhetorical questions, "What indeed has Athens to do with Jerusalem? What concord is there between the Academy and the Church?"[11] Tertullian, however, was not a radical anti-intellectual. His writings reveal that he was superbly educated in the Graeco-Roman classical tradition, and that his argument

8 Peter Harrison, *The Territories of Science and Religion* (Chicago: University of Chicago Press, 2015).

9 Pierre Hadot, *Philosophy as a Way of Life: Spiritual Exercises from Socrates to Foucault* (London: Wiley, 1995); *What is Ancient Philosophy?* (Cambridge, MA: Belknap Press, 2004).

10 Spencer, *Magisteria*, 20.

11 See Tertullian, "The Prescription Against Heretics," in *The Ante-Nicene Fathers*, vol. 3, ed. Alexander Roberts and James Donaldson (Peabody, MA: Hendrickson, 1996).

against pagan philosophers was actually built out of the materials and the methods drawn from that same tradition. Patristic scholars have long pointed out that the early church fathers did not renounce all contact with Graeco-Roman ideas. Different though Christians were from pagans in religious belief, there was a large and important area of political and philosophical knowledge that they held in common.[12]

Looking closely at the attitudes within the early church, it becomes clear that there was a range of reactions to pagan philosophy. Most of the church fathers were, after all, adult converts who had received their education in pagan schools. As they worked to elaborate on and defend Christian doctrine, it was expected that they would utilise the tools of the classical tradition and its philosophical content. Although Tertullian himself was not particularly fond of pagan philosophy, including natural philosophy, authors such as Justin Martyr (100–165), Clement of Alexandria (155–220), and Origen of Alexandria (185–251) adopted an eclectic mix of classical philosophies, including Platonism, Neoplatonism, and Stoicism.

This ambiguity leads Spencer to reject notions of "concordism," a position which seeks harmony between science and religion. Since *scientia* or "science" has never been a fixed and unchanging category, building religious structures on knowledge of nature is a precarious situation indeed. Before showing just how precarious such endeavours can be, Spencer reports that the same ambiguity existed among Islamic and Jewish scholars. "From the ninth century onwards," Spencer writes, "Islamic territories … boasted scientific thought and achievements that matched anything in the classical world."[13] Particularly important was the Abbasid caliphate in Baghdad. As with the church

12 On revising our understanding of Tertullian, see, e.g., Justo L. González, "Athens and Jerusalem Revisited: Reason and Authority in Tertullian," *Church History* 43:1 (1974): 17–25; Eric Osborn, *Tertullian: First Theologian of the West* (Cambridge University Press, 2002). See also more general studies by A. H. Armstrong and R. A. Markus, *Christian Faith and Greek Philosophy* (London: Darton, Longman & Todd, 1960) and Jaroslav Pelikan, *Christianity and Classical Culture: The Metamorphosis of Natural Theology in the Christian Encounter with Hellenism* (New Haven: Yale University Press, 1995).

13 Spencer, *Magisteria*, 33.

fathers, however, there were some in the Islamic world that resisted classical philosophical speculations. The Umayyad caliphate, based in Damascus, for instance, was indifferent to classical learning. But when the Umayyad were overthrown during the Abbasid revolution, Islam changed culturally and adopted the Persian sciences. Known as the "Golden Age of Islam," Abbasid scholars translated numerous Greek texts, adopting and adapting many of its ideas into Islamic theology.

But, again, the story is complicated. During the caliphate of Abu al-Abbas Abdallah ibn Harun al-Rashid (786–833), mostly known as al-Ma'mun, the caliph ordered the construction of the first astronomical observatory in Baghdad. He was a keen supporter of Mu'tazila, a rationalist tradition of theology that championed reasoned inquiry. The Mu'tazila, however, were often violently opposed to more conservative religious scholars. Unsurprisingly, there was a conservative backlash to this persecution. Later, al-Mutawakkil (822–861) discarded the Mu'tazila and the rationalistic approach to theology. Thus the ambiguous character of Islam and science aptly reflects Spencer's guiding question—"where did intellectual authority reside?"[14] While al-Ghazali (1058–1111) proclaimed the *Incoherence of the Philosophers* during the early medieval period, Ibn Rushd, or Averroes (1126–1198), condemned the *Incoherence* as "incoherent." What is more, a host of cultural, economic, and social factors played a role in why there was no "Islamic scientific revolution," including forces outside of Arabic-speaking lands. Unfortunately, Spencer does not give more specific examples other than following Toby Huff's argument, that unlike medieval Europe the Islamic world failed to secure an *institutional* setting for the practice of science, the result leading ultimately to the decline of the sciences in Arabic-speaking countries.[15]

14 Spencer, *Magisteria*, 42.

15 Toby Huff, *The Rise of Early Modern Science: Islam, China, and the West* (Cambridge University Press, 2003). While Huff's work is excellent, one should also read, in conjunction, the studies by David C. Lindberg, *The Beginnings of Western Science* (University of Chicago Press, 1992), Edward Grant, *The Foundations of Modern Science in the Middle Ages* (Cambridge University Press, 1996), Marcia L. Colish, *Medieval Foundations of the Western Intellectual Tradition, 400–1400* (New Haven: Yale University Press, 1997), and Muzaffar Iqbal, *Science*

If his chapter on Islam and science feels somewhat incomplete, Spencer's examination of Judaism and science feels more so. This observation is not so much a criticism as a need to pursue other work more focused on this line of enquiry. For his part, Spencer does note that many of the church fathers followed Philo of Alexandria (20 BC–AD 50) and his belief that the classical philosophy can serve as a "handmaiden" to theology. Spencer also helpfully points out that after the first century, Jews have mostly lived as the "other," whether under Christendom or Islamic rule. Thus, in order to understand Judaism and its relationship with the sciences, one must examine the "plural context" of its history. Here, as in the early Christian church and medieval Islam, ambiguity reigns. The rise of Karaite Judaism during the seventh and ninth centuries, for example, rejected the discursive and circuitous approach of the rabbis in reading Scripture and Talmudic studies.[16] Indeed, according to Spencer, the "inherently dialogical and disputative nature of the Talmud" resulted in an even more complex, ambiguous, and argumentative relationship with the sciences. During the medieval period, Maimonides (1138–1204) "sought to bring theology into harmonious dialogue with Greek philosophy and science."[17] Where there was conflict, he offered a "doctrine of accommodation," which later Christian natural philosophers would also follow.

Christendom, University Culture, and the Sciences

Having only hinted at the complex relationship between Islam, Judaism, and science, Spencer returns to what he is most familiar with: Christendom and the sciences. The classical antiquity had bestowed on Christianity a vast heritage of philosophical speculation, much of which was absorbed in the metaphysical framework underlying early and medieval Christian thinking. While popular historical accounts tend to portray medieval Christians as philistine, suspicious of learn-

and Islam (Westport, CT: Greenwood Press, 2007).

16 Spencer, *Magisteria*, 53.

17 Spencer, *Magisteria*, 58.

ing, the truth is that the classical tradition of philosophy, art, literature, and the natural sciences was kept alive largely by Christians in monastic communities.[18] There were numerous writers of great influence from late antiquity and the early medieval period who bridged classical and Christian worldviews. Philo's "handmaiden" formula continued to sanction the pursuit of studying nature, but some writers began going beyond its original religious or theological intent.

As monasticism matured in the following centuries, its store of scientific knowledge increased. Western monasteries would engender cathedral schools, and these schools eventually grew to become the great universities of Bologna, Paris, Oxford, and Cambridge in the thirteenth century. The university quickly became the centre of intellectual and literary life, offering advanced religious, professional, and scientific education. As a repository of learning and philosophical speculation, several features of these new universities are important for understanding the development of the sciences. First, as we have already mentioned, the universities of the late medieval period were instrumental in the recovery and translation of Latin, Greek, and Arabic classics. These newly recovered and translated texts took their place alongside sacred writings and the works of the church fathers.

The second feature of the new universities was a remarkable rationalistic turn, in the sense that students were required to apply their minds and energies to a number of discursive subjects, from law, philosophy, and theology to the study of nature. This method of learning came to be called "scholasticism," where students and their masters employed dialectical reasoning, approaching any fields of study in terms of sets of propositions, problems, arguments, and counterarguments. Scholasticism can be seen as an attempt to reconcile the philosophy of Greek and Arabic thinkers with medieval Christian theology. It is not a philosophy or theology in itself, but an instrument and method for learning, which emphasised rationality. The primary purpose of scholasticism was to find the answer to a question or resolve a contradiction.

18 See, e.g., the accessible treatment of James Hannam, *God's Philosophers: How the Medieval World Laid the Foundations of Modern Science* (London: Icon Books, 2009).

But perhaps the most important feature of the new university was its corporate structure. The separation of church and state is not merely an American phenomenon; its roots actually appear in the structure of the medieval university of Western Europe. Corporate structure in turn gave the masters of the universities great autonomy in structuring curriculum and lessons for their students. The revolutionary transformation and development of legal systems that took place in the eleventh, twelfth, and thirteenth centuries in Western Europe provided new levels of autonomy and jurisdiction to the masters of the universities.

In short, the medieval university scholar is best characterised as an "organiser, a codifier, a builder of systems," as C. S. Lewis aptly put it.[19] Distinction, definition, and tabulation was the delight of medieval scholars. Highly sophisticated and complex philosophical speculations were framed within rigid dialectical patterns copied from Aristotle's rhetoric. The philosophers and the theologians at those, mainly autonomous, universities freely debated a wide range of scientific and theological questions. The task was to master a body of knowledge, astonishing in breadth and depth, to assess its compatibility with a systematic Christian theology, and to appropriate it for religious purposes. From these medieval universities emerged brilliant theologians and philosophers like Peter Abelard (1079–1142), William of Conches (1090–1155), Peter Lombard (1096–1160), Robert Grosseteste (1168–1253), Albertus Magnus (1200–1280), Roger Bacon (1214–1292), Thomas Aquinas (1225–1274), and many others. These great medieval Christian thinkers, Spencer observes, formulated "a formidable set of theological justifications and tools for the systematic study of nature and the cosmos."[20]

But herein lies a danger as well. Among these thinkers we begin to see attempts at moving beyond the patristic "handmaiden" model. Roger Bacon, for instance, a Franciscan monk who is often considered the "first true scientist" of the Middle Ages, argued that the theologians of his day *must* use the new learning in order to understand Christian-

19 C. S. Lewis, *The Discarded Image: An Introduction to Medieval and Renaissance Literature* (Cambridge University Press, 1964), 11.

20 Spencer, *Magisteria*, 68.

ity itself. Bacon believed there were certain obstacles, or errors, that prevented theologians of his day from attaining total truth. Tellingly, the first of these was "submission to faulty and unworthy authority." In order to expose and refute errors, Bacon relied not only on Scripture and the church fathers, but also Greek, Roman, and Arabic philosophers. In short, Bacon's entire explanation of the causes of error boils down to his evident interest in the new learning and his fear that orthodox opinion would inhibit freedom of thought. Bacon thus pushed for a new understanding of the "handmaiden" tradition, one that went beyond being merely sympathetic to pagan philosophy, as the patristic authors had done.[21]

Some of these details are missing from Spencer's account. Nevertheless, he notes that this more rationalistic (or "naturalistic") attempt to describe nature led to the questioning of miracles. It also led to the questioning of Scripture—or, at least, how it should be interpreted. Some of these medieval thinkers concluded that Scripture could not adequately explain nature. Indeed, "it was fundamentally uninterested in the mechanism of nature," as Spencer explains. This was, in short, incipient "methodological naturalism," the belief that nature proceeded along secondary or natural causal lines and should be studied accordingly.[22]

Translation of Aristotle's works played a significant role in these changes. Thomas Aquinas, the famed Dominican friar who taught theology at Paris, was particularly influenced by the Greek philosophy of Aristotle. His best-known work, the *Summa Theologiae*, reflects a careful and considerable compromise between Aristotelian philosophy and Christian theology. According to Thomas, God is the "primary

21 See Brian Clegg, *The First Scientist: A Life of Roger Bacon* (London: Constable & Robinson Ltd., 2003).

22 The historical relationship between the rise of biblical criticism and the science–religion debate has yet to be told in great detail, but a good starting point is Klaus Scholder's *The Birth of Modern Critical Theology: Origins and Problems of Biblical Criticism in the Seventeenth Century* (London: SCM Press, 1990). See also my forthcoming article, "Interpreting God's 'Two Books': Isaac Newton's Hermeneutics of Nature, Scripture, and History," to appear in *Theology & Science*.

cause" of everything. While creation depends on divine activity, and is thus "secondary" in this sense, God empowered creation to act on its own accord. Thomas argued that God gives created things active and passive causal powers of their own—that is, creation has the capacity to affect other things and to be affected by them. God may be the primary cause who directly sustains the existence of everything, but he chooses to act indirectly through the operation of the created order. God therefore can only act by means of the order of nature to produce effects in the world.[23]

This distinction between primary and secondary causes led Thomas to make important distinctions between philosophy and theology as well. Fully acquainted with the science and philosophy of his day, Thomas argued that empirical science studies the nature and activity of secondary causes, whereas metaphysics and theology study divine action and the spiritual dimension of the human being. "Revealed" theology, Thomas argued, is based on divine revelation, whereas "natural" theology is based on what could be discovered, understood, and demonstrated by human reason alone. Thomas' various distinctions, however, particularly his separation of theology from natural philosophy, faith from reason, could lead to the belief, as we shall see, that science and religion are ultimately incompatible. Thus, while he was careful to note that "all truth was God's truth," Thomas' approach opened the way to viewing science and religion as two separate truths.[24]

In sum, for the first time in history a culture supported universities, permanent institutions dedicated to the intellectual life that equipped hundreds of thousands of students epistemologically, methodologically, and mathematically to investigate the nature of the cosmos. Most of the universities had the support of patrons, and by far the greatest patron of the medieval university was the church. As histori-

23 See *St Thomas Aquinas: Summa Theologiae: A Concise Translation*, ed. Timothy McDermott (Notre Dame, IN: Ave Maria Press, 1989).

24 On the philosophical and theological work of Aquinas, see Rudi Te Velde, *Aquinas on God: The 'Divine Science' of the* Summa Theologiae (Burlington, VT: Ashgate, 2006). See also Brian Davis (ed.), *The Oxford Handbook on Aquinas* (Oxford University Press, 2012).

an John Heilbron observes, "the Roman Catholic Church gave more financial and social support to the study of astronomy for over six centuries, from the recovery of ancient learning during the late Middle Ages into the Enlightenment, than any other, and, probably, all other, institutions."[25] To be sure, while some theologians worried about the theological dangers of higher education, they were nevertheless aware of its practical and scientific benefits, to the point of protecting and supporting these institutions.

The Dawn of Scientific Naturalism

At the same time, conceding such autonomy to natural revelation had the unintended consequence of enabling it to compete with and even supersede special revelation as a basis for authority. Scientists will begin to see naturalism in contrast to supernaturalism. Belief in the supernatural or divine providence will be seen as actually diminishing or opposing the integrity of the natural. The implication is that revelation is no longer necessary. The recognition of a revelation—coming from above and educating humanity in discerning ways which are higher than our ways, and thoughts which are higher than our thoughts—will come to be seen by many in the proceeding generation as entirely superfluous, even gratuitous.

Such dangers were recognised by Bonaventure (1221–1274), for instance, who was considerably influenced by the patristic approach to natural philosophy. He strongly opposed the teaching of Aristotle's works, fearing that it would indeed lead to the idea of an autonomous nature that exists independently of God and is ruled by necessary relations that would impede the action of divine will. According to Spencer, this opposition reached a climax in 1277, when the bishop of Paris condemned 219 propositions, many of which seemed to restrict God's power and freedom.[26] Nevertheless, the works of Aristotle and his Ar-

25 John L. Heilbron, *The Sun in the Church: Cathedrals as Solar Observatories* (Cambridge, MA: Harvard University Press, 1999), 3.

26 Spencer, *Magisteria*, 79.

abic commentators remained "part of the university curriculum in the fourteenth century and beyond."[27] At the same time, following the pioneering work of French theoretical physicist and historian Pierre Duhem, Spencer notes that the Condemnation of 1277 actually liberated medieval science from Aristotle's fixed categories of explanation, opening the way to more observational or experimental sciences.

This more observational approach to nature is often associated with the seventeenth-century scientific revolution. But in a few short lines, Spencer questions that whole narrative. He notes, for instance, that Nicolaus Copernicus (1473–1543) neither formulated a scientific method nor used experiment in his promotion of a heliocentric model of the solar system.[28] In fact, according to Spencer, Copernicus continued to see the study of nature through medieval lenses, seeing natural philosophy as an aid to the virtuous life. Moreover, Copernicus did not single-handedly call into question the Ptolemaic geocentric system. Indeed, Islamic astronomers had rejected Ptolemy since the eleventh century, and Copernicus showed his debt to these studies by citing at least five Islamic scholars in his *On the Revolutions of the Celestial Spheres*. However, despite evidence to the contrary, from such scholars as Kenneth Howell[29] and the late Owen Gingerich,[30] Spencer seems to think that by publishing his work, Copernicus risked humiliation, if not his life.[31] I could not make out if Spencer is being merely facetious in claiming this or if he actually believes this was the case. If the latter, then Spencer's commentary reveals that he, too, has fallen prey to some version of the "conflict" narrative.

In any event, Spencer is on more solid ground in discussing the hermeneutical contributions of Copernicus, Kepler, and Galileo. He correctly notes that these natural philosophers all proffered an "ac-

27 Spencer, *Magisteria*, 81.
28 Spencer, *Magisteria*, 85.
29 Kenneth J. Howell, *God's Two Books: Copernican Cosmology and Biblical Interpretation in Early Modern Science* (University of Notre Dame Press, 2002).
30 Owen Gingerich, *The Eye of Heaven: Ptolemy, Copernicus, Kepler* (New York: The American Institute of Physics, 1993) and *The Book Nobody Read: Chasing the Revolutions of Nicolaus Copernicus* (New York: Walker & Co., 2004).
31 Spencer, *Magisteria*, 89.

commodationist" interpretation of the Bible. On a chapter devoted entirely to Galileo (1564–1642), often considered a paradigmatic example of the "conflict thesis," Spencer not only debunks the notion that Galileo was a "prisoner of the Inquisition," but that he offered a radically new way of reading Scripture (115).[32]

Now, the seventeenth century comes at the end of what scholars have divided as three successive events—the Renaissance, the Reformation, and the Scientific Revolution. These divisions have been appropriately challenged by many historians, including Spencer, but they may still serve as useful signposts. As it relates to the relationship between science and Christianity, Renaissance thinkers pursued an even deeper and more comprehensive engagement with classical learning than what we witness in the twelfth through the fourteenth centuries. During the Renaissance we see the revival of a number of different strands of ancient thought about nature, including some of the more esoteric elements such as magic, astrology, alchemy, and the Neoplatonic writings.[33]

Renaissance thought does not play a large role in Spencer's narrative, which is unfortunate. It also might explain some of the shortcomings to his story, which I will explain in more detail in a moment. For now, it is enough to note that the Renaissance revival of ancient thought often came into conflict with historical Christian belief. In this period, for example, we see the revival of ancient Greek atomism. The rediscovery of Democritus (ca. 460–370 BC), Epicurus (ca. 341–270 BC), and especially Lucretius (ca. 99–55 BC) gave rise to a crisis of atheism among some Christian theologians. Greek atomism provided reasons and arguments for materialism and a naturalised world. Strictly speaking, these ancient writers did not deny the existence of the gods. Rather, they simply maintained that the gods care nothing for us and do

32 Spencer, *Magisteria*, 115.

33 See the classic study by Frances A. Yates, "The Hermetic Tradition in Renaissance Science," in *Art, Science, and History in the Renaissance*, ed. Charles S. Singleton (Baltimore: Johns Hopkins Press, 1968), 255–274.

nothing for us, and therefore we ought to be content with the simple pleasures of nature.[34]

This sort of revived "mechanical" philosophy, as it came to be called, insisted that there is nothing eternal but matter and void, that the universe is not divinely created but the product of the impact and concurrence of atoms, guided by nothing else but chance and necessity.[35] Early modern Christians attempted to accommodate the revival of Epicurean naturalism with Christian faith. From this attempt came the idea that the regularities observed in the natural world were thought of as "laws" imposed by God.[36] Laws of nature, in short, were understood to amount to divine commands bestowed by a Lawgiver. Nevertheless, such attempts at reconciliation only served to heighten tensions. The problem of atheism will loom large in later treatises on natural philosophy and theology, particularly among the so-called "English virtuosi" of the seventeenth and eighteenth centuries—which Spencer does cover in later chapters, but not with the kind of nuance necessary to understand what was really happening.[37]

Another important feature of Renaissance thought, and not entirely removed from the revival of Epicureanism, was its more positive outlook on humanity itself—what came to be called "humanism." To be

34 See the classic study by Paul Oskar Kristeller, *Renaissance Thought: The Classic, Scholastic, and Humanistic Strains* (New York: Harper, 1955). For an accessible and entertaining account of the recovery of these ancient Greek writers, see also Stephen Greenblatt, *The Swerve: How the World Become Modern* (New York: W. W. Norton & Co., 2012).

35 See the still useful surveys in E. J. Dijksterhuis, *The Mechanization of the World Picture*, trans. C. Dikshoorn (New York: Oxford University Press, 1961) and Richard S. Westfall, *The Construction of Modern Science: Mechanisms and Mechanics* (Cambridge University Press, 1977), esp. 25–42.

36 See Edgard Zilsel, "The Genesis of the Concept of Physical Law," *The Philosophical Review* 51:3 (1942): 245–279; Francis Oakley, "Christian Theology and the Newtonian Science: The Rise of the Concept of the Laws of Nature," *Church History* 30:4 (1961): 433–457; Alan G. Padgett, "The Roots of the Western Concept of the 'Laws of Nature': From the Greeks to Newton," *Perspectives on Science and Christian Faith* 55:4 (2003): 212–221.

37 A short summary of these developments can be found in William B. Ashworth Jr., "Christianity and the Mechanistic Universe," in *When Science & Christianity Meet*, ed. David C. Lindberg and Ronald L. Numbers (University of Chicago Press, 2003), 61–84.

sure, modern "secular humanism," as encountered in polemics in the press and in daily life by adherence to a secular ethical code centred on human nature and possibilities, places the human being front and centre, free of religious frameworks. Renaissance humanism, however, was a different phenomenon. It was grounded in the study of the Greek and Latin classics, which were ultimately blended with Christian theology.

A characteristic feature of all this was the appreciation of human capacity and creativity. What does it mean to be human? What is the value of human life? These and similar questions were of the greatest importance during the Renaissance, and, as we pointed out earlier, central to Spencer's narrative. Petrarch (1304–1374), Giovanni Pico della Mirandola (1463–1494), and Michel de Montaigne (1533–1592), for instance, marvelled at the human achievements of their time. Pico, in particular, gushed about humanity in his *On the Dignity of Man* (1486). In it, he argued that human beings can ascend to the heights of human knowledge through philosophy. Moreover, according to Pico, God had given no specific place and no specific function to humanity, and so it was free to claim whatever seat, whatever form, whatever abilities it preferred. God predetermined the nature of all other creatures, but God made Adam "neither mortal, nor immortal," so that "as the maker or moulder" of his own destiny he may determine his own nature.[38]

These are extraordinary words. They look ahead to the existentialism of modern times as much as to ancient cosmology. They identify the human condition as contingent, multivalent, and indeterminate. It is Adam who will "fashion" himself and be his own "maker" and "moulder." God is the creator of the universe, and the creator of humankind; but he endows humanity with the capacity to create itself! Humanity is thus the "chameleon" of God's cosmos.

Both Humanists and Mystics

While Spencer does not explicitly emphasise the point, the pursuit of "humanism" and natural philosophy often intersected with each oth-

38 Pico della Mirandola, *On the Dignity of Man* (Indianapolis: Hackett, 1965), 5.

er at key moments, as they developed from the fifteenth to the seventeenth centuries. Indeed, Copernicus, Galileo, and Kepler were all children of the Renaissance, born and raised in a world created by the European humanists. Copernicus, while he was no humanist himself, was deeply indebted to humanism. He encountered humanism in the Italian universities where he spent the years of his youth. He studied Greek and he scoured the books of ancient Greek astronomers to find the key to the problem he posed for himself.

Johannes Kepler (1571–1630) followed Copernicus in demonstrating mathematically the motion of the planets. And, like Copernicus, he was driven by certain religious commitments. He saw nature as revelatory. In his first major astronomical work, *The Cosmographic Mystery, or The Secret of the World* (1596), which was basically a defence of the Copernican system, Kepler maintained that the universe reflects God's handiwork. In describing the mathematical elegance of the laws of planetary motion, Kepler confessed that he had been carried away by an "unutterable rapture at the divine spectacle of heavenly harmony." He later reported to a friend, "I wanted to be a theologian … and for a long time I was restless. But now see how by my pains God is being celebrated in astronomy also."[39]

Perhaps most important for later thinkers, Kepler saw himself and other natural philosophers as "priests" of the book of nature. Since "we astronomers are priests of the highest God in regard to the book of nature," he wrote, "we are bound to think of the praise of God and not of the glory of our own capacities." But while Kepler may have considered himself a Christian, he was also an ardent Platonist and Pythagorean, who saw himself a "priest" of God in the temple of nature.[40] Obviously, a Platonic or Pythagorean god is not identical to the God of Abraham, Isaac, and Jacob. While Kepler believed that no conflict could exist between the book of God's word and the book of nature, and

39 For a selection of Kepler's correspondence, see *Johannes Kepler: Life and Letters*, ed. Carola Baumgardt (New York: Philosophical Library, 1951). See also the study by Max Casper, *Kepler* (New York: Dover, 1993).

40 See Rhonda Martens, *Kepler's Philosophy and the New Astronomy* (Princeton University Press, 2000).

considered himself a lifelong Lutheran, he never did fully subscribe to his church's official confession.

More importantly, Kepler prescribed an accommodationist epistemology of biblical interpretation that went beyond the patristic tradition. In his words,

> Now the holy Scriptures, too, when treating common things (concerning which it is not their purpose to instruct humanity), speak with humans in the human manner, in order to be understood by them. They make use of what is generally acknowledged, in order to weave in other things more lofty and divine.[41]

Thus, in an important sense, Kepler is practising exegesis. This "accommodation theory," which maintains that Scripture speaks to men and women in human fashion, would become a foundational argument of progressive biblical criticism in the seventeenth century. For Kepler, Scripture is not a textbook of astronomy—but astronomy can be a textbook of God, from which we can learn his wisdom and greatness.

Thus what we see in Kepler, Galileo, Copernicus, and other scientific luminaries during the early modern period is the proposal of a "double truth" doctrine that began to develop in the medieval period. Theology has no authority in the realm of natural philosophy. At the end of the seventeenth century, we begin to see the emancipation of science (and the "scientist"), which, regardless of the doctors of the church, is bound only by truth which can be empirically demonstrated and proved. Kepler and his colleagues were asserting the independence of scientific research from all philosophical and theological principles.

The Reformation

These murky details are absent from Spencer's narrative. Indeed, his account of the entangled relationship between science and theology in

41 In William H. Donahue, *Selections from Kepler's* Astronomia Nova (Santa Fe, NM: Green Lion Press, 2008), 19.

the early modern period is rather conventional. Having mostly ignored Renaissance thought and given only a conventional myth-busting of the Galileo affair, Spencer backtracks a bit to reassess the common belief among many historians, that the Protestant Reformation played a significant role in ushering in the rise of modern science. The general consensus among historians of science and religion is that there was something about the Protestant religion that encouraged the practice of science. "Protestant reformers," Spencer observes, "placed a new emphasis on the ability of all believers to honour their creator through their daily activities," including the practice of science.[42] Following once again the work of Harrison, Spencer argues that the emphasis on a more literal approach to Scripture was also applied to the study of nature, eliminating the emblematic or symbolic model of medieval Catholic exegetes.[43] "As with the book of scripture," writes Spencer, "so with the book of nature."[44] The hermeneutical preconditions of modern science, in short, are found in the Protestant, literal understanding of Scripture. When Protestants stripped the Book of Scripture from its symbolic meaning, all texts, including the Book of Nature, became open to new interpretation. Whereas many might view biblical literalism as an obstacle to science, in the seventeenth century it brought with it an alternative conception of the natural order.

Moreover, when Protestants reappropriated Augustinian anthropology, it led to a greater emphasis on experimentation. Indeed, Augustine's idea of original sin was quite popular among those who believed in experimental natural philosophy. They believed that humans were greatly affected by Adam's fall, and it made them unable to understand the world through pure thinking. Instead, they had to rely on experimentation and observation to gain knowledge about how nature works.[45] Even then, they knew that their knowledge could never

42 Spencer, *Magisteria*, 134.
43 Peter Harrison, *The Bible, Protestantism, and the Rise of Natural Science* (Cambridge University Press, 1998).
44 Spencer, *Magisteria*, 135.
45 Once more, Spencer is following the erudite work of Peter Harrison, esp. *The Fall of Man and the Foundations of Science* (Cambridge University Press, 2007).

be certain. This is how Christian doctrine was able to give a sense of urgency to experimentation.[46] But Spencer also seeks balance here. He reminds us that "Catholic lands boasted some of Europe's most impressive scientific minds in the early seventeenth century," such as Pierre Gassendi, Blaise Pascal, and René Descartes, for instance.[47]

From Natural Theology to Scientific Naturalism

From these early modern natural philosophers, Spencer transitions to the new natural theology that developed during the seventeenth and eighteenth centuries. The Parisian Enlightenment and the French Revolution do not play a significant role in Spencer's narrative, however. But that is to his credit. Thinkers like Diderot, Helvétius, Holbach, and lesser figures were undoubtedly "rationalists," hostile to religion. But they also remained elitists who promoted a liberal paternalism rather than a democratic process.[48] Moreover, the French savants exalted a bloodless notion of "reason" to bloody effect, as evidenced in the subsequent "Reign of Terror." The jibe of Edward Gibbon against the French is well known. The French, Gibbon wrote, "preached the tenets of atheism with the bigotry of dogmatists." The British Enlightenment, on the other hand, as historian Gertrude Himmelfarb noted, was "reformist rather than subversive, respectful of the past and present while looking forward to a more egalitarian future."[49] Furthermore, it should be remembered that, shortly after revolutionary Maximilien Robespi-

46 Spencer, *Magisteria*, 137.
47 Spencer, *Magisteria*, 138–141.
48 Criticisms of the established religion had already appeared among more moderate English and German thinkers nearly a century earlier. What was unique about the French response was their emotional and often violent protests against institutions of all kinds, not just religious. Indeed, scholarly literature shows that the social and political upheavals caused by the French Revolution forced many scientific institutions to close. It was Napoleon who modified many scientific institutions, centralising their authority under government control.
49 Gertrude Himmelfarb, *The Roads to Modernity: The British, French, and American Enlightenments* (New York: Vintage, 2004), 51.

erre was executed, Napoleon Bonaparte reconciled himself and the nation to the Catholic Church.

At any rate, there appeared among English thinkers of the period a "holy alliance" between science and religion. Spencer notes that many of these so-called physico-theologians strayed from orthodoxy.[50] Moreover, in his discussion of the rise of natural theological traditions among English thinkers, Spencer fittingly returns to Pascal, who offered a powerful critique of basing our knowledge of God on natural revelation rather than special revelation in the biblical text. "Proofs can only carry us to speculative knowledge of God," Pascal wisely wrote, but "to know him in this manner is not to know him at all."[51]

The rise of physico-theology in the period was directly connected to the resurgence of the "mechanical" philosophy of Democritus. And although many religious thinkers attempted to "baptise" Epicureanism, it nevertheless led to an increasingly materialistic worldview.[52] We see this in the work of physicians David Hartley (1705–1757) and Julien Offray de La Mettrie (1709–1751), naturalist Georges-Louis Leclerc, Comte de Buffon (1707–1788), and Pierre-Simon Laplace (1749–1827). Accordingly, what we find at the end of the eighteenth century and the beginning of the nineteenth is a mass "exodus" from the older, patristic understanding of the relationship between natural knowledge and faith. This "naturalistic" process included, unsurprisingly, the Bible.[53] Geologists in the early nineteenth century, for instance, whether they were "catastrophists," "uniformitarians," "vulcanists," or "neptunists," all began to naturalise the Genesis creation stories. As Spencer puts it, "biblical Protestantism was being eroded from *within* as well as assailed from *without*."[54]

50 Spencer, *Magisteria*, 160.
51 Spencer, *Magisteria*, 179.
52 See the late Ron Numbers, "Science without God: Natural Laws and Christian Beliefs," in *When Science & Christianity Meet*, ed. David C. Lindberg and Ronald L. Numbers (University of Chicago Press, 2003), 265–285.
53 Spencer, *Magisteria*, 211.
54 Spencer, *Magisteria*, 213 (my emphasis).

It would not take much from naturalising the world to naturalising the human soul. The "science" of phrenology, for example, led by such figures as Franz Joseph Gall (1758–1828), J. G. Spurzheim (1776–1832), and George Combe (1788–1858), naturalised the human mind, arguing that as the "physical laws regulated the entire universe," there were "organic laws" that governed the life, moral, and intellectual element of human nature.[55] What Spencer misses in this discussion, as most other historians of science did, is that Combe published a remarkable treatise in 1847 entitled *On the Relation Between Religion and Science*. Ironically, Combe credited the work of natural theologians for convincing him that God reigned through fixed, immutable natural laws. Interestingly, he also argued that the Reformation remains to be completed, equated progress in religion with progress in knowledge, and even accused "religious professors" of atheism when they denied the laws of nature. What needs to occur, according to Combe, is a second or "new Reformation."[56] While men like Combe rejected orthodox Christianity, he nevertheless drew from a nineteenth-century natural-theological tradition that claimed moral and spiritual value for the study of the laws of nature.

Darwin's Legacy

Spencer then spends two chapters adding layers of complexity to the work of Charles Darwin (1809–1882) and the various responses to his *Origin of Species*, which was first published in 1859. Darwin, who had grown up reading the natural theologians, had come to similar conclusions as Combe, that any kind of "special creation" made God look weak and incompetent. Ironically, but perhaps not surprisingly, the popularisation of the sciences by the natural theologians led to the rejection of the very project of natural theology. The *Origin of Species* did not mention the word "evolution," but Darwin used "creation" and its

55 Spencer, *Magisteria*, 221.

56 On this theme, see James C. Ungureanu, "Science, Religion, and the 'New Reformation' of the Nineteenth Century," *Science & Christian Belief* 31:1 (2019): 41–61.

cognates over one hundred times. Opposite the title was a quotation about studying God's works as well as his word. Darwin ended his book in a rhapsody about the "grandeur" of viewing nature's "most beautiful and most wonderful" diversity as the product of "powers … originally breathed into a few forms or into one." This reference played to traditionalists, but the tone and the terminology—even the biblical "breathed"—were not insincere. From beginning to end, the *Origin of Species* was a pious work: "one long argument" against miraculous creation but equally a theist's case for creation by law.

But Darwin's "theism" was thin, and by the end of his life it eventually snapped. However, it should be clear that it was not so much science or his evolutionary theory that led Darwin to abandon his faith, but rather his liberal Protestant upbringing, which was tenuous at best. These liberal Protestant sensibilities provided Darwin with moral objections to traditional theology. When his ten-year-old daughter, Annie, died tragically in 1851, he found no comfort in the creed of his upbringing. His father's death had also caused consternation. Eternal punishment, he believed, was a "damnable doctrine."[57] Moreover, looking at nature "red in tooth and claw," as Alfred Tennyson put it, deeply troubled Darwin. He believed that it was "derogatory that the Creator of countless systems of worlds should have created each of the myriads of creeping parasites and worms which have swarmed each day of life on land and water on [this] one globe."[58] While the natural theologians had pointed out the beauty and ordered complexities of nature, Darwin could only see cruelty, death, and chaos.

At first Darwin avoided any discussion of "human evolution." But later, in his *Descent of Man*, published in 1871, he contended that humans had evolved physically by natural selection and then intellectually and morally through the inherited effects of habit, education, and religion. According to Darwin, "with the more civilised races, the conviction of the existence of an all-seeing Deity has had a potent in-

57 See Charles Darwin, *The Autobiography of Charles Darwin*, ed. Nora Barlow (New York: W. W. Norton & Co., 1958), 87.

58 Spencer, *Magisteria*, 247.

fluence on the advance of morality," so much so that "the birth both of the species and of the individual are equally parts of that grand sequence of events, which our minds refuse to accept as the result of blind chance."[59]

At the end of the nineteenth century, the discipline of anthropology was also emerging from writers such as E. B. Tylor (1832–1917), James G. Frazer (1854–1941), and Émile Durkheim (1858–1917), all of whom were influenced by evolutionary theory. Despite the intention of objectivity, a strong thread of philosophical naturalism permeated the field. One response to Darwin's ideas, according to Spencer, was the rise of a scientific racism that utilised ethnological studies to support theories of the "white superiority."[60] This has a long and complicated history. The eighteenth and nineteenth centuries witnessed a prolonged and acrimonious feud between what came to be called "monogenists" and "polygenists." During the medieval period, European scientific conceptions of human origins assumed the literal truth of the biblical narrative that the varieties of the human race were descended proximately from three sons of Noah and, ultimately, from Adam and Eve. Cartographic representations routinely associated the three known continents—Asia, Africa, and Europe—with the three sons of Noah—Sem (Shem), Cham (Ham), and Japheth—thereby integrating a threefold continental schema with a tripartite racial taxonomy.

As time went on, however, challenges to the standard biblical account began to emerge from various sources. One such source was the increasing availability of what were referred to as pagan chronicles. These texts posed a significant threat to the received wisdom, as did expeditions to "the East." It was a major moral problem for chronologists studying world history, as the annals of pagan history seemed to confirm the speculations of infidels who claimed the existence of genealogies predating the biblical Adam.

59 Charles Darwin, *Evolutionary Writings, Including the Autobiographies*, ed. James A. Secord (Oxford University Press, 2008), 325.

60 Spencer, *Magisteria*, 279.

One means of coping with challenges was the beguilingly simple theory that the biblical Adam was simply not the first human being. The idea of preadamic humans had been long hinted at, for example, in the writings of Moses Maimonides (1135–1204). But it was in the monumentally "heretical" doctrine of Isaac de la Peyrère (1596–1676), promulgated in his *Prae-Adamitae* (1655), that the preadamite theory found its first sustained champion. The basic thrust of the treatise was that only the Jews were descended from the biblical Adam and that the other world peoples were derived from non-Adamic progenitors. At once, this fundamentally polygenetic account of human origins relieved the biblical text of the burden of pagan history and provided a compelling account of the genesis of New World peoples.[61]

During the nineteenth century, efforts were made to maintain cordial relations between burgeoning ethnological studies and theology. To be sure, many rejected its polygenetic ethos and retained a monogenist environment. But, with the prevailing polygenetic flavour of contemporary anthropology, the preadamites were frequently conscripted into the service of Christian apologetic. That the polygenist thesis was finding favour with Christian apologists and scientific racists alike certainly does not mean that monogenist adherents to the traditional Adamic narrative had disappeared. Throughout the middle decades of the nineteenth century, the conventional monogenist history continued to be defended.

Although some Christian thinkers were guilty of racist views, it was mostly in scientific circles where eugenics first emerged, with its attempt to tie social constructions of inferiority to physical attributes.[62] Swedish botanist Carolus Linnaeus (1707–1708) created "scientific" racial classifications and descriptive characteristics. In the nineteenth century, Louis Agassiz (1807–1873), a Swiss-born Harvard professor, argued that human beings do not share a common ancestry (monogenism); instead, he argued that God created the races as separate and

61 See David N. Livingstone, *Adam's Ancestors: Race, Religion & the Politics of Human Origins* (Baltimore: Johns Hopkins University Press, 2011).

62 See Nathan G. Alexander, *Race in a Godless World: Atheism, Race, and Civilization, 1850–1914* (New York University Press, 2019).

distinct human categories (polygenism). But, as science increasingly became "secularised," the ideological effects of replacing Christian doctrine with scientific naturalism opened the way for racism to take hold of modern society. Whereas the Bible proclaimed that God "hath made of one blood all nations of men" (Acts 17:26), secular science in eighteenth- and nineteenth-century Europe and North America began to claim that different human groups had emerged or evolved separately, creating a "natural" racial hierarchy with whites on top.

Indeed, many white freethinkers and atheists held racist assumptions which they based on scientific knowledge. In his narrative, Spencer points to the gut-wrenching story of Ota Benga. In 1906, William Temple Hornaday, director of the New York Zoological Park, "acquired" the Congolese pygmy Benga and put him on public display in the "monkey house." The exhibit drew huge crowds. Hornaday speculated that Benga might be that "missing link" between humans and primates. The exhibit was protested. The Colored Baptist Minister Conference, led by Rev. James H. Gordon, denounced the display, declaring "our race … is depressed enough, without exhibiting one of us with the apes." A white pastor, Rev. R. S. MacArthur, of Calvary Baptist Church, agreed. "The person responsible … degrades himself as much as he does the African." Hornaday and others defended the exhibit by proclaiming themselves firm "believers in the Darwinian theory." This "purely … ethnological exhibit" would help, one defender wrote, "our clergymen to familiarize themselves with the scientific point of view so absolutely foreign to many of them." Thus a clear confirmation, for many at the time, of the "conflict" between "science and religion."[63]

Perhaps out of necessity, Spencer's comprehensive and coherent narrative ends midway through his book. With the remaining pages, he offers very episodic and somewhat disjointed accounts of the Scopes "monkey trial,"[64] the "new physics,"[65] the rise of the "scientific" study

63 Spencer, *Magisteria*, 278–287.
64 Spencer, *Magisteria*, 317–333.
65 Spencer, *Magisteria*, 335–351.

of religion,[66] the "space race" between the United States and Russia,[67] and the emergence of modern "intelligent design" theory,[68] before concluding with some brief comments on anxieties over artificial intelligence.[69] These are important chapters, and they offer much insight into the "ongoing, entangled histories of science and religion." For instance, it is important to note that the textbook in question during the John T. Scopes trial, G. W. Hunter's *A Civic Biology*, was never simply about mere biology. Indeed, in the pages of this high-school textbook, Hunter advocated eugenics and social Darwinism that called for the elimination of the "lower animals" of people.[70] This scientific racist agenda was inimical to the reformist and progressive democratic politician William Jennings Bryan (1860–1925). Indeed, during the Scopes trial, Bryan was concerned about the impact the theory would have on morality and the democratic process.[71] Indeed, Darwinism was often used to justify monstrous ends in the first half of the twentieth century, such as the sterilisation of "criminals, drunks, promiscuous women, 'morons' and 'imbeciles' … as well as a number of poor, unemployed, disabled and black citizens," writes Spencer.[72]

While these final chapters lack the kind of coherent narrative of the first half of his book, Spencer nevertheless succeeds at showing how deeply complex and entangled the history of science and religion continues to be.

Another Look at the Conflict Thesis

Before drawing this essay to a close, something needs to be said about the origins of the "conflict thesis" itself. Spencer offers hints at these

66 Spencer, *Magisteria*, 353–367.
67 Spencer, *Magisteria*, 369–383.
68 Spencer, *Magisteria*, 385–399.
69 Spencer, *Magisteria*, 401–418.
70 Spencer, *Magisteria*, 320.
71 Spencer, *Magisteria*, 322.
72 Spencer, *Magisteria*, 322.

origins,[73] but much more needs to be said.[74] Most historians have been tracing the origins of the conflict thesis to the nineteenth century, specifically the Anglo-American writers. Many point to the scientific naturalists, a Victorian clique made up of biologist Thomas H. Huxley (1828–1895), physicist John Tyndall (1820–1893), and evolutionary philosopher Herbert Spencer (1820–1903), among others, who supposedly employed the "conflict thesis" in their attempt to professionalise and secularise the sciences.

More specifically, however, the most important whipping boys for historians of science have been New York University chemist John William Draper (1811–1882) and historian and first president of Cornell University Andrew Dickson White (1832–1918). The vast majority of scholars now claim Draper and White as "cofounders" of a philosophy of history that has endorsed the belief that science and religion have been and always will be at odds. Draper and White are big figures in historical studies of science and religion, and thus it is no surprise that Spencer also frames his narrative around the work of these two historical figures.[75] To his credit, Spencer adds some much-needed complexity to how we should understand the motivations of Draper and White. However, his framing is still somewhat misleading. Simply put, they are not guilty of the charges brought against them by most historians of science. That is, they are not the architects or cofounders of the "conflict thesis," at least in the conventional sense. For example, many historians, including Spencer, think Draper in particular had something against the Roman Catholic Church. And no doubt he did. But so did everyone else at the time. Anti-Catholic sentiment was at its height in the late nineteenth century, especially in America. In terms of White, historians argue that religious criticism of his beloved non-sectarian Cornell University set him off. But White had already formulated his

73 Spencer, *Magisteria*, 301–313.

74 What follows is a summary of my own treatment of the subject in *Science, Religion, and the Protestant Tradition: Retracing the Origins of Conflict* (University of Pittsburgh Press, 2019).

75 Spencer, *Magisteria*, 3.

views prior to founding Cornell University. He was in fact teaching the same to undergraduate students at the University of Michigan.

The conventional view fails because—simply put—it ignores what Draper and White actually said they were doing. So, what did Draper and White believe? Draper actually advocated a return to a purer, more rational Christianity. In his early lectures on chemistry, for example, he sounds rather like a natural theologian. He spoke of the laws of nature as designed and set in place by the Almighty God, the Creator, the Great Architect. This more "rational" or "reasonable" Christianity harkens back to figures like Francis Bacon and the early members of the Royal Society of London, which was founded in 1660. Later, the English deists adopted the same position, in addition to philosophers like John Locke. Interestingly enough, all of them looked back to the Protestant Reformation as the reformation of both religion and science, or natural philosophy.

Moreover, looking at the entire corpus of Draper's writing is important. His *History of the Conflict* was largely a condensed version of previously published works. Most importantly, he had published a *History of the Intellectual Development of Europe* (1863), where he made a crucial distinction that most historians of science have forgotten or ignored. In discussing the so-called "paganisation" of Christianity under Emperor Constantine, Draper distinguished between Christianity and "ecclesiastical organisations." "The former," he wrote, "is a gift of God; the latter are the product of human exigencies and human invention, and therefore open to criticism, or, if need be, to condemnation." He argued that the paganisation of Christianity had resulted in the "tyranny of theology over thought," and declared that those "who had known what religion was in the apostolic days might look with boundless surprise on what was now ingrafted upon it, and was passing under its name."

Even his notorious *History of the Conflict*, under closer inspection, continues to make such distinctions. He argued that he would only consider the "orthodox" or "extremist" views, not the moderates. He even expressed concern that "traditionary faith" was leading the "intelligent classes" to give up on religion entirely. His narrative, in

short, was intended to show that the decline of religious faith was a direct consequence of a "materialised" or politicised Christianity, not science. And, perhaps most importantly, Draper concluded that while science and Catholicism are almost impossible to reconcile, Protestantism and science can maintain a continued friendship if all the misunderstandings can be eliminated.

So, two crucial points are in order here. First, Draper's understanding of history, particularly theological history, is mostly taken from Protestant thinkers. Secondly, his own religious beliefs seem to have been mostly inspired by Unitarian minister and chemist Joseph Priestley. In one of his lectures, Draper told his students that "we must not impute it to mental weakness" that Priestley passed through so many religious beliefs before arriving at Unitarianism, "but rather to the pursuit of truth." Clearly, then, Draper was no atheist. He looked back to the "rational religion" found among seventeenth- and eighteenth-century intellectuals, who viewed the new knowledge of nature as evidence of the creative power of God. This group of Christian thinkers sought not only to demonstrate how God has revealed himself in nature, but how a "rational" Protestantism provided an atmosphere more conducive to the sciences. Protestantism, in other words, embodied the principles that would allow for the progress of learning, society, and religion itself. In this sense, Draper can firmly be placed in the Protestant tradition.

But, upon deeper reflection, many of these Protestant thinkers held rather unorthodox views. Indeed, many, if not most, were anti-Trinitarians, and some even denied the divinity of Christ. Deeply impressed by the new learning, they sought to minimise doctrinal discord by emphasising human reason in understanding revelation. They frequently preached for a more "reasonable Christianity" at the pulpit. They were united in the belief that the most serious threat to religion was the irrational, and thus hoped to continue the reformation of religion along more rationalistic lines.

White shared many of the same sentiments in his own historical narrative. History showed, according to him, that "interference

with Science in the supposed interest of religion … has resulted in the direst evils both to Religion and Science, and invariably." Nevertheless, by separating religion from theology, White could denounce that the "most mistaken of all mistaken ideas" was the "conviction that religion and science are enemies." While science has conquered "dogmatic theology," he argued, it will "go hand in hand with Religion." The whole point of his narrative, he later wrote in his *Autobiography*, was to "strengthen religious teachers by enabling them to see some of the evils in the past which, for the sake of religion itself, they ought to guard against in the future."

White was in the same Protestant stream as Draper, but in a different segment. However, White did not look to the past but rather to contemporary conceptualisations or reinterpretations of "religion." Religion is found, White believed, in moral conscience, intuition, and sentiment. This definition of religion was, of course, not new. Indeed, it exemplified essential elements of the Romantic movement, which had become by the late nineteenth century a central component of liberal Protestant thought. As a young man, White had studied in Germany, mostly at the University of Berlin, with Carl Ritter and Leopold von Ranke. There he had come across Gotthold E. Lessing, Johann Wolfgang von Goethe, Friedrich Schiller, Friedrich Schleiermacher and other "mediating" German thinkers. Lessing, for example, talked about the evolution of religion. He maintained that all faiths lead to one universal truth. No creed or dogma was complete or final. Christianity was ever-evolving just like the rest of civilisation. White had imbibed this idea. It became part of his worldview. Schleiermacher convinced him, moreover, that true religion is not found in doctrine or books or dogma, but in intuition, feeling, and the inward witness of the heart. German mediating thinking was, in short, an attempt to reconcile Christianity with modernity.

In short, both Draper and White tried to find ways to reconcile Christian faith and science (or modernity), not to promote conflict or warfare. Interestingly enough, many of readers of their early thoughts (private correspondence, periodical press, newspapers, magazines, ac-

ademic journals) also believed that Draper and White were seeking a reconciliation between science and religion. In particular, a number of religious liberal magazines—on both sides of the Atlantic—viewed Draper and White's work as an entirely "Protestant" project. Their proposals were not particularly new. What they did was consolidate a number of narratives that were already in circulation—that were commonplace—particularly amongst Protestant theologians, historians, and men and women of science. The conflict they spoke of was an internal one, one between contending Christian groups. For them, the "conflict" or "warfare" was not between "science and religion" but between contending Protestant traditions—in one corner the "new theology" of liberal Protestantism, which deemphasised Scripture, dogmatism, institutionalism, and, in the other corner, "traditionary faith," creeds and doctrines, orthodoxy, and in general a more conservative Protestantism.

Spencer misses most of this complexity in discussing Draper and White. At the same time, he has not set out to trace the origins of the conflict thesis, but rather to tell the tale of the "entangled" histories of science and religion. One could also protest that despite the "conflict" being a myth, as Spencer contends, most scientists continue their science today without recourse to any "God-talk" in their research. Something has obviously changed. As the late Ron Numbers put it, "nothing has come to characterize modern science more than its rejection of appeals to God in explaining the workings of nature."[76] Spencer never adequately addresses this "secularisation" of the sciences. To address this is impossible, I would suggest—as I have done in my own treatment of the subject—without examining the vicissitudes of theology in the early modern period. The emerging conflict—as William Placher, Charles Taylor, Brad Gregory, and many others have pointed out—was between contending theological traditions, with the unintended consequence of unbelief.

Nevertheless, *Magisteria* remains a helpful corrective of many "myths" about science and religion. Spencer keeps his personal views

76 Numbers, "Science without God," 265.

to himself, but he definitely has a particular perspective on certain issues. He allows scientists the authority to speak on the physical aspects of reality but calls into question their claims over ethical or spiritual dimensions. Like Pascal, Spencer stresses the importance of recognising the vulnerability, dependency, and mortal nature of human beings. Humanity is like a "reed," easily blown over. But he is a "thinking reed," concerned with meaning, purpose, and transcendence. As such, in interviews and public talks, Spencer often refers to himself as a "Christian humanist." *Magisteria*, while not entirely forthcoming, nevertheless serves as a good starting point of how a Christian humanist should approach the entangled histories of science and religion.

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