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THE CONFLICT OF SCIENCE AND RELIGION

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The Conflict Thesis

The history of science has often been regarded as a series of conflicts between science and religion (usually Christianity), of which the cases of Galileo Galilei (1564–1642) and Charles Darwin (1809–82) are merely the most celebrated examples. Some would go further and argue that such conflict is endemic in the historical process, seeing these and other confrontations as occasional eruptions of a deep-seated inclination that is always present, if not always quite so spectacularly visible. There is usually the additional assumption, implicit or explicit, that the outcome of such conflict will always and inevitably be the victory of science, even if only in the long term. Such a view of the relations between science and religion has been variously described as a “conflict thesis,” a “military metaphor,” or simply a “warfare model.”

The considerable literature on this subject began with two famous works of the nineteenth century: John William Draper’s *History of the Conflict Between Religion and Science* (1874) and Andrew Dickson White’s *A History of the Warfare of Science with Theology in Christendom* (1896). A more mature work of the twentieth century, J.Y. Simpson’s *Landmarks in the Struggle Between Science and Religion* (1925), adds to the vocabulary of metaphors by positing a struggle between science and religion. The first two books achieved a wide circulation and have been repeatedly reprinted. They were written at a time when science seemed triumphant at home and abroad, and each author had his particular reasons for settling old scores with organized religion. Draper, a professor of chemistry and physics in a medical school in New York, feared the power wielded by the Roman Catholic Church and was worried by the promulgation of the dogma of papal infallibility of 1870. White, professor of history at the University of Michigan and later president of Cornell (the first private nonsectarian university in the United States), was not surprisingly opposed by the advocates of sectarian theology. White’s book thus became a manifesto directed (in the last version) not so much against religion as against dogmatic theology.

For nearly a century, the notion of mutual hostility (the Draper-White thesis) has been routinely employed in popular-science writing, by the media, and in a few older histories of science. Deeply embedded in the culture of the West, it has proven extremely hard to dislodge. Only in the last thirty years of the twentieth century have historians of science mounted a sustained attack on the thesis and only gradually has a wider public begun to recognize its deficiencies.

Issues of Contention

First, it may be helpful to spell out briefly the chief issues of contention around which the real or imagined conflict revolves. Initially these issues were in the area of epistemology: Could what we know about the

world through science be integrated with what we learn about it from religion? If not, a situation of permanent conflict seemed probable. Such epistemological issues were first raised on a large scale by the Copernican displacement of the earth from the center of the solar system, which was clearly incompatible with what seemed to be the biblical world picture of a geocentric universe. The question, though posed by Copernicus (1473–1543) himself, caused little public stir until the apparent conflict became inextricably intertwined with other clerico-political disagreements at the time of Galileo. With hindsight, it is truly remarkable that, as early as the sixteenth century, Copernicus and his disciple Georg Joachim Rheticus (1514–74) resolved the issue to their satisfaction by invoking the patristic distinction between the Bible’s teaching on spiritual and eternal realities and its descriptions of the natural world in the language of ordinary people. Rheticus specifically appealed to Augustine’s doctrine of “accommodation,” asserting that the Holy Spirit accommodated himself on the pages of Scripture to the everyday language and terminology of appearances. What began to emerge was what later became the distinction between world picture and worldview, the former being mechanistic, tentative, and expendable, while the latter concerned values and principles that were likely to endure. This same principle imbued the work both of Galileo and his followers and of Johannes Kepler (1571–1630) and effectively defused the issue for a majority of Christian believers. If they were right, there was an absence of conflict not only over the specific case of cosmology but, in principle, over anything else in which scientific and biblical statements appeared to be in contradiction. A “conflict thesis” would have seemed untenable because there was nothing to fight about. However, the historical realities were such that these lessons were not quickly learned.

Despite the advent in the late eighteenth century of evidence for a much older Earth than had been imagined on the basis of the Mosaic account in Genesis, little opposition arose until the emergence in early-Victorian England of a disparate but vocal group of “scriptural geologists.” They were not, as is often claimed, a group of naive scientific incompetents, but, indeed, were often rather able men who saw a distinction between biblical descriptions of the present natural world and of events in the past, respectively corresponding to their understandings of physical science and history. While for the most part happy to accept “accommodation” over biblical references to the sun and Earth, they were not prepared to extend it to what appeared to be descriptions of history, including chronology. The potential for conflict was greatest where science had a historical content (as in geology or biology). The war cries of the “scriptural geologists” were echoed by those who, in due course, assailed Darwinian evolution on the same grounds.

A second, and related, area of contention has been in the realm of methodology. Here we find the age-old polarization between a science based on “facts” and a theology derived from “faith,” or between a naturalistic and a religious worldview. Naturalism has had a long history, going back to the early Middle Ages and beyond, with a spectacular revival in nineteenth-century England that was dignified by the title of “scientific naturalism.” It was a view that denied the right of the church to “interfere” in the progress of science by introducing theological considerations into scientific debates. By the same token, any appeal to divine purpose as an explanation of otherwise inexplicable phenomena has been a famous hostage to fortune. This philosophy of “God of the gaps” has generated special heat when one of the “gaps” has later been filled naturalistically. In these cases, conflict has certainly appeared, though whether it is really about methodological issues may be doubted. It has also been argued in a veritable torrent of informed and scholarly works that the methodologies of science and of religion are complementary rather than contradictory, and local instances of dispute have been assigned to other causes. Yet, this confusion still penetrates popular thinking, and the conflict thesis has been thereby sustained.

The third potential for conflict has been in the field of ethics. Most recently this has been realized in such questions as genetic engineering, nuclear power, and proliferation of insecticides. Past debates on the propriety of such medical procedures as vaccination and anesthesia have been replaced by impassioned

conflict over abortion and the value of fetal life. In Victorian times, one of the more serious reasons for opposing Darwin was the fear that his theories would lead to the law of the jungle, the abandonment of ethical constraints in society. Yet, in nearly all of these cases, it is not so much science as its application (often by nonscientists) that has been under judgment.

Fourth, some opposition between science and religion has arisen from issues of social power. In Catholic cultures in continental Europe, the polarity between sacred and secular was often much sharper than in Britain and the United States, with the result that progressive science-based ideologies were more frequently in explicit contention with conservative political and ecclesiastical forces. In early-nineteenth-century Britain, certain high-church Anglicans turned on science for threatening their dominant role in society. While this debate was formally about the authority of Scripture, in reality it was about the growing spirit of liberalism within the universities. Not surprisingly, the community of science resented such attacks and, in due course, turned the table on the enemy.

Their response came in the form of a concerted effort by certain scientific naturalists in Victorian England, most notably those associated with Thomas Henry Huxley (1825–95), to overthrow the hegemony of the English church. The movement, which was accompanied by bitter conflict, generated a flood of articles, lay “sermons,” and verbal attacks on the clergy and included conspiratorial attempts to get the “right men” in to key positions in the scientific establishment. It involved lectures, secular Sunday schools, and even a successful lobby to have Charles Darwin’s body interred in Westminster Abbey. Yet, it was not a battle between science and religion except in the narrowest sense. Unlike White, who averred that he opposed not religion but dogmatic theology, Huxley sought to undermine organized religion, though his rhetoric frequently sought to convey the impression of a disinterested defence of truth. One recent writer identifies the driving force behind at least the Victorian struggles as “the effort by scientists to improve the position of science. They wanted nothing less than to move science from the periphery to the centre of English life” (Heyck 1982, 87). It was at this time that science became professionalized, with the world’s first professional institute for science, the Institute of Chemistry, established in 1877. In Europe, it was also the period when scientific leadership began to slip from Britain to Germany, generating a fierce rearguard reaction by some British scientists against anything that could diminish their public standing. If the Church was seen to be in their way, it must be opposed by all means, including the fostering of a conflict myth, in which religion routinely suffered defeat at the hands of triumphalist science.

The Weaknesses of the Conflict Thesis

The conflict thesis, at least in its simple form, is now widely perceived as a wholly inadequate intellectual framework within which to construct a sensitive and realistic historiography of Western science. Nor was it merely a case of British controversy. Ronald L. Numbers has suggested that “the war between science and theology in colonial America has existed primarily in the cliché-bound minds of historians.” He regards the polemically attractive warfare thesis as “historically bankrupt” (Numbers 1985, 64, 80). In the composite volume *God and Nature: Historical Essays on the Encounter between Christianity and Science* (1986), edited by Numbers and his colleague at the University of Wisconsin, David C. Lindberg, an effort is made to correct the stereotypical view of conflict between Christianity and science.

The shortcomings of the conflict thesis arise from a multiplicity of reasons, some of which may be briefly summarized as follows.

First, the conflict thesis hinders the recognition of other relationships between science and religion. At different phases of their history, they were not so much at war as largely independent, mutually encouraging, or even symbiotic. Certainly there are well-documented cases, such as those of Galileo and Darwin, in

which science and religion seemed to wage open war with each other. But recent scholarship has demonstrated the complexity of the issues at stake in even these cases, with ecclesiastical politics, social change, and personal circumstances as relevant as questions of science and religion. Quite apart from those considerations, such cases have been too often taken as typical, and, consequently, a generalized conflict thesis has been erected on insubstantial foundations. As a historical tool, the conflict thesis is so blunt that it is more damaging than serviceable. One has only to consider the “two books” of Francis Bacon (1561–1626)—nature and Scripture—each of which had a role complementary to that of the other. They were held not to be at odds with each other, because they dealt with different subjects. Again, for many major scientific figures in the seventeenth and eighteenth centuries, Christianity played a central role in fostering and even shaping their scientific endeavors: The instances of Kepler, Robert Boyle (1627–91), Isaac Newton (1642–1727), and René Descartes (1596–1650) are the most conspicuous. The historical relations between religion and science are certainly more rich and complex than a simple conflict thesis suggests.

Second, and more specific, the conflict thesis ignores the many documented examples of science and religion operating in close alliance. This was most obviously true of the seventeenth and eighteenth centuries, as evidenced by the names of Boyle, Newton, Blaise Pascal (1623–62), Marin Mersenne (1588–1648), Pierre Gassendi (1592–1655), and Isaac Beeckman (1588–1637). Since then, a continuous history of noted individuals making strenuous efforts to integrate their science and religion has testified to the poverty of a conflict model. This was particularly true in Britain, where representatives in the nineteenth century included most famously Michael Faraday (1791–1867), James Joule (1818–89), James Clerk Maxwell (1831–79), William Thomson (Lord Kelvin [1824–1907]), and George Gabriel Stokes (1819–1903). In the next century, a number of distinguished scientists of religious persuasion were ready to join societies like the Victoria Institute in London or its successors in Britain and the United States, which were dedicated to bringing together religious and scientific ideas. The English-speaking world was not unique in this quest for integration but has certainly been the most subject to historical scrutiny.

Third, the conflict thesis enshrines a flawed view of history in which “progress” or (in this case) “victory” has been portrayed as inevitable. There appears to be no inherent reason why this should be so, though it is readily understandable why some should wish it to be the case. This approach represents and embraces a long demolished tradition of positivist, Whiggish historiography.

Fourth, the conflict thesis obscures the rich diversity of ideas in both science and religion. Neither of these has ever been monolithic, and there was seldom a unified reaction from either. Thus, in the case of Galileo, it was the Roman Catholic, not the Protestant, wing of Christianity that appeared to be at odds with science. In the Darwinian controversy, a uniform response was lacking even within one branch of Protestantism, for Anglicans of low-, high-, or broad-church persuasion tended to respond to Darwin’s theories in different ways. Moreover, the scientific community was deeply divided over religion in Victorian England, the mathematical physicists being far more sympathetic than the scientific naturalists. The conflict thesis fails to recognize such variety.

Fifth, the conflict thesis engenders a distorted view of disputes resulting from other causes than those of religion versus science. Given this expectation, conflict is not difficult to find in every circumstance, whether or not justified by the available historical evidence. A classic case is that of the alleged opposition to James Young Simpson (1811–70) for his introduction of chloroform anesthesia in midwifery. Despite repeated claims of clerical harassment, the evidence is almost nonexistent. Insofar as there was any conflict, it was between the London and Edinburgh medical establishments or between obstetricians and surgeons. The origins of that myth may be located in an inadequately documented footnote in White (1896, 2.63).

Finally, the conflict thesis exalts minor squabbles, or even differences of opinion, to the status of major conflicts. The confrontation between Samuel Wilberforce (1805–73) and Huxley in 1860 has been so

frequently paraded as a one-sided battle on a vast scale that one is liable to forget that, in fact, it was nothing of the kind. Such exaggeration is an almost inevitable accompaniment to the exposition of a conflict theory. It is excellent drama but impoverished history, made credible only by a prior belief that such conflict is inevitable. Of such material are legends made, and it has been well observed that “the dependence of the conflict thesis on legends that, on closer examination, prove misleading is a more general defect than isolated examples might suggest” (Brooke 1991, 40).

Reasons for Its Endurance

Given, then, that the warfare model is so inaccurate, one may wonder why it has lasted so long. This is, indeed, a major question for historians. The explanation may lie at least partly in the celebrated controversy of Huxley and his friends with the Anglican and Roman Catholic churches. In addition to the strategies mentioned above, they had another tactic, more subtle and yet more bold than anything else they accomplished. By establishing the conflict thesis, they could perpetuate a myth as part of their strategy to enhance the public appreciation of science. Thus, Huxley could write, with a fine disregard for what history records:

Extinguished theologians lie about the cradle of every science as the strangled snakes beside that of Hercules; and history records that wherever science and orthodoxy have been fairly opposed, the latter have been forced to retire from the lists, bleeding and crushed if not annihilated; scotched if not slain.

The Huxleyite warriors were outstandingly successful in this respect, and their ideals were enshrined in the works of Draper and White, best understood as polemical tracts that advanced the same cause. Yet, Draper takes such liberty with history, perpetuating legends as fact, that he is rightly avoided today in serious historical study. The same is nearly as true of White, though his prominent apparatus of prolific footnotes may create a misleading impression of meticulous scholarship. With an astonishing breadth of canvas, his writing exudes confidence in his thesis and conveys a sense of truly comprehensive analysis. Yet, with his personal polemic agenda, selectivity was inevitable. As such, it exposed him to the criticism that he was trapped by his own presuppositions of an inherent antagonism between the theological and the scientific views of the universe. His book, which he commenced writing in the 1870s, is no longer regarded as even a reliable secondary source for historical study. It is, however, an accurate reflection of how certain liberal-minded men of his day perceived the relationship between religion and science and of how “history” (or a version of it) was pressed into service for their cause. The remarkable thing about the whole conflict thesis is how readily the Victorian propaganda in all of its varied forms has become unconsciously assimilated as part of the received wisdom of our own day. However, it is salutary to note that serious historical scholarship has revealed the conflict thesis as, at best, an oversimplification and, at worst, a deception. As a rare example of the interface between contemporary public opinion and historical scholarship, it is high time for a robust exposure of its true character.

See also [Charles Darwin](#); [Early Christian Attitudes Toward Nature](#); [Galileo Galilei](#); [Historiography of Science and Religion](#); [Medieval Science and Religion](#)

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