

# A HISTORY OF WARFARE OF SCIENCE WITH THEOLOGY IN CHRISTENDOM

BY Andrew Dickson White

Andrew Dickson White in 1863 returned to reside in Syracuse for business reasons and was elected to the New York State Senate. There, he made the acquaintance of fellow upstate senator Ezra Cornell, a self-taught Quaker farmer from Ithaca who had made a modest fortune in the telegraph industry. Ezra Cornell told White "I have about half a million dollars more than my family will need: what is the best thing I can do with it for the State?" To which, White immediately replied "The best thing you can do with it is to establish or strengthen some institution of higher learning." The two thus combined their efforts to form a new university. Cornell insisted that the university be located in Ithaca on his large farm on East Hill, overlooking the town and Cayuga Lake. White convinced Cornell to give his name to the university "in accordance with [the] time-honored American usage" of naming universities after their largest initial benefactors. On February 7, 1865, White introduced a bill "to establish the Cornell University" and, on April 27, 1865, after a many month long debate, Governor Reuben E. Fenton signed into law the bill endowing Cornell University as the state's Land-Grant institution. White became the school's first president and served as a professor in the Department of History.

Because the suppression of scientific thought by the medieval Church represents one of blackest periods of human history, many scholars have studied this period with great care. Worth special mention is the remarkable two-volume treatise by Andrew Dickson White entitled *A History of the Warfare of Science with Theology in Christendom*, published in 1896. The whole text of the two volumes of the book can be read on [www.archive.org](http://www.archive.org) or [www.questia.com](http://www.questia.com). From the many fascinating accounts in this compendium, here are a few examples many of which were also quoted by Prof. Pervez Hoodbhoy in his book, *Islam and Science*:

The doctrine of the spherical shape of the earth, and therefore the existence of the antipodes, was bitterly attacked by theologians who asked: 'Is there anyone so senseless as to believe that crops and trees grow downwards? . . . that the rains and snow fall upwards?' The great authority of St Augustine held the Church firmly against the idea of the antipodes and for a thousand years it was believed that there could not be human beings on the opposite side of the earth - even if the earth had opposite sides. In the sixth century, Procopius of Gaza brought powerful theological guns to bear on the issue: there could not be an opposite side, he declared, because for that Christ would have had to go there and suffer a second time. Also, there would have had to exist a duplicate Eden, Adam, Serpent, and Deluge. But that being clearly wrong, there could not be any antipodes. QED!

Diseases, Saint Paul had declared, were the malignant work of devils. Said the church authority, Origen: 'It is demons which produce famine, unfruitfulness, corruptions of the air, pestilences; they hover concealed in clouds of the lower atmosphere, and are attracted by the blood and incense which the heathen offer to them as gods.' And Augustine, the most influential of the early Church authorities, wrote that: 'All diseases of the Christians are to be ascribed to these demons; chiefly do they torment fresh baptized Christians, yea, even the guiltless new-born infants.' By the orders of Pope Pius V, all physicians were required to call in a 'physician of the soul' on the ground that 'bodily infirmity frequently arises from sin'. The cause of disease being established as devils and evil spirits, the cure was naturally their exorcism through means such as holy relics. Enormous revenues flowed into various churches and monasteries noted for the possession of healing relics. The Church was not only the guardian of the Christian's soul, but also of his physical well-being.

Because plagues, such as those of smallpox and cholera, were also considered Divine retribution by the Church, inoculation against them was bitterly denounced by the orthodox. The argument used was that smallpox is a 'judgment of God on the sins of the people', and that 'to avert it is but to provoke him more.' A lighted grenade was thrown into the house of a man who gave shelter to the pioneer of smallpox vaccine, Dr Boylston. From the pulpits a steady stream of abuse was heaped upon the advocates of vaccination. But the facts were too strong - with inoculation people lived, and without it they died. And so inoculation was eventually accepted by the Church, although the resistance has never totally died out.

Among various rude tribes we find survivals of a primitive idea that the earth is a flat table or disk, ceiled, domed, or canopied by the sky, add that the sky rests upon the mountains as pillars. Such a belief is entirely natural; it conforms to the appearance of things, and hence at a very early period entered into various theologies. ...

But the strictly biblical men of science, such eminent fathers and bishops as Theophilus of Antioch in the second century, and Clement of Alexandria in the third, with others in centuries following, were not content with merely opposing what they stigmatized as an old heathen theory; they drew from their Bibles a new Christian theory, to which one Church authority added one idea and another, until it was fully developed. Taking the survival of various early traditions, given in the seventh verse of the first chapter of Genesis, they insisted on the clear declarations of Scripture that the earth was, at creation, arched over with a solid vault, 'a firmament,' and to this they added the passages from Isaiah and the Psalms, in which it declared that the heavens are stretched out 'like a curtain,' and again 'like a tent to dwell in.' The universe, then, is like a house: the earth is its ground floor, the firmament its ceiling, under which the Almighty hangs out the sun to rule the day and the moon and stars to rule the night. This ceiling is also the floor of the apartment above and in this is a cistern, shaped, as one of the

authorities says, 'like a bathing-tank,' and containing 'the waters which are above the firmament.' These waters are let down upon the earth by the Almighty and his angels through the "windows of heaven." As to the movement of the sun, there was a citation of various passages in Genesis, mixed with metaphysics in various proportions, and this was thought to give ample proofs from the Bible that the earth could not be a sphere.<sup>1</sup>

A serious obstacle in the development of scientific medicine was the opposition to the dissection of dead bodies. St Augustine referred to anatomists as 'butchers' and denounced this practice in unequivocal terms. A general dread existed that mutilating a dead body might result in some unimaginable horror on the day when all bodies would be resurrected. To this argument, the Church added one more: 'the Church abhors the shedding of blood.' This was indeed a remarkable argument - the obvious delight with which the Church burnt thousands of suspected heretics and witches suggested little abhorrence to shedding blood when that was in the Holy interest.

Around 1770, a remarkable phenomenon was observed in various parts of Europe. Detailed statements were sent to the Royal Academy of Science that water had turned to blood. Ecclesiastics immediately saw in this an indication of the wrath of God. When a miracle of this sort was observed in Sweden, an eminent naturalist, Linnaeus, looked into the phenomenon carefully and found that the reddening of the water was caused by dense masses of minute insects. When news of this discovery reached the bishop, he roundly denounced the scientific discovery as a 'Satanic abyss' and declared that 'the reddening of water is not natural.' Now, Linnaeus was not a bold man and he knew too well what had happened to Galileo. In the face of this, he retreated and ultimately declared that the truth of the matter was beyond his understanding.

Ecclesiastics and theologians of the medieval Church vigorously promoted the view that comets are fireballs flung by an angry God against a wicked world. Churchmen illustrated the moral value of comets by comparing the Almighty sending down a comet to the judge laying down the sword of execution on the table between himself and the criminal in a court of justice. Others denounced people who heedlessly stared at such warnings from God and compared them to 'calves gaping at a barn door'. Even up to the end of the 17th century, the oath taken by professors of astronomy prevented them from teaching that comets were heavenly bodies obedient to physical laws. But ultimately, science could not be suppressed. Halley, using the theory of Newton and Kepler, observed the path of one particularly 'dangerous' comet and predicted that it would return in precisely 76 years. He calculated to the minute when it would be seen again at a well-defined point in the sky. This was incredible. But 76 years later, when Halley and Newton were both long dead, Halley's comet returned exactly as predicted.

Christian orthodoxy also held geology to be a highly subversive tool in the service of the devil. Not only did geological evidence refute Archbishop Usher's

assertion of the earth's age, but it also showed that creation in six days was impossible. The orthodox declared geology 'not a subject of lawful inquiry', denounced it as 'a dark art', called it 'infernal artillery', and pronounced its practitioners 'infidels' and 'impugners of the sacred record'. Pope Pius IX was doubtless in sympathy with this feeling when he forbade the scientific congress of Italy to meet in Bologna in 1850.

During the Middle Ages, the doctrine of the diabolical origin of storms was generally accepted, receiving support from such unassailable authorities as St Augustine. Storms, it was held, were the work of demons. Against this supernatural 'power of the air' various rites of exorcism were used, the most widely employed being that of Pope Gregory XIII. Whereas in earlier times the means of exorcism amounted simply to various chantings and ringing of church bells during storms, in the 15th century there evolved a tragic belief that certain women may secure infernal aid to produce whirlwinds, hail, frosts, floods, and like. On the 7th of December 1484, Pope Innocent VIII issued a papal bull, inspired by the scriptural command 'Thou shalt not suffer a witch to live'. He exhorted the clergy of Germany to detect sorcerers and witches who cause evil weather and so destroy vineyards, gardens, meadows, and growing crops. Thereupon thousands of women found themselves writhing on the torture racks, held in horror by their nearest and dearest, anxious only for death to relieve them of their suffering.

The thunderbolt, said Church dogma, was a consequence of five sins: Impenitence, incredulity, neglect of repair of churches, fraud in payment of tithes to the clergy, and oppression of subordinates. Pope after pope expounded on this instrument of divine retribution, calling it the 'finger of God'. And then in 1752 Benjamin Franklin flew his famous kite during an electrical storm, discovering in this dangerous experiment that lightning was but electricity. Immediately there followed the lightning rod, a sure protection from even the most furious storm. At first the Church refused to concede its existence. Then, as the efficacy of these lightning conductors became widely recognized and more and more were installed, the orthodox took up cudgels against them. The earthquake of 1755 in Massachusetts was ascribed by them to the widespread use of Franklin's rods in Boston, and preachers fulminated against those who attempted to control the artillery of the heavens. The opposition would undoubtedly have lasted longer but for the fact that churches without lightning rods were frequently devastated by lightning. In Germany, in the period between 1750 and 1783 alone, about 400 church towers had been damaged and 120 bell ringers killed by lightning. On the other hand, the town brothel, with its protruding lightning rod, stood smug and safe even in the worst of storms. The few churches which had installed rods were also never touched. And so grudgingly to be sure, lightning rods received the Holy Sanction and were used to protect most churches by the end of the century.

When Immanuel Kant presented the theory that there exist nebula as well as stars, throughout the theological world there was an outcry against such

'atheism'. The rigidly orthodox saw no reference to it in the Scriptures. Hence nebula should not exist. These opponents of nebular theory were overjoyed when improved telescopes showed that some patches of nebular matter could indeed be resolved into stars. But with time came the discovery of the spectroscope and spectrum analysis; the light from nebula was clearly from gaseous matter. And so the orthodox were ultimately forced to retreat."<sup>2</sup>

We conclude this with a quote from the introduction of the book that gives freedom to the practice and teaching of science from unneeded interference from religion:

"The clause in the charter of the university (Cornell) forbidding it to give predominance to the doctrines of any sect, and above all the fact that much prominence was given to instruction in various branches of science, seemed to prevent all compromise, and it soon became clear that to stand on the defensive only made matters worse. Then it was that there was borne in upon me a sense of the real difficulty-the antagonism between the theological and scientific view of the universe and of education in relation to it; therefore it was that, having been invited to deliver a lecture in the great hall of the Cooper Institute at New York, I took as my subject *The Battlefields of Science*, maintaining this thesis which follows:

In all modern history, interference with science in the supposed interest of religion, no matter how conscientious such interference may have been, has resulted in the direst evils both to religion and to science, and invariably; and, on the other hand, all untrammelled scientific investigation, no matter how dangerous to religion some of its stages may have seemed for the time to be, has invariably resulted in the highest good both of religion and of science."<sup>3</sup>

---

<sup>1</sup> Andrew Dickson White. *A History of the Warfare of Science with Theology in Christendom*. Volume: 1. Appleton and Company. Place of Publication: New York. Publication Year: 1914. Page Number 89-92.

<sup>2</sup> Andrew Dickson White, *A History of the Warfare of Science with Theology*, 1896. (Reprinted by Peter Smith, Gloucester, Mass., 1978).

<sup>3</sup> Andrew Dickson White. *A History of the Warfare of Science with Theology in Christendom*. Volume: 1. Appleton and Company. Place of Publication: New York. Publication Year: 1914. Page Number: viii.