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## The Christian Face of the Scientific Revolution: Christian History Interview - Natural Adversaries?

*Historian David Lindberg shows that Christianity and science are not at war - and may never have been.*  
David Lindberg

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*Has Christianity always warred with science? Or, conversely, did Christianity create science? CH asked David Lindberg, Hilldale Professor Emeritus of the History of Science and currently director of the Institute for Research in the Humanities at the University of Wisconsin.*

*And he should know. Lindberg specializes in the history of medieval and early modern science, especially the interaction between science and religion. His *Beginnings of Western Science* (University of Chicago Press, 1992) is an oft-translated standard in the field. He is also currently the general editor, jointly with Ronald Numbers, of the forthcoming eight-volume Cambridge History of Science*

**Many people today have a sense that the church has always tried to quash science. Is this, indeed, the case?**

This view is known as the "warfare thesis." It originated in the seventeenth century, but it came into its own with certain radical thinkers of the French Enlightenment. These people were eager to condemn the Catholic Church and went on the attack against it. So, for example, the Marquis de Condorcet (1743-1794), a mathematician and philosopher, assured his readers that Christianity's ascension during the Middle Ages resulted in "the complete decadence of philosophy and the sciences."

**So how did this myth get from eighteenth-century France to twenty-first-century North America?**

The men mostly responsible are John William Draper (1811-1882) and Andrew Dixon White (1832-1918). The more influential of the two was White, first president of Cornell University, who evoked strong opposition from religious critics for the secular curriculum (emphasizing the natural sciences) that he established at Cornell.

White responded with bitter attacks on his critics, culminating in his two-volume *History of the Conflict Between Science and Religion* (1874). White's book, still in print, continues to be powerfully influential.

**What other myths about science and Christianity are commonly accepted today?**

One obvious one maintains that before Columbus, Europeans believed nearly unanimously in a flat earth—a belief allegedly drawn from certain biblical statements and enforced by the medieval church.

This myth seems to have had an eighteenth-century origin, elaborated and popularized by Washington Irving, who flagrantly fabricated evidence for it in his four-volume history of Columbus. The myth was then picked up by White and others.

The truth is that it's almost impossible to find an educated person after Aristotle (d. 322 B.C.) who doubts that the earth is a sphere. In the Middle Ages, you couldn't emerge from any kind of education, cathedral school or university, without being perfectly clear about the earth's sphericity and even its approximate circumference.

### **Why does the myth live on?**

Because it is a great illustration of other myths people fervently believe in, such as the barbaric ignorance of medieval people and the warfare thesis. You don't easily give up your best illustration of a deeply held belief.

### **Was there conflict between Christianity and science before the scientific revolution?**

Christianity and science had a complex relationship.

Before Christ's birth, Aristotle, Plato, Ptolemy, and Galen had written treatises on scientific questions. These books entered medieval Christendom during the twelfth century in Latin translation from Greek and Arabic versions. Christian scholars immediately realized that these books were incredibly impressive and valuable, teaching them how to think about a wide range of scientific questions.

But it was also clear that this body of writings (especially those by Aristotle) contained theological land-mines.

Aristotle believed in the eternity of the world.

He also judged the world to be deterministic, with no room for divine providence and divine action.

And Aristotle's philosophy was set within a rationalistic framework that maintained that true knowledge could be achieved only through observation and reason—thereby ruling out revelation as a source of truth.

Now one of the most durable myths about science and religion is that the church responded to these theologically dangerous teachings by suppressing Aristotle's writings and the rest of the ancient Greek scientific tradition.

### **What really happened?**

Medieval scholars (university professors, including theology professors) were confronted by a terrible dilemma. They were not prepared to compromise the central doctrines of Christian theology. But they also recognized that the classical sciences had great explanatory power.

They preferred peace to warfare, so they looked for ways to accommodate this powerful tradition. They corrected the ancient sources where that seemed necessary, and on occasion they reinterpreted theological doctrines. And they argued vigorously for the usefulness of the classical sciences.

There were certainly skirmishes, including several cases in which a university scholar was condemned for teaching doctrines judged dangerous, but most of these were local and temporary. And there was never anything approaching intellectual warfare between theologians and scientists.

Roger Bacon, an outstanding scientist of the thirteenth century, is a good example of some of these developments. Borrowing a theme from St. Augustine, he argued that the classical scientific tradition could be the faithful handmaiden of theology and religion.

Thomas Aquinas and Albert the Great also contributed to this enterprise. They worked their way through Aristotle's writings line by line, looking for ways to reinterpret him or revise Christian theological doctrines to make them consistent with each other.

The point is that in the end, Christendom made its peace with the classical tradition. Aristotle's writings became the centerpiece of medieval university education, and the church became their greatest patron.

### **What guided medieval scholars as they worked out this accommodation?**

St. Augustine (354-430), the most influential theologian of the Middle Ages, gave them their principal tool. Augustine had cautioned that Christians should not make fools of themselves by reading their astronomy from the Bible. Don't embarrass the Christian faith with half-baked science.

Here's what Augustine wrote in his *Literal Commentary on Genesis*:

"Usually, even a non-Christian knows something about the earth, the heavens, and the other elements of this world, about the motion and orbit of the stars and even their size and relative positions, about the predictable eclipses of the sun and moon, the cycles of the years and the seasons, about the kinds of animals, shrubs, stones, and so forth, and this knowledge he holds as certain from reason and experience.

"Now it is a disgraceful and dangerous thing for an infidel to hear a Christian, presumably giving the meaning of Holy Scripture, talking nonsense on these topics; and we should take all means to prevent such an embarrassing situation, in which people reveal vast ignorance in a Christian and laugh that ignorance to scorn."

The result of Bacon's work, and Aquinas's, and Albert's, and that of many others less well known, was a Christianized Aristotle and an Aristotelianized Christianity.

### **And does this Christianization affect or limit science in any way?**

It depends on the area. In technical areas—the mathematical sciences, medicine, and other "non-worldview" sciences—not in the least. For example, in the history of geometrical optics (a favorite study of medieval scholars and one of my own historical specialties), I have yet to find a single theoretical claim that is in any way altered by the Christian context in which that research took place.

### **Did Christianization ever motivate scientific investigation?**

Definitely. For example, Roger Bacon argued that if you wanted to interpret scriptural passages that touch on the heavens or other objects of scientific investigation, you had to have scientific knowledge. And quite a large amount of scientific content is found in medieval theological treatises.

### **Given everything you've said, what can we conclude about the causes of the scientific**

## revolution?

There are two widely-held theories, both involving religion. One maintains that the scientific revolution was the product of European secularization, as Christianity lost its hold on educated Europeans. The other claims that the scientific revolution was a product of religious reform—specifically, the Protestant Reformation.

In my opinion, neither of these positions is defensible. Many factors contributed to the scientific revolution, but it was most fundamentally a continuation and outgrowth of medieval institutions (the universities) and of the Christianized classical scientific tradition of the Middle Ages.

So neither Protestants nor Catholics invented modern science. Their theology or worldview was not the ground or source from which modern science emerged; but they did provide a context within which the natural sciences developed and flourished.

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