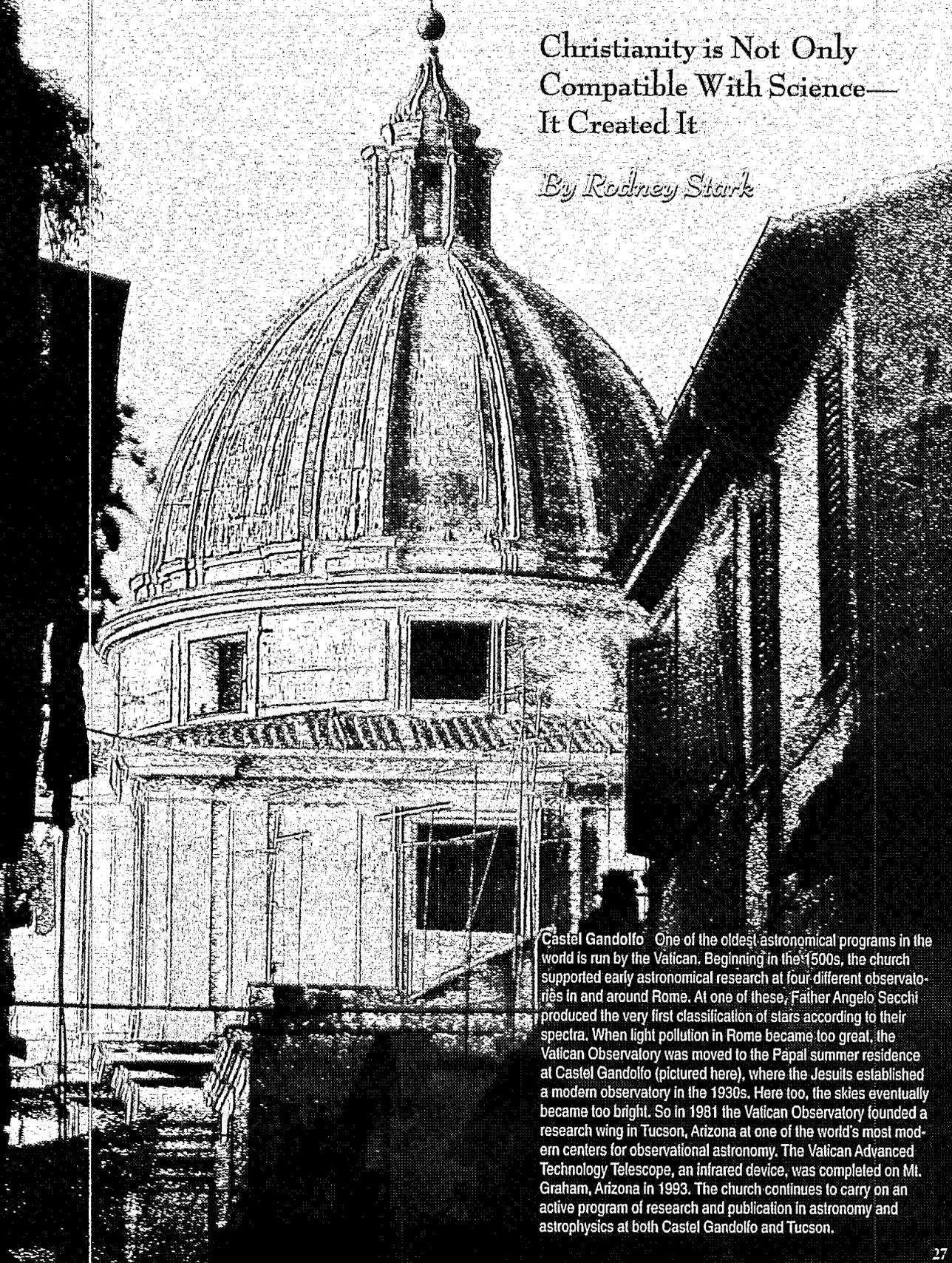


# False Conflict

Christianity is Not Only  
Compatible With Science—  
It Created It

*By Rodney Stark*



**Castel Gandolfo** One of the oldest astronomical programs in the world is run by the Vatican. Beginning in the 1500s, the church supported early astronomical research at four different observatories in and around Rome. At one of these, Father Angelo Secchi produced the very first classification of stars according to their spectra. When light pollution in Rome became too great, the Vatican Observatory was moved to the Papal summer residence at Castel Gandolfo (pictured here), where the Jesuits established a modern observatory in the 1930s. Here too, the skies eventually became too bright. So in 1981 the Vatican Observatory founded a research wing in Tucson, Arizona at one of the world's most modern centers for observational astronomy. The Vatican Advanced Technology Telescope, an infrared device, was completed on Mt. Graham, Arizona in 1993. The church continues to carry on an active program of research and publication in astronomy and astrophysics at both Castel Gandolfo and Tucson.

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opular lore, movies, and children's stories hold that in 1492 Christopher Columbus proved the world is round and in the process defeated years of dogged opposition from the Roman Catholic Church, which insisted that the earth is flat. These tales are rooted in books like *A*

*History of the Warfare of Science with Theology in Christendom*, an influential reference by Andrew Dickson White, founder and first president of Cornell University. White claimed that even after Columbus' return "the Church by its highest authority solemnly stumbled and persisted in going astray."

The trouble is, almost every word of White's account of the Columbus story is a lie. All educated persons of Columbus' day, very much including the Roman Catholic prelates, knew the earth was round. The Venerable Bede (c. 673-735) taught that the world was round, as did Bishop Virgilius of Salzburg (c. 720-784), Hildegard of Bingen (1098-1179), and Thomas Aquinas (c. 1224-74). All four ended up saints. *Sphere* was the title of the most popular medieval textbook on astronomy, written by the English scholastic John of Sacrobosco (c. 1200-1256). It informed that not only the earth but all heavenly bodies are spherical.

The religious figures who challenged Columbus and advised against funding him not only knew the earth was round, they also knew it was far larger than Columbus thought; they opposed his plan only on the grounds that he had badly underestimated the circumference of the earth and was counting on much too short a voyage. Columbus claimed that it was about 2,800 miles from the Canary Islands to Japan, when it is actually around 14,000 miles. Had the Western Hemisphere not surprised him, Columbus and his crew would have died at sea.

So, why does the fable of the Catholic Church's ignorance and opposition to the truth persist? Because the claim of an inevitable and bitter warfare between religion and science has, for more than three centuries, been the primary polemical device used in the atheist attack on faith. From Thomas Hobbes and Andrew Dickson White through Carl Sagan and Richard Dawkins, false claims about religion and science have been used as weapons in the battle to "free" the human mind from the "fetters of faith."

The truth is, there is no inherent conflict between religion and science. Indeed, the fundamental reality is that Christian theology was essential for the rise of science—a fact little appreciated outside the ranks of academic specialists.

Recent historical research has debunked the idea of a "Dark Ages" after the "fall" of Rome. In fact, this was an era of profound and rapid technological progress, by the end of which Europe had surpassed the rest of the world. Moreover, the so-called "Scientific Revolution" of the sixteenth century was a result of developments begun by religious scholars starting in the eleventh century. In my own academic research I have asked

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why these religious scholastics were interested in science at all. Why did science develop in Europe at this time? Why did it not develop anywhere else? I find answers to those questions in unique features of Christian theology.

Even in the sixteenth and seventeenth centuries, the leading scientific figures were overwhelmingly devout Christians who believed it their duty to comprehend God's handiwork. My studies show that the "Enlightenment" was conceived initially as a propaganda ploy by militant atheists attempting to claim credit for the rise of science. The falsehood that science required the defeat of religion was proclaimed by self-appointed cheerleaders like Voltaire, Diderot, and Gibbon, who themselves played no part in the scientific enterprise—a pattern that continues today. I find that through the centuries (including right up to the present day), professional scientists have remained about as religious as the rest of the population—and far more religious than their academic colleagues in the arts and social sciences.

Having immersed myself for some years in recent historical studies on this subject I can report that these conclusions now enjoy a consensus among historians of science. Yet these truths are almost entirely unknown outside narrow scholarly circles. If asked, most well-informed people would express their absolute certainty that most of this could not possibly be true—I used to share that view. What follows is my attempt to formulate a more accurate picture of the history of the association between theology and science. It has been an extraordinarily creative relationship.

Science is not merely technology. A society does not have science simply because it can build sailing ships, smelt iron, or fashion porcelain dishes. Science is a *method* used to formulate systematic *explanations of nature*, always subject to future modification and correction. The technical innovations of prehistory, of Greco-Roman times, of Islam, of Imperial China, do not constitute science. Even when they were built on careful empirical observation, they mostly lacked the explanations and accurate theorizing that distinguish science.

Aristotle, for example, taught that the speed at which objects fall to earth is proportionate to their weight. That means a stone twice as heavy as another will fall twice as fast. A trip to any of the nearby cliffs would have allowed him to falsify this proposition.

It is the consensus among contemporary historians, philosophers, and sociologists of science that real science arose only once: in Europe. It is instructive that China, Islam, India, ancient Greece, and Rome all had a highly developed alchemy. But only in Europe did alchemy develop into chemistry. By the same token, many societies developed elaborate systems of astrology, but only in Europe did astrology lead to astronomy. And these transformations took place at a time when folklore has it that a fanatical Christianity was imposing a general ignorance on Europe—the so-called Dark Ages.

Spurred by the pioneering work of Henri Pirenne (1862-1935) and Marc Bloch (1886-1944), scholars have realized for several decades that Christianity played no role in the defeat of Rome and

that the “Dark Ages” weren’t so dark. The decline of Rome had many reasons, but the actual “fall” was nothing more than the culmination of several centuries of a shift in military capacity from the Romans to various Germanic groups. When the last battles came, Germans made up most of the Roman Army as well, and in that sense had already supplanted the ethnic Romans.

As a result of the military defeat of Rome, the political and cultural center of Europe shifted northward. It is this shift that was interpreted as a cultural and intellectual decline by those who, many centuries later, equated civilization with the writings of a tiny group of Greco-Roman intellectuals. To this earlier generation of scholars, enlightenment was to be found only in books and abstract ideas, certainly not in machines or in farming practices. As French historian Jean Gimpel has put it, the “scorn of men of letters for engineers throughout history has kept them, all too often, oblivious to the technology created by those engineers.”

Whatever their differences from the leaders of classical Greece and Rome, Europe’s leading scholars of, say, the eighth century were no “barbarians.” Certainly not morally: Both Plato and Aristotle owned slaves, while “Dark Age” Europeans rejected slavery. Nor in terms of technology: The Medieval period, says Gimpel, was “one of the great inventive eras of mankind,” as machinery was developed and put into use “on a scale no civilization had previously known.”

Within just the last generation there has come a flood of books establishing that long before the end of the Middle Ages, before any “Renaissance,” “Enlightenment,” or “Scientific Revolution,” Europe’s technology advanced far beyond anything achieved by the ancients: effective waterwheels, mills, camshafts, mechanical clocks, the compass, and so on.

Not all of these were original inventions. Consider gunpowder. The Chinese were the first to use an explosive powder, but it is a misnomer to call it gunpowder since the Chinese did not develop guns, limiting its use to fireworks. When knowledge of this Chinese explosive arrived in Europe, probably during the first decade of the fourteenth century, the application to gunnery was immediate—cannon probably were first used in battle during a siege of Metz in 1324. What is certain is that by 1325 cannon existed across all of Western Europe.

The rapid adoption of the compass is another compelling example. The claim that the magnetic compass reached Europe from China through Islam is false. Apparently, it was invented independently in both China and Europe around the eleventh century. The Chinese were satisfied with a very crude compass involving a magnetized needle floating in a liquid which enabled them to determine the North-South axis, which was primarily of magical concern. In contrast, soon after discovering the floating needle compass, medieval Europeans added the compass card and then the sight which allowed mariners not only to know which way was North, but to set accurate courses in any direction. It spread among sailors from Italy to Norway in only a few years.

Far from Christianity plunging Europe into an era of ignorance and backwardness, so much technical progress took place

during this era that by no later than the thirteenth century, European technology surpassed anything to be found elsewhere in the world. This did not occur because of the “rediscovery” of classical knowledge. There is no more misleading account of Western civilization than the one that starts with classical culture and proceeds directly to the “Renaissance,” dismissing the millennium in between as an unfortunate and irrelevant interlude. Western civilization is not the direct descendant of Greco-Roman culture. It is the product of centuries of interaction between the cultures of the Germanic “barbarians” who superseded the Romans (who had far more sophisticated cultures than had been acknowledged) and Christianity. The subsequent addition of Greco-Roman learning was more decorative than fundamental.

The progress achieved during the “Dark Ages” was not merely technological. Medieval Europe excelled in philosophy and science. The term “Scientific Revolution” is in many ways as misleading as “Dark Ages.” Both were coined to discredit the medieval Church. The notion of a “Scientific Revolution” has been used to claim that science suddenly burst forth when a weakened Christianity could no longer prevent it, and as the recovery of classical learning made it possible. Both claims are as false as those concerning Columbus and the flat earth.

First of all, classical learning did not provide an appropriate model for science. Second, the rise of science was already far along by the sixteenth century, having been carefully nurtured by religiously devout scholastics. Granted, the era of scientific discovery that occurred in the sixteenth and seventeenth centuries was marvelous, the cultural equivalent of the blossoming of a rose. But, just as roses do not spring up overnight, and must undergo a long period of normal growth before they even bud, so too the blossoming of science was the result of centuries of intellectual progress.

From Ockham through Copernicus, the development of the heliocentric model of the solar system was the product of the universities—that most Christian invention. From the start, the medieval Christian university was a place created and run by scholars devoted entirely to knowledge. The autonomy of indi-



Christian theology was essential to the invention of science. And the “Scientific Revolution” was led mostly by deeply religious men acting on religious motivations.





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Nor were these devout scholars intimidated by classical learning. Scholastics such as Jean Buridan and Nicole d’Oresme rejected many erroneous claims made by classical writers. Albertus Magnus (1205-1280) supplemented and corrected Aristotle, putting his empirical claims to observational testing and frequently finding them to be in error. Along the way he instituted a tradition of research that led directly to the breakthroughs in biology and physiology of the sixteenth and seventeenth centuries.

It was the Christian scholastics, not the Greeks, Romans, Muslims, or Chinese, who built up the field of physiology based on human dissections. Once again, hardly anyone knows the truth about dissection and the medieval Church. Human dissection was not permitted in the classical world (“the dignity of the human body” forbade it), which is why Greco-Roman works on anatomy are so faulty. Aristotle’s studies were limited entirely to animal dissections, as were those of Celsius and Galen. Human dissection also was prohibited in Islam.

With the Christian universities came a new outlook on dis-

vidual faculty members was carefully guarded. Since all instruction was in Latin, scholars were able to move about without regard for linguistic boundaries, and because their degrees were mutually recognized, they were qualified to join any faculty. It was in these universities that European Christians began to establish science. And it was in these same universities, not later in the salons of *philosophes* or Renaissance men, that the classics were restored to intellectual importance. The translations from Greek into Latin were accomplished by exceedingly pious Christian scholars.

The Italian “Renaissance” was not a “rediscovery” of classical learning. Rather, it was a period of cultural emulation during which people of fashion copied the classical style in manners, art, literature, and philosophy. Out of passion for their own ancient days of glory, explains French historian Régine Pernaud, Italians began to claim that Western history con-

sisted of “two periods of light: antiquity and the Renaissance...and between the two...crude centuries and obscure times.” Thus, from fashionable enthusiasm and ethnic pride was born the notion of a dark age followed by a dawning of a new enlightenment. But, it wasn’t so. Scholastic scholars knew and understood the works of Plato, Aristotle, and all the rest.

Unfortunately, these facts are not as widely known as A. D. White’s indignant, error-ridden claims a century ago about how the great physiologist Andrea Vesalius (1514-1564) “risked the most terrible dangers, and especially the charge of sacrilege” by conducting human dissections. White went on to claim that anyone who dissected a human body at this time risked “excommunication,” but that the heroic Vesalius “broke without fear” from “this sacred conventionalism” and proceeded “despite ecclesiastical censure.... No peril daunted him.” In truth, Vesalius’ work received immense acclaim immediately upon publication. As for Vesalius’ religious views, he died while returning from a pilgrimage to the Holy Land. Thus we uncover another bogus account of the unrelenting religious opposition to science. But this one, like others, has left a deep and twisted effect on our intellectual culture.

I still haven’t addressed *why* the scholastics and later Europeans were interested in science at all. At first glance, that may seem a foolish question. Isn’t the rise of science a normal aspect of cultural progress, of the rise of civilizations? Not at all. Many quite sophisticated societies did not generate communities of scientists, or produce any body of systematic theory and observation that qualifies as science. Although China was quite civilized during many centuries when Europeans were still rude savages, the Chinese failed to develop actual science.

Similarly, although in full possession of the whole corpus of Greco-Roman scholarship, and having made some impressive advances in mathematics, Islamic scholars did not become scientists. Once they mastered the classic texts, Muslim scholars added little or nothing of their own. Nor did science arise in ancient India or Egypt. And while classical Greece had considerable learning, it did not have science.

As noted, science consists of an organized effort to explain natural phenomena. Why did this effort take root in Europe and nowhere else? Because Christianity depicted God as a rational, responsive, dependable, and omnipotent being, and the universe as his personal creation. The natural world was thus understood to have a rational, lawful, stable structure, awaiting (indeed, inviting) human comprehension. “The heavens declare the glory of God; and the firmament showeth His handiwork,” states Psalm 19.

Christians developed science because they believed it could—and should—be done. Alfred North Whitehead, the great philosopher and mathematician, co-author with Bertrand Russell of the landmark *Principia Mathematica*, credited “medieval theology” for the rise of science. He pointed to the “insistence on the rationality of God,” which produced the belief that “the search into nature could only result in the vindication of the faith.”

Whitehead ended with the remark that the images of God found in other religions, especially in Asia, are too impersonal or too irrational to have sustained science. A God who is capricious or unknowable gives no incentive for humans to dig deeply into his essence. Moreover, most non-Christian religions don't posit a creation. If the universe is without beginning or purpose, has no Creator, is an inconsistent, unpredictable, and arbitrary mystery, there is little reason to explore it. Under those religious premises, the path to wisdom is through meditation and mystical insights, and there is no occasion to celebrate reason.

In contrast, Tertullian, one of the earliest Christian theologians (c. 160-225), instructed that God has willed that the world he has provided "should be handled and understood by reason." The weight of opinion in the early and medieval church was that there is a duty to understand, in order to better marvel at God's handiwork. Saint Augustine (354-430) held that reason was indispensable to faith: "Heaven forbid that God should hate in us that by which he made us superior to the animals! Heaven forbid that we should believe in such a way as not to accept or seek reasons, since we could not even believe if we did not possess rational souls." Of course, Christian theologians accepted that God's word must be believed even if the reasons were not apparent. In matters "that we cannot yet grasp by reason—though one day we shall be able to do so—faith must precede reason," stated Augustine.

Note the optimism that reason will reveal more and more truth as time accumulates. Saint Thomas Aquinas (c. 1225-1274) attempted in his monumental *Summa Theologiae* to fulfill Augustine's optimism that some of these "matters of great importance" could be grasped by reason. Though humans lack sufficient intellect to see directly into the essence of things, he argued they may reason their way to knowledge step-by-step, using principles of logic. This is the methodology of science.

Centuries of meditation will produce no empirical knowledge, let alone science. But if religion inspires efforts to comprehend God's handiwork, science will arise as a "handmaiden" of theology. And that's precisely how not only the scholastic scientists but also those who took part in the great achievements of the sixteenth and seventeenth centuries saw themselves—as pursuers of the secrets of the Creation. Charles Webster has summed up the consensus among recent historians of science: "Any truly historical account...must pay due attention to the deep interpenetration of scientific and religious ideas. It would seem perverse to deny religious motivation in the numerous cases where this was made explicit by the scientists themselves, often with painful emphasis. No direction of energy toward science was undertaken without the assurance of Christian conscience."

The great figures of the heyday of scientific discovery—including Descartes, Galileo, Newton, and Kepler—actively professed their absolute faith in a Creator God, whose work incorporated rational rules awaiting their discovery. Robert Boyle, the pioneering chemist, expended a considerable portion of his limited funds to have the Bible translated into various languages. Naturalist John Ray left Cambridge because he was unwilling on religious grounds

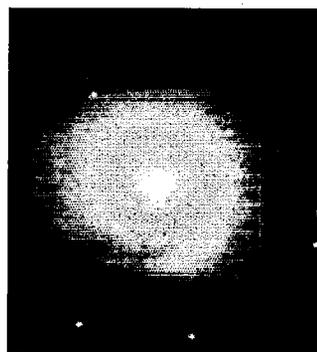
to take the required oaths of loyalty to Charles II. Far from being a rejection of religion, the "Scientific Revolution" was led mostly by deeply religious men acting on religious motivations.

To sum up: The rise of science was not an extension of classical learning. It was the natural outgrowth of Christian doctrine: Nature exists because it was created by God. In order to love and honor God, it is necessary to fully appreciate the wonders of his handiwork. Moreover, because God is perfect, his handiwork functions in accord with immutable principles. By the full use of our God-given powers of reason and observation it ought to be possible to discover these principles. These crucial religious ideas were why the rise of science occurred in Christian Europe, not somewhere else.

The identification of the era beginning around 1600 as the "Enlightenment" is as inappropriate as the identification of the millennium before it as the "Dark Ages." And both imputations were made by the same people—intellectuals who wished to associate faith with darkness and secular humanism with light. One of the first steps in this effort was to designate their own era as the "Enlightenment," and to claim it a sudden and complete disjuncture with the past. Voltaire (1694-1778) described medieval Europe as hopelessly morassed in "decay and degeneracy." Rousseau (1712-1778) referred to a "relapse into barbarism" and "centuries...in a condition worse than ignorance." When Jacob Burckhardt popularized the idea of the "Renaissance" a hundred years later, the "Dark Ages" were an historical certitude, not to be shaken until late in the twentieth century.

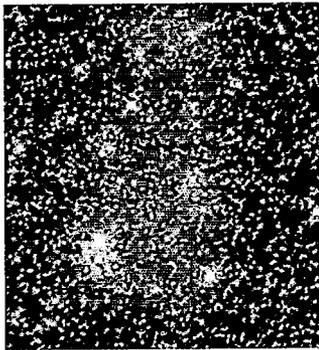
It was not enough to blame the "Dark Ages" on Christianity; religion also had to be denied any credit for the rise of science. Hence, it was necessary to discredit the achievements of the scholastic era. One after another of the *philosophes* condemned Catholic scholarship until the word "scholastic" became an epithet—defined as "pedantic and dogmatic" according to any edition of Webster's.

With the past out of the way, David Hume, Voltaire, and their



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understands all things.”

Moreover, Newton had written four letters explaining his theology to Richard Bentley during 1692 and 1693. In the “Bentley letters” Newton ridiculed the idea that the world could be explained in impersonal, mechanical terms. Having discovered the elegant lawfulness of things, Newton believed he had demonstrated once and for all the certainty of an intelligent, aware, omnipotent God behind all existence. Any other assumption, he wrote, is “inconsistent with my system.”

The real Isaac Newton was the quintessential student of God’s handiwork, believing not only in the existence of divine physical laws, but that similar divine laws governed history as well. Two centuries of efforts to depict Isaac Newton as having been much too sophisticated to believe in God were motivated by precisely the same biases as the false stories about Columbus, about Vesalius, about the “Dark Ages,” about the “Enlightenment,” and about the scholastics: that science stands in opposition to religion; that no important scientific work can be

achieved or even fully understood by minds dominated by “superstition”; that the “Scientific Revolution” made it impossible for an intelligent person to be religious. These are the slogans of one of the longest-running and most effective polemical campaigns in Western history.

associates wrapped themselves in the achievements of science in order to authenticate their condemnation of religion. Their hope, in the words of Peter Gay, was that “science could [supply] the deists and atheists...with what they wanted—Newton’s physics without Newton’s God.” In 1802, the French *philosophe* Claude-Henri de Saint-Simon (1760-1825) actually founded a Godless religion to be led by scientist-priests and called it the Religion of Newton. (His pupil Auguste Comte renamed it “sociology.”)

As the “Enlightenment” became more outspokenly atheistic and more determined to establish the incompatibility of science and religion, Newton’s actual religion became a difficulty. Newton’s religious views were not in question. In 1713 he published an extensive essay of his ideas about God. Newton concluded that “the true God is a living, intelligent, powerful Being.... He governs all things, and knows all things that are done or can be done.... He endures forever, and is everywhere present.... As a blind man has no idea of colors, so have we no idea of the manner by which the all-wise God perceives and

achieved or even fully understood by minds dominated by “superstition”; that the “Scientific Revolution” made it impossible for an intelligent person to be religious. These are the slogans of one of the longest-running and most effective polemical campaigns in Western history.

But while the campaign has had a very significant impact on the intellectual world in general—as seen in the makeup of college faculties, in literature and film, even in dictionaries—the crusade against religion seems not to have made much headway with scientists themselves.

During the nineteenth century, the relationship between theology and science grew nearly as close and creative as during the Middle Ages. While early science was stimulated by theology, now theology was in turn stimulated by the latest scientific discoveries. Christianity had always encouraged the assumption that immutable natural laws existed. Now the demonstrated precision of these laws was taken as evidence of the existence of God.

At this time, astronomical observatories were built in many cities across the United States, paid for by public fundraising campaigns organized by devout Christians who wished to make it possible for people to observe the wonders of God’s handiwork. Leading astronomers were particularly popular lecturers in religious as well as scientific circles—if, in fact, it is possible to distinguish two such circles at this time. The rapidly growing system of American higher education, wherein most scientists were based, was itself almost entirely a religious creation, inspired by denominational competition.

It was not only theologians who were eager to unite religion and science; leading scientists undertook similar efforts. Louis Agassiz (1807-1873), among the most important geologists of the century and the first to hold an appointment at Harvard, combined brilliant fieldwork (including pioneering research on the Ice Age) with elegant arguments that biological classification systems were an effort to read “the mind of the Creator.” Right up to the present moment, most scientists have seen no necessary conflict between science and religion.

Probably the first-ever survey of scientists was conducted by Francis Galton in 1872. Galton, who was Charles Darwin’s cousin and one of the founders of quantitative psychology, mailed questionnaires to about 190 “English men of science.” One of his inquiries asked: “Has the religion taught in your youth had any deterrent effect on the freedom of your researches?” When Charles Darwin filled out the questionnaire he simply responded “No.” That answer greatly surprised Galton. A militant atheist, Galton had expected that nearly every respondent would answer “Yes.” To his amazement, more than 90 of the 100 scientists who filled out his questionnaire answered “No” to the question of religion deterring research. To his dismay, Galton also discovered that almost every respondent claimed a church affiliation. Trying to explain away a result he disliked, Galton admitted that many respondents expressed strong religious views but insisted these scientists must surely be

“careless of dogma and exempt from mysterious terror.”

In 1914, the American psychologist James Leuba sent questionnaires to a random sample of people listed in *American Men of Science*. Each was asked to select one of the following statements “concerning belief in God.”

1. I believe in a God to whom one may pray in the expectation of receiving an answer. By “answer,” I mean more than the subjective, psychological effect of prayer.

2. I do not believe in God as defined above.

3. I have no definite belief regarding this question.

Leuba’s standard for belief in God is so stringent it would exclude a substantial portion of “mainline” clergy, and that obviously was intentional on his part. He wanted to show that men of science were irreligious. To his great disappointment, Leuba found that 42 percent of his sample of prominent scientists selected option one, thereby taking a position many would regard as “fundamentalist.” When Leuba’s study was exactly repeated in 1996, the results were unchanged. Over an 82-year period, there was no decline among scientists in a very literal belief in God.

Religiosity of Scientists			
scholarly field	% religious	% religious conservative	% no religion
<i>hard sciences</i>			
Mathematics/statistics	60	40	27
Physical sciences	55	34	27
Life sciences	55	36	29
<i>social sciences</i>			
Economics	50	26	30
Political science	51	18	30
Sociology	49	16	36
Psychology	33	12	48

Source: Carnegie Commission survey of 60,028 academics, 1969.

The most extensive evidence on the religious views of scientists comes from a massive survey of more than 60,000 professors (approximately one fourth of all the college faculty in America) conducted in 1969 by the Carnegie Commission. The survey centered on academic issues and political-social attitudes, but also included questions like: “How religious do you consider yourself?” “How often do you attend religious services?” “What is your present religion?” and “Do you consider yourself religiously conservative?”

The table above summarizes responses from scientists in various fields. Two rather striking findings challenge claims about the incompatibility of religion and science. First, levels of religiosity are relatively high. A majority of hard scientists think of themselves as deeply or moderately religious—only among social scientists (45 percent) is this a minority response. Nor do scientists restrict themselves to tepid faiths—close to four out of ten faculty members in the hard sciences characterized themselves as “religiously conservative.” Moreover, scientists attend church at the same level of regularity as the general population—47 percent of mathematicians and statisticians reported attending services two or three times a month or more, as did 43 percent of physical scientists and 42 percent of professors in the life sciences.

The second striking finding is that social scientists are substantially less religious than those in harder sciences. This sheds a great deal of light on why it is so widely believed that religion and science are incompatible—after all, most of twentieth-century literature on this topic was written by social scientists.

The contrast between the social and the physical sciences is well-illustrated by an anecdote. In 1940, A. S. Yahuda, a Yale professor who acquired a collection of Newton’s manuscripts, offered to show Newton’s theological works to the eminent Harvard historian George Sarton. Sarton declined rather ungraciously on grounds that he was exclusively interested in science. But when Yahuda showed the manuscripts to Albert Einstein, the great physicist found them fascinating and wrote a letter in which he expressed his delight in entering Newton’s “spiritual workshop.”

Einstein himself was quite given to “God talk.” In 1911, he told the Jewish philosopher Martin Buber that “What we [physicists] strive for is just to draw His lines after Him.” In 1921, he told a young physicist “I want to know how God created this world.... I want to know His thoughts, the rest are details.” Two remarks about God that Einstein made frequently became famous: “God is subtle, but he is not malicious,” and “God does not play dice with the world.”

Such expressions did not, and do not, raise eyebrows in the world of the physical and natural sciences. But any social scientist who talked that way would be stigmatized among her or his peers. That’s probably why most sociologists of science follow Sarton’s example. Not only are they not interested in Newton’s or Einstein’s God talk, they show little or no interest in the current revival of such talk in scientific circles.

On July 20, 1998, *Newsweek* proclaimed on its cover that “Science Finds God.” Given the assumptions that have governed intellectual opinions about science and religion for most of the last century, the discovery that many sophisticated scientists think a Creator offers the most economical explanation of the world is now news of front-page magnitude. Yet, it was hardly an overnight development. A landmark in the resumption of serious dialogue between science and theology was Ian Barbour’s 1966 book *Issues in Science and Religion*. Ever since, reputable efforts to link science and religion have attracted large readerships.

Efforts to demonstrate that God is a necessary element in any comprehensive explanation of the universe by scientists such as the Noble physics laureate Charles Townes and Royal Society of London member John Polkinghorne are entirely in keeping with a long tradition. It might even be said that these renewed links are a return to the normal relationship between theology and science. It was Einstein who counseled that “Science without religion is lame. Religion without science is blind.”

I do not claim that scientists must include God within their cosmologies, or that nonbelievers can’t do good science. But it is a fact that the origins of science lie in Christian theology. And it is clear that religion and science remain quite compatible today.



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