

God and Science in the 21st Century

by Br. Guy Consolmagno, SJ

“The eternal war between science and religion” is not much of a war; plenty of deeply religious people are also excellent scientists. And certainly, it is not particularly eternal. The relationship between theology and science is constantly evolving.

Obviously the basic premise that science is inherently inimical to religion is demonstrably false. Science began with religion. Most of the originators of science in the middle ages were priests. Most scientists at the birth of modern science (Kepler, Newton, and even Galileo) cited theological ideas as their inspiration. Indeed, through the nineteenth century, many scientists were clergymen; who else had the education and free time to pursue science? Our science today is founded on the work of priests: Mendel (genetics), Secchi (astrophysics), Lemaître (Big Bang cosmology).

The myth of this eternal war was strongly promoted, however, as a part of the “whiggism” of the late nineteenth century: Science, alone, would lead humankind to a new paradise of peace and plenty. The twentieth century’s history of pollution and mechanized warfare should have put that idea to rest, though there are some even today who cling to that quaint Victorian notion.

One response from the Church to the slander that religion must somehow be anti-science was to establish in 1891 the Vatican Observatory: an astronomical institute dedicated to doing scientific research, under the direct sponsorship of the pope. I’ve been a part of that Observatory for twenty-five years, and for the past year I’ve had the honor of being its director. Today we are a dozen Jesuit scientists (along with diocesan and lay collaborators) working in fields from cosmic dust, to galaxies, to cosmology and string theory.

Since our mission is to show the world that the Church supports science, a good portion of my time beyond my own research has been spent in public outreach. And the responses I have heard from my audiences have evolved over the past twenty-five years.

One fascinating development has been a shift away from the so-called “new atheists.” They were the science popularizers (mostly white, mostly male, and now mostly elderly) who, in the 1990s, started promoting anti-religious views in many popular books and television appearances. For a while, they were the vanguard of a social current that got great pleasure in storming the religious establishment with the glory of Science.

Br. Guy Consolmagno, SJ, is a planetary scientist and director of the Vatican Observatory

But while there are still plenty of young people searching for truth who question (or simply ignore) religion, a casual perusal of social media shows that many of them have a distinct unease with the old prophets of the new atheism.

Part of the change, ironically, is that to an unchurched generation religion is no longer seen as a part of the establishment that youth must rebel against. Furthermore, there is a sense that the new atheists have overplayed their hand; their brand of atheism has started to become a fundamentalism as rigid and intolerant as their view of the religion it once opposed.

In the same way, many of the “new atheists” have revealed themselves via social media to be stunningly insensitive to ethnic and religious minorities. And parallel to how the sexual abuse crises in the Church discredited religion, the once stylish “free thinking” sexual mores of some in the new atheist movement is recognized now by a younger generation as abusive and repugnant.

Feeding the demise of the new atheist movement is a new growth in understanding the actual history of the relationship between science and religion. Consider a widely used astronomy textbook of the 1990s, which summarized “everybody knows” attitudes about Galileo:

In 1616 Cardinal Bellarmine interviewed [Galileo] and ordered him to end his astronomical work. Books relevant to Copernicanism were banned, including *De Revolutionibus*... [At his trial in 1632, Galileo] must have thought often of Giordano Bruno, tried, condemned, and burnt at the stake in Rome in 1600. Bruno had been an outspoken critic of the Church in many respects, but one of his offenses was Copernicanism... Italy was no place to introduce unorthodox ideas that might challenge Church teachings.

Every element of that passage is at least an oversimplification, and, in some cases, simply false. Worse, the underlying assumption is conflict—the “eternal war” paradigm. But since the 1990s, a significant amount of academic progress has been made into the roots, and dynamics, of the Galileo affair and its aftermath. To quote a scholarly paper (*History of Science*, vol. 46, 2008) by the Yale historian David Marshall Miller, “studies of the Galileo Affair written in the past few decades have exploded this older ‘myth’ that Galileo’s condemnation was a conflict between science and faith, novelty and authority, or rationality and irrationality.”

To mention but two of many recent advances in our understanding of the origins of modern science, J. L. Heilbron’s 2010 biography *Galileo* puts the roots of his thinking into a broader intellectual and literary context, showing Galileo not as a lone genius but as a worthy product of a rich background. Meanwhile, C. Graney’s work (see papers in the *Journal of the History of Science* and a recent book, *Setting Aside All Authority*) on Galileo’s counterpart Riccioli has explored the legitimate scientific debate surrounding seventeenth-century heliocentrism. Graney’s work begins with the apparently revolutionary idea of actually reading the seventeenth-century literature rather than merely relying on what nineteenth-century authors had said about it. Much of the previous scholarship on Riccioli and other prominent skeptics of Galileo was tainted by a nineteenth-century hagiography of Galileo.

Modern work honors both Galileo and his rivals, revealing the depth of their debates; in the process it provides a fascinating insight into how scientific knowledge actually progresses. Another and perhaps most far-reaching effect of this new scholarship is that many modern astronomy textbooks (including later editions of the book quoted above) now devote a far more nuanced and detailed account of the Galileo affair.

But of all the developments in our understanding of how science and religion relate, the most notable to me, as someone working as a scientist within the hierarchy of the Church, is the change seen within the Church itself.

Back when Pope Leo XIII founded our observatory his intent was clearly apologetic; he wanted an institution that could defend the good name of the Church. But by the 1930s, the emphasis began to shift. Science (and astronomy in particular) was beginning to be recognized as worthy in its own right as an important way to come to know and appreciate the Creator. Pope Pius XI re-established a Pontifical Academy of Sciences in 1936, and his successor, Pope Pius XII, addressed it in 1939 with the wonderful insight “Man ascends to God by climbing the ladder of the Universe.”

But what is new in the last ten years has been the recognition that the intellectual pursuit of knowledge through science is not only a route to God and a means of worship, it is also intimately tied into the Church’s mission in faith and justice. Technology drives our economy. Training in science and technology is a route out of poverty, as has been clearly seen in so much of Asia. But more than that, a scientific worldview of cause-and-effect can empower people to analyze and understand their own situations. When oppression is seen not as a state of nature but a problem to be solved, solutions can be sought, analyzed, and implemented.

“In the beginning was The Word”—the *Logos*; logic. The Church and its theology promote reason. Its schools can bring a knowledge of reason to those who are hungry for it. Its moral precepts can provide standards for evaluating reasoned solutions to problems. And its focus on our Creator, whose love enlightens and sustains the universe, is the ultimate compass to guide our steps as we advance in wisdom and age.

Laudato Sí is the strongest expression to date of this connection between science and justice. In embracing the need to respond to the modern ecological crisis Pope Francis makes the exhilarating case that using science to understand this crisis is necessary but not, in itself, sufficient. The ultimate source of pollution is not technology, but sin. The ultimate cost of the sin of denying the science of climate change can be seen in the dire effects of our misuse of our planet on the poor. And the ultimate solution will not be found in technology, but in a change of heart of the people who use that technology.

Science advances by breaking complex systems into smaller, more understandable parts. An unfortunate side effect, however, has been an alienation between different academic fields or different aspects of the human experience. From such, myths such as a war between science and religion arise. But we can advance when those links are re-established. Our progress today is found in understanding science within history... and discovering the connections between science and justice.