

What is the proper relationship between science and religion?



"Science and theology have things to say to each other since both are concerned with the search for truth attained through motivated belief." — *John Polkinghorne*¹

NOMA

Science and religion are sometimes thought to offer entirely different and separate bodies of knowledge. Science is thought to provide systematized and empirical knowledge of the world and its behavior, whereas religion is thought only to give value and purpose for one's existence. This view is best summarized by Stephen J. Gould, who describes science and religion as Non-Overlapping Magisteria, or NOMA.

"[Each] subject has a legitimate magisterium, or domain of teaching authority—and these magisteria do not overlap (the principle that I would like to designate as NOMA, or "nonoverlapping magisteria"). The net of science covers the empirical universe: what is it made of (fact), and why does it work this way (theory). The net of religion extends over questions of moral meaning and value. These two magisteria do not overlap, nor

do they encompass all inquiry (consider, for starters, the magisterium of art and the meaning of beauty)." ²

There are many questions that can only be addressed either by science *or* by religion, and the NOMA view certainly describes much of the relevant terrain. The popular view that science and religion are engaged in an endless debate is a misunderstanding that arises from a limited picture. When creation and evolution clash in a courtroom, the daily news fills up with stories suggesting there is some profound conflict between science and religion. What does not make the daily news is the research of the majority of scientists on topics that do not come into contact with religion. The same is true of the work of theologians and biblical scholars investigating topics in fields unrelated to science. For example, scientists routinely study things like the migration patterns of animals, the atmospheres of planets and the lifetimes of elementary particles. It is all but impossible to find any religious significance to such investigations. Likewise, theologians and biblical scholars study the origins and development of scriptures, philosophical solutions to the problem of evil and the promise of eternal life. These topics do not connect in any natural way to science. The NOMA perspective is correct to highlight the extended nonoverlapping nature of science and religion.

NOMA, however, risks overcompartmentalization. If taken to an extreme, NOMA equates science with factual knowledge and religion with value or opinion. In that case, there would clearly be no overlap between the two disciplines.

Science is not the only source of factual statements, and religion does reach beyond the realm of values and morals. As Gould acknowledges, science is limited to the factual claims about the world's physical behavior, and therefore provides only a portion of complete knowledge. Writing on the same topic, Dr. Francis Collins borrows an example from astronomer Arthur Eddington:

"[Eddington] described a man who set out to study deep-sea life using a net that had a mesh-size of three inches. After catching many wild and wonderful creatures from the depths, the man concluded that there are no deep-sea fish that are smaller than three inches in length!" ³

With regard to religion, NOMA unfairly strips away a major part of its definition because religious belief extends beyond the realm of values. In fact, religious belief almost always includes certain metaphysical claims such as the existence of supernatural entities: God, moral laws, an afterlife, etc.

It is not enough, though, to show that NOMA motivates a false definition for science and religion. NOMA's central goal is its claim that science and religion do not, need not, and should not interconnect. Examples to the contrary are explored below.

Religion Informs Science

For centuries, religion has had plenty to say to science. To keep the discussion concise, the development of modern science is a good example. It is often thought that religious belief was actually a hindrance to the early progress of science, and the disagreement between the church and Galileo (see below) is cited as a popular case. However, religious belief actually was entirely compatible with scientific progress. For example, when the top 52 scientists during the emergence of modern science in medieval Europe were surveyed for their religious beliefs, 62 percent could be classified as devout, 35 percent as conventionally religious, and only two scientists, 3.8 percent, could be classified as skeptics.⁴ Given that many of these scientists — referred to as natural philosophers — helped lay the foundation for modern science, there is hardly room to suggest there was any incompatibility between scientific advancement and religion. With those statistics in mind, it should not be surprising that a religious worldview played a significant role in nurturing the development of modern science. This is well summarized by professor Roger Trigg:

"Their belief in God gave them confidence that the physical world, in all its complexity and vast extent, could be understood. [...] As a matter of historical fact, modern science has developed from an understanding of the world as God's ordered Creation, with its own inherent rationality."⁵

This is not to say that modern science would never have developed without the aid of religious faith. However, if religious belief can also function as a framework within which scientific progress flourishes, then there is certainly substantive interplay between the two bodies of knowledge.

Furthermore, religion has not only served to advance scientific discovery, but it also exerts a positive and significant influence on the practical application of scientific discoveries. With the constant advance of technology and medicine, new questions are continually raised as to what applications should be deemed ethically acceptable.⁶ (See Collins's Appendix in *The Language of God*.) The scientific method alone does not provide a way of answering these ethical questions but can only help in mapping out the possible alternatives. Such ethical concerns are only resolved by standards of morality that find grounding and authority through faith in a higher being.

Science Informs Religion

As mentioned above, one well-known historic example of the interaction between science and religion is the Galileo Affair. Although it is often cited as an example of conflict between science and religion, it is also a prime example of scientific contribution to religious belief. In Galileo's time there

was a heated disagreement over the interpretation of a few Bible verses in poetic sections of the Psalms. If it was assumed that these scriptures were meant to be read as science, and not primarily as poetry, then they could be interpreted to say that the Earth was physically central in the universe. However, Galileo had been convinced by Copernicus' argument that this was impossible. Galileo, who remained a loyal Catholic to the end of his life, makes his position clear In a letter to the Grand Duchess of Tuscany:

"[In] St. Augustine we read: 'If anyone shall set the authority of Holy Writ against clear and manifest reason, he who does this knows not what he has undertaken; for he opposes to the truth not the meaning of the Bible, which is beyond his comprehension, but rather his own interpretation, not what is in the Bible, but what he has found in himself and imagines to be there.' "

"This granted, and it being true that two truths cannot contradict one another, it is the function of expositors to seek out the true senses of scriptural texts. These will unquestionably accord with the physical conclusions which manifest sense and necessary demonstrations have previously made certain to us." ⁷

Galileo was not suggesting that his discoveries were contrary to the truth revealed through scripture, but that science had offered a refinement to their proper understanding. Even today there is plenty of opportunity for similar guidance, particularly when interpreting the first chapters of Genesis. Overwhelming scientific evidence points to an old earth. If the scriptures of Genesis are true, they are not meant to be interpreted as a step-by-step account of when or how God created the world.

Professor Donald Mackay offers a healthy perspective on scientific involvement with religion:

"Obviously a surface meaning of many passages could be tested, for example, against archaeological discoveries, and the meaning of others can be enriched by scientific and historical knowledge. But I want to suggest that the primary function of scientific enquiry in such fields is neither to verify nor to add to the inspired picture, but to help us in eliminating improper ways of reading it. To pursue the metaphor, I think the scientific data God gives us can sometimes serve as his way of warning us when we are standing too close to the picture, at the wrong angle, or with the wrong expectations, to be able to see the inspired pattern he means it to convey to us." ⁸

Conclusion

From the examples above, it is clear that science and religion can have a constructive relationship.

Oddly enough, some people argue that God's existence is actually a scientific claim and should be tested like any other. However, God's existence is not something that can be tested by the scientific method in the same way the existence of postulated new elementary particles are tested in supercolliders. Because science provides knowledge about the natural world, no amount of testing or theorizing could prove or disprove the existence of a supernatural creator. Rather than an empirical claim about nature or its laws, the claim that God exists is a metaphysical one, a statement about what there is, whether it be natural or supernatural.

Although there is clearly an overlap between science and religion, neither is an exhaustive source of truth. That is, there are still certain questions that should only be addressed by science or religion. In the same way that science cannot answer a question about life's purpose or the existence of God, one should be wary of using religious scriptures as a scientific textbook. While science and religion do interact and inform one another, one should always keep in mind the appropriate boundaries for each source of knowledge.

Consulted Experts:

The BioLogos Foundation is grateful for the assistance of [Denis Alexander](#) in drafting this response.

Notes

1. John Polkinghorne, "The Science and Religion Debate: An Introduction," *Faraday Papers*, no. 1 (2007), <http://www.faraday-institute.org>.
2. Stephen J. Gould, "Nonoverlapping Magesteria," *Natural History Magazine* 106 (1997). See also: Stephen Jay Gould, *Rocks of Ages: Science and Religion in the Fullness of Life*, 1st ed. (New York: Ballantine Books, 1999), 88.
3. Francis S. Collins, *The Language of God: A Scientist Presents Evidence for Belief* (New York: Free Press, 2006), 229.
4. Rodney Stark, *For the Glory of God: How Monotheism Led to Reformations, Science, Witch-Hunts, and the End of Slavery* (Princeton, NJ: Princeton University Press, 2003), 160-63.
5. Roger Trigg, "Does Science Need Religion?" *Faraday Papers*, no. 2 (2007), <http://www.faraday-institute.org>. See also John Hedley Brooke, ed., *Science and Religion: Some Historical Perspectives* (New York, N.Y.: Cambridge University Press, 1991).
6. See, for example, the appendix to Francis Collins, *The Language of God: A Scientist Presents Evidence for Belief* (New York: Free Press, 2006), 235.
7. Galileo Galilei, *Discoveries and Opinions of Galileo: Including The Starry Messenger (1610), Letter to the Grand Duchess Christina (1615), and Excerpts from Letters on Sunspots (1613)*,

The Assayer (1623), trans. Stillman Drake (New York: Anchor Books, 1990).

8. Donald MacCrimmon MacKay, *The Open Mind, and Other Essays* (Leicester, England: InterVarsity Press, 1988), 151-52. Quoted in: Ernest Lucas, "Interpreting Genesis in the 21st Century," *Faraday Papers*, no. 11 (2007), <http://www.faraday-institute.org>.

Further Reading

Lectures

- The Faraday Institute for Science and Religion. Lectures on the [History of Science and Religion](#).

Articles

- Alexander, Denis R. "[Models for Relating Science and Religion](#)." Faraday Papers.
- Dulles, Cardinal Avery. "[God and Evolution](#)." First Things.
- Polkinghorne, J.C. "[The Science and Religion Debate](#)." Faraday Papers.
- Trigg, Roger. "[Does Science Need Religion?](#)" Faraday Papers.

Books

- Alexander, Denis R. *Rebuilding the Matrix: Science and Faith in the 21st Century*. Oxford: Lion, 2001.
- Barbour, I.G. *When Science Meets Religion*. San Francisco: Harper San Francisco, 2000.
- Brooke, J. H. *Science & Religion: Some Historical Perspectives*. CUP, 1991.
- Lindberg, D., and R. Numbers, eds. *When Science and Christianity Meet*. Chicago: University of Chicago Press, 2004.
- Polkinghorne, J.C. *Beyond Science: The Wider Human Context*. Cambridge: CUP, 1996.
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