

School Boards Want to 'Teach the Controversy.' What Controversy?

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Lawrence Krauss is the Ambrose Swasey Professor of Physics, Professor of Astronomy, chair of the Department of Physics, and the Director of the Center for Education and Research in Cosmology and Astrophysics at Case Western Reserve University. An expert on particle astrophysics, he is also a prolific popularizer of science and cosmology. A frequent guest on radio and television programs, Dr. Krauss is the author of many books, including Fear of Physics: A Guide for the Perplexed (1993); The Physics of Star Trek (1995); Beyond Star Trek: From Alien Invasion to the End of Time (1997); Quintessence: The Mystery of the Missing Mass (2000); Atom: A Single Oxygen Atom's Journey from the Big Bang to Life on Earth . . . and Beyond (2001); and most recently, Hiding in the Mirror: The Mysterious Allure of Extra Dimensions (2005). The following article appeared as an opinion piece in the New York Times in 2005. As you read, notice the assumptions that Dr. Krauss makes about the roles of science and faith in society.



The recent so-called debates on the teaching of evolution in Kansas have me thinking about different theological reactions to the teaching of evolution.

The Roman Catholic Church, which stands on common ground with conservative Christians in opposition to abortion, and which is doctrinally committed to notions like the Virgin Birth, apparently has no problem with the notion of evolution as

it is currently studied by biologists, including supposedly "controversial" ideas like common ancestry of all life forms.

Popes from Pius XII to John Paul II have reaffirmed that the process of evolution in no way violates the teachings of the church. Pope Benedict XVI, when he was Cardinal Joseph Ratzinger, presided over the church's International Theological Commission, which stated that "since it has been demonstrated that all living organisms on earth are genetically related, it is virtually certain that all living organisms have descended from this first organism."

At the same time, those who wish to include "intelligent design" in the science curriculum insist that if we leave the creator out of discussions of the origin and evolution of life, then such "naturalism" must be incomplete—and that it opens the door to moral relativism and many of the other ills that go along with it.

The ultimate extension of this position may be Representative Tom DeLay's comment that the tragedy at Columbine happened "because our school systems teach our children that they are nothing but glorified apes who have evolutionized out of some primordial mud." Evolutionary biology is not the only science that appears to raise theological issues.

As a cosmologist, I am reminded of a controversy that arose from the development of a consistent mathematical solution of Einstein's equations, devised in 1931 by Georges Lemaître, a Catholic priest and physicist.

The solution required what today we call the Big Bang. By confronting the conventional scientific wisdom that the universe was eternal, and instead demonstrating that it was likely to have had a beginning in the finite past—indeed, one that could certainly be said to be born in light—Lemaître was hailed by many, including 20 years later by Pope Pius XII himself, as having scientifically proved Genesis.

Lemaître, however, became convinced that it was inappropriate to use the Big Bang as a basis for theological pronouncements. He initially inserted, then ultimately removed, a paragraph in the draft of his 1931 paper on the Big Bang remarking on the possible theological consequences of his discovery. In the end, he said, "As far as I can see, such a theory remains entirely outside of any metaphysical or religious question."

While this argument may seem strange, Lemaître was grasping something that is missed in the current public debates about evolution. The Big Bang is not a metaphysical theory, but a scientific one: namely one that derives from equations that have been measured to describe the universe, and that makes predictions that one can test.

It is certainly true that one can reflect on the existence of the Big Bang to validate the notion of creation, and with that the notion of God. But such a metaphysical speculation lies outside of the theory itself.

This is why the Catholic Church can confidently believe that God created humans, and at the same time accept the overwhelming scientific evidence in favor of common evolutionary ancestry of life on earth.

One can choose to view chance selection as obvious evidence that there is no God, as Dr. Richard Dawkins, an evolutionary biologist and uncompromising atheist, might argue, or to conclude instead that God chooses to work through natural means. In the latter case, the overwhelming evidence that natural selection has determined the evolution of life on earth would simply imply that God is "the cause of causes," as Cardinal Ratzinger's document describes it.

The very fact that two such diametrically opposed views can be applied to the same scientific theory demonstrates that the fact of evolution need not dictate theology. In other words, the apparently contentious questions are not scientific ones. It is possible for profoundly atheist evolutionary biologists like Dr. Dawkins and deeply spiritual ones like Dr. Kenneth Miller of Brown University, who writes extensively on evolution, to be in complete agreement about the scientific mechanism governing biological evolution, and the fact that life has evolved via natural selection.

Students are completely free to make up their own minds, in any case. What is at issue is whether they will be taught the science that should allow them to make an informed judgment. But impugning the substance of the science, or requiring the introduction of essentially theological ideas like "intelligent design" into the curriculum, merely muddies the water by imposing theological speculations on a scientific theory. Evolution, like Lemaître's Big Bang, is itself "entirely outside of any metaphysical or religious question."

The Discovery Institute, which promotes "intelligent design," a newer version of creationism, argues that schools should "Teach the Controversy." But there is no scientific controversy.

State school board science standards would do better to include a statement like this: While well-tested theories like evolution and the Big Bang have provided remarkable new insights and predictions about nature, questions of purpose that may underlie these discoveries are outside the scope of science, and scientists themselves have many different views in this regard.

Or one might simply quote Lemaître, who said of the limitations of science and of his own effort to reconcile his scientific discoveries with his parallel religious beliefs: "To search thoroughly for the truth involves a searching of souls as well as of spectra."

Topics for Thought and Discussion

1. Explain what Krauss means when he says that "there is no scientific controversy" about evolution. How does this stand ultimately challenge promoters of "intelligent design"?
2. How does Krauss use the Catholic Church? Consider all of the places that the Church comes into his short essay. Why, in argumentative terms, does he use the Catholic Church?
3. Explain how Krauss attempts to reconcile science and religion. Why, according to Krauss, are they not categorically in opposition to each other?

Suggestions for Writing

1. Write your own meditation on the relationship between science and religion. In your opinion (and, perhaps, your experience), are science and religion in opposition? If so, how do you reconcile the two? If not, how do the two work together?
2. Take a stand on the issue of high school science. Should intelligent design be taught as an alternative scientific approach? Should evolution not be taught? This would make a good research project, as much has been written recently on these issues.
3. The conflict between evolution and intelligent design is a dynamic and fluid one. Survey the headlines from the last six months. What is the state of the issue right now? What are the primary arguments today?

Ethics Statement

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