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Should Science Speak to Faith?

Two prominent defenders of science exchange their views on how scientists ought to approach religion and its followers

By Lawrence M. Krauss and Richard Dawkins

For an extended version of this article, click here.

Editors' Introduction

Although the authors are both on the side of science, they have not always agreed about the best ways to oppose religiously motivated threats to scientific practice or instruction. Krauss, a leading physicist, frequently steps into the public spotlight to argue in favor of retaining evolutionary theory in school science curricula and keeping pseudoscientific variants of creationism out of them. An open letter he sent to Pope Benedict XVI in 2005, urging the pontiff not to build new walls between science and faith, led the Vatican to reaffirm the Catholic Church's acceptance of natural selection as a valid scientific theory.

Dawkins, an evolutionary biologist, prolific author and lecturer, is also an eloquent critic of any attempt to undermine scientific reasoning. He has generally shown less interest than Krauss, however, in achieving a peaceful coexistence between science and faith. The title of Dawkins's best-selling book The God Delusion perhaps best summarizes his opinion of religious belief.

These two allies compared notes from the front lines during breaks at a conference devoted to discussing clashes between science and religion held at the Salk Institute for Biological Studies in San Diego late last year. In a dialogue they re-create here, the authors explained their respective tactics for engaging the enemy and tackled some of the questions that face all scientists when deciding whether and how to talk to the faithful about science: Is the goal to teach science or to discredit religion? Can the two worldviews ever enrich one another? Is religion inherently bad? In an extended version of their conversation available here, the authors also delve into whether science can ever test the "God Hypothesis."

The Authors

Lawrence M. Krauss is Ambrose Swasey Professor and director of the Center for Education and Research in Cosmology and Astrophysics at Case Western Reserve University. Author of seven popular books and dozens of commentaries for national publications, radio and television, he also lectures widely on science and public policy. Among his many scientific honors, he has the unique distinction of having received the highest awards from all three U.S. physics societies. In his spare time, he has performed The Planets with the Cleveland Orchestra, served as a Sundance Film Festival judge and written four articles for Scientific American.

Richard Dawkins is Charles Simonyi Professor of the Public Understanding of Science at the University of

Oxford. His nine books have earned him honorary doctorates in literature and science, and he is a Fellow of both the Royal Society and the Royal Society of Literature. His many prizes include the Cosmos International Prize, the Nakayama Prize for Human Science and the Shakespeare Prize for Distinguished Contributions to British Culture. In 2006 he created the Richard Dawkins Foundation for Reason and Science. New British school guidelines encourage students to play the roles of such figures as Galileo, Darwin and Dawkins while debating science and creationism.

Krauss: Both you and I have devoted a substantial fraction of our time to trying to get people excited about science, while also attempting to explain the bases of our current respective scientific understandings of the universe. So it seems appropriate to ask what the primary goals of a scientist should be when talking or writing about religion. I wonder which is more important: using the contrast between science and religion to teach about science or trying to put religion in its place? I suspect that I want to concentrate more on the first issue, and you want to concentrate more on the second.

I say this because if one is looking to teach people, then it seems clear to me that one needs to reach out to them, to understand where they are coming from, if one is going to seduce them into thinking about science. I often tell teachers, for example, that the biggest mistake any of them can make is to assume that their students are interested in what they are about to say. Teaching is seduction. Telling people, on the other hand, that their deepest beliefs are simply silly—even if they are—and that they should therefore listen to us to learn the truth ultimately defeats subsequent pedagogy. Having said that, if instead the primary purpose in discussing this subject is to put religion in its proper context, then perhaps it is useful to shock people into questioning their beliefs.

Dawkins: The fact that I think religion is bad science, whereas you think it is ancillary to science, is bound to bias us in at least slightly different directions. I agree with you that teaching is seduction, and it could well be bad strategy to alienate your audience before you even start. Maybe I could improve my seduction technique. But nobody admires a dishonest seducer, and I wonder how far you are prepared to go in "reaching out." Presumably you wouldn't reach out to a Flat Earther. Nor, perhaps, to a Young Earth Creationist who thinks the entire universe began after the Middle Stone Age. But perhaps you would reach out to an Old Earth Creationist who thinks God started the whole thing off and then intervened from time to time to help evolution over the difficult jumps. The difference between us is quantitative, only. You are prepared to reach out a little further than I am, but I suspect not all that much further.

Krauss: Let me make clearer what I mean by reaching out. I do not mean capitulating to misconceptions but rather finding a seductive way to demonstrate to people that these are indeed misconceptions. Let me give you one example. I have, on occasion, debated both creationists and alien abduction zealots. Both groups have similar misconceptions about the nature of explanation: they feel that unless you understand everything, you understand nothing. In debates, they pick some obscure claim, say, that in 1962 some set of people in Outer Mongolia all saw a flying saucer hovering above a church. Then they ask if I am familiar with this particular episode, and if I say no, they invariably say, "If you have not studied every such episode, then you cannot argue that alien abduction is unlikely to be happening."

"Enriching faith is far different than providing supporting evidence for faith."
—L.M.K.

I have found that I can get each group to think about what they are saying by using the other group as a foil. Namely, of the creationists I ask, "Do you believe in flying saucers?" They inevitably say "no." Then I ask, "Why? Have you studied all of the claims?" Similarly, to the alien abduction people I ask, "Do you believe in Young Earth Creationism?" and they say "no," wanting to appear scientific. Then I ask, "Why? Have you studied every single counterclaim?" The point I try to make for each group is that it is quite sensible to base theoretical

expectations on a huge quantity of existing evidence, without having studied absolutely every single obscure counterclaim. This "teaching" technique has worked in most cases, except those rare times when it has turned out that I was debating an alien abduction believer who was also a creationist!

Dawkins: I like your clarification of what you mean by reaching out. But let me warn you of how easy it is to be misunderstood. I once wrote in a New York Times book review, "It is absolutely safe to say that if you meet somebody who claims not to believe in evolution, that person is ignorant, stupid or insane (or wicked, but I'd rather not consider that)." That sentence has been quoted again and again in support of the view that I am a bigoted, intolerant, closed-minded, intemperate ranter. But just look at my sentence. It may not be crafted to seduce, but you, Lawrence, know in your heart that it is a simple and sober statement of fact.

Ignorance is no crime. To call somebody ignorant is no insult. All of us are ignorant of most of what there is to know. I am completely ignorant of baseball, and I dare say that you are as completely ignorant of cricket. If I tell somebody who believes the world is 6,000 years old that he is ignorant, I am paying him the compliment of assuming that he is not stupid, insane or wicked.

Krauss: I have to say that I agree completely with you about this. To me, ignorance is often the problem, and, happily, ignorance is most easily addressed. It is not pejorative to suggest that someone is ignorant if they misunderstand scientific issues.

Dawkins: In exchange, I am happy to agree with you that I could, and probably should, have put it more tactfully. I should have reached out more seductively. But there are limits. You would stop short of the following extreme:

"Dear Young Earth Creationist, I deeply respect your belief that the world is 6,000 years old. Nevertheless, I humbly and gently suggest that if you were to read a book on geology, or radioisotope dating, or cosmology, or archaeology, or history, or zoology, you might find it fascinating (along with the Bible of course), and you might begin to see why almost all educated people, including theologians, think the world's age is measured in billions of years, not thousands."

Let me propose an alternative seduction strategy. Instead of pretending to respect dopey opinions, how about a little tough love? Dramatize to the Young Earth Creationist the sheer magnitude of the discrepancy between his beliefs and those of scientists: "6,000 years is not just a little bit different from 4.6 billion years. It is so different that, dear Young Earth Creationist, it is as though you were to claim that the distance from New York to San Francisco is not 3,400 miles but 7.8 yards. Of course, I respect your right to disagree with scientists, but perhaps it wouldn't hurt and offend you too much to be told—as a matter of deductive and indisputable arithmetic—the actual magnitude of the disagreement you've taken on."

Krauss: I don't think your suggestion is "tough love." In fact, it is precisely what I was advocating, namely, a creative and seductive way of driving home the magnitude and nature of such misconceptions. Some people will always remain deluded, in spite of facts, but surely those are not the ones we are trying to reach. Rather it is the vast bulk of the public who may have open minds about science but simply don't know much about it or have never been exposed to scientific evidence. In this regard, let me pose another question, about which you may feel even more strongly: Can science enrich faith, or must it always destroy it?

The question came to me because I was recently asked to speak at a Catholic college at a symposium on science and religion. I guess I was viewed as someone interested in reconciling the two. After agreeing to lecture, I discovered that I had been assigned the title Science Enriching Faith. In spite of my initial qualms, the more I thought about the title, the more rationale I could see for it. The need to believe in a divine intelligence without direct evidence is, for better or worse, a fundamental component of many people's psyches. I do not

think we will rid humanity of religious faith any more than we will rid humanity of romantic love or many of the irrational but fundamental aspects of human cognition. While orthogonal from the scientific rational components, they are no less real and perhaps no less worthy of some celebration when we consider our humanity.

Dawkins: As an aside, such pessimism about humanity is popular among rationalists to the point of outright masochism. It is almost as though you and others at the conference where this dialogue began positively relish the idea that humanity is perpetually doomed to unreason. But I think irrationality has nothing to do with romantic love or poetry or the emotions that lie so close to what makes life worth living. Those are not orthogonal to rationality. Perhaps they are tangential to it. In any case, I am all for them, as are you. Positively irrational beliefs and superstitions are a different matter entirely. To accept that we can never be rid of them—that they are an irrevocable part of human nature—is manifestly untrue of you and, I would guess, most of your colleagues and friends. Isn't it therefore rather condescending to assume that humans at large are constitutionally incapable of breaking free of them?

Krauss: I am not so confident that I am rid of irrational beliefs, at least irrational beliefs about myself. But if religious faith is a central part of the life experience of many people, the question, it seems to me, is not how we can rid the world of God but to what extent can science at least moderate this belief and cut out the most irrational and harmful aspects of religious fundamentalism. That is certainly one way science might enrich faith.

In my lecture to the Catholic group, for instance, I took guidance from your latest book and described how scientific principles, including the requirement not to be selective in choosing data, dictate that one cannot pick and choose in one's fundamentalism. If one believes that homosexuality is an abomination because it says so in the Bible, one has to accept the other things that are said in the Bible, including the allowance to kill your children if they are disobedient or validation of the right to sleep with your father if you need to have a child and there are no other men around, and so forth.
Moreover, science can directly debunk many such destructive literal interpretations of scripture, including, for example, the notion that women are simple chattels, which stands counter to what biology tells us about the generic biological roles of females and the intellectual capabilities of women and men in particular. In the same sense that Galileo argued, when he suggested that God would not have given humans brains if "he" did not intend people to use them to study nature, science definitely can thus enrich faith.

Still another benefit science has to offer was presented most cogently by Carl Sagan, who, like you and me, was not a person of faith. Nevertheless, in a posthumous compilation of his 1985 Gifford Lectures in Scotland on science and religion, he makes the point that standard religious wonder is in fact too myopic, too limited. A single world is too puny for a real God. The vast scope of our universe, revealed to us by science, is far grander. Moreover, one might now add, in light of the current vogue in theoretical physics, that a single universe may be too puny and that one might want to start thinking in terms of a host of universes. I hasten to add, however, that enriching faith is far different than providing supporting evidence for faith, which is something that I believe science certainly does not do.

Dawkins: Yes, I love that sentiment of Sagan's, and I'm so glad you picked it out. I summed it up for the publishers of those lectures on the book jacket: "Was Carl Sagan a religious man? He was so much more. He left behind the petty, parochial, medieval world of the conventionally religious; left the theologians, priests and mullahs wallowing in their small-minded spiritual poverty. He left them behind, because he had so much more to be religious about. They have their Bronze Age myths, medieval superstitions and childish wishful thinking. He had the universe." I don't think there is anything I can add in answering your question about whether science can enrich faith. It can, in the sense you and Sagan mean. But I'd hate to be misunderstood as endorsing faith.

Krauss: I want to close with an issue that I think is central to much of the current debate going on among scientists regarding religion: Is religion inherently bad? I confess here that my own views have evolved over the

years, although you might argue that I have simply gone soft. There is certainly ample evidence that religion has been responsible for many atrocities, and I have often said, as have you, that no one would fly planes into tall buildings on purpose if it were not for a belief that God was on their side.

As a scientist, I feel that my role is to object when religious belief causes people to teach lies about the world. In this regard, I would argue that one should respect religious sensibilities no more or less than any other metaphysical inclinations, but in particular they should not be
respected when they are wrong. By wrong, I mean beliefs that are manifestly in disagreement with empirical evidence. The earth is not 6,000 years old. The sun did not stand still in the sky. The Kennewick Man was not a Umatilla Indian. What we need to try to eradicate is not religious belief, or faith, it is ignorance. Only when faith is threatened by knowledge does it become the enemy.

Dawkins: I think we pretty much agree here. And although "lie" is too strong a word because it implies intention to deceive, I am not one of those who elevate moral arguments above the question of whether religious beliefs are true. I recently had a televised encounter with the veteran British politician Tony Benn, a former minister of technology who calls himself a Christian. It became very clear in the course of our discussion that he had not the slightest interest in whether Christian beliefs are true or not; his only concern was whether they are moral. He objected to science on the grounds that it gave no moral guidance. When I protested that moral guidance is not what science is about, he came close to asking what, then, was the use of science. A classic example of a syndrome the philosopher Daniel Dennett has called "belief in belief."

Other examples include those people who think that whether religious beliefs are true or false is less important than the power of religion to comfort and to give a purpose to life. I imagine you would agree with me that we have no objection to people drawing comfort from wherever they choose and no objection to strong moral compasses. But the question of the moral or consolation value of religion—one way or the other—must be kept separate in our minds from the truth value of religion. I regularly encounter difficulties in persuading religious people of this distinction, which suggests to me that we scientific seducers have an uphill struggle on our hands.

The conversation between Lawrence M. Krauss and Richard Dawkins continues in an extended version here

More to Explore

Unweaving the Rainbow. Richard Dawkins. Houghton Mifflin, 1998.

Questions That Plague Physics. Lawrence M. Krauss and Claudia Driefus in Scientific American, Vol. 291, No. 2, pages 82–85; August 2004.

The God Delusion. Richard Dawkins. Houghton Mifflin, 2006.

Hiding in the Mirror: The Quest for Alternate Realities, from Plato to String Theory. Lawrence M. Krauss. Penguin, 2006.

Beyond Belief: Science, Religion, Reason and Survival conference videos and background: http://beyondbelief2006.org/

The official Richard Dawkins Web site: http://richarddawkins.net/

Lawrence M. Krauss's home page: www.phys.cwru.edu/~krauss/

Further Reading

What Skepticism Reveals about Science