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**authorbio**  
**Kenneth T. Miller, Ph.D.**, a Christian and evolutionist, is professor of biology in the Department of Molecular Biology, Cell Biology, and Biochemistry at Brown University in Providence ...



**evolution: science and belief**  
**Science and Religion**  
**Interview with Kenneth R. Miller**  
 An ActionBioscience.org original interview

#### article highlights

Scientific and religious thinking do not conflict. It's a mistake for religion to reject mainstream science and evolution for several reasons:

- Science is a naturalistic process, and religious questions are beyond its scope.
- Evolution and other scientific processes may be part of a supreme being's goal.
- Evolutionary biology is a useful theory that produces results every day.

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December 2004 **Science and Religion**  
 Interview with Kenneth R. Miller

**ActionBioscience.org: Do science and religion rule each other out?**

**Science and religion are not mutually exclusive.**

**Miller:** No, I certainly don't think they do. I think the whole tradition of Western science is that science and religion are not mutually exclusive. There are many people in the scientific community, in the United States and around the world, who hold strong religious points of view and do not see their points of view conflicting with working in science or even with the philosophy of science.

**ActionBioscience.org: Can science prove or disprove the existence of a higher being?**

**Religious questions stand outside the scope of science.**

**Miller:** No, it can't. The existence of a supreme being simply is not a scientific question. A supreme being stands outside of nature. Science is a naturalistic process and can only answer questions about what is inside nature. Beyond that it's a matter of personal belief.

**ActionBioscience.org: How is it possible to believe in the evolution of a complex world and God?**

**Evolution may be one means to God's goals.**

**Miller:** That's an interesting question. God, for those of us who believe in Him, is the Creator and the Master of the universe. As C. S. Lewis once said, "[God] likes matter. He invented it." [*Mere Christianity*, Harper, 2001] It seems to me that an all-powerful Creator, who is behind both the material of the universe and the laws that govern the interactions of that material, would be able to accomplish any goal He wanted to in terms of the process, the architecture, or the ultimate fruition of the universe.

Now, what I don't find useful to speculate about are the exact physical, chemical, or biological processes that could be attributed to God, or identified as God working His magic in the world. I think both Western religious tradition and scripture itself tell us that God is very subtle and He can use many ways to accomplish His ends.

**ActionBioscience.org: If a supreme being put evolution into motion, do humans then have a moral responsibility for the care of the planet?**

**We must use**

**Miller:** Oh, that's a very good question. I think the answer to that is certainly "Yes." Let's talk about it biologically first. We are the brightest

**our  
responsibility to  
nature wisely.**

things on the block. We have become the single, most common, large mammal on Earth. We might take that for granted today, but 500 years ago that was not true. We were not the single, most common, large mammal. That means, in terms of ecological impact, that our species is unique. We have the possibility to do more good, to do more damage, or to cause more extinctions than any other organism on this planet. So we have to use our responsibility wisely.

**We are Earth's  
stewards.**

From a religious point of view, there is an entire movement within Christian theology, known as the Christian Ecology Movement. It takes very seriously the Biblical admonition that we should be stewards of the Earth. We are Earth's guardians. The Bible is filled with parables about the wise steward and the foolish steward. The care of Earth, in particular, is an area in which both the religious and scientific sentiments coincide.

**ActionBioscience.org: *In your book, Finding Darwin's God, you write, "in nature, elusive and unexplored, we will find the Creator at work." How is your view different from that of creationists or proponents of intelligent design, who argue against evolution?***

**Knowledge is a  
compelling  
reason to  
believe in God.**

**Miller:** I think the biggest difference, and the most direct way to pinpoint that difference, is to say that creationists inevitably look for God in what science has not yet explained or in what they claim science cannot explain. Most scientists who are religious look for God in what science does understand and has explained. So the way in which my view is different from the creationists or intelligent design proponents is that I find knowledge a compelling reason to believe in God. They find ignorance a compelling reason to believe in God.

**ActionBioscience.org: *You also write in the same book, "There is a deeper problem caused by the opponents of evolution, a problem for religion." Please explain.***

**Religions must  
embrace the  
pursuit of  
scientific  
knowledge.**

**Miller:** When religion places itself in conflict with science, that is, when religion says that we have to reject scientific explanations for religious reasons, it basically means that every time science advances in understanding, religion contracts. If you define religion as being the things that science cannot explain, every time the realm of science expands--and every year we understand a little more about life, the world around us, and the cosmos--those areas become smaller. I think ultimately the rejection of mainstream science, and the rejection of evolution by the creationist movement, is a mistake for religion because it essentially argues that religion is disapproved by the mechanisms and tools of science. That's a profound theological mistake.

**ActionBioscience.org: *Why does evolution remain a dangerous idea for some of the American public?***

**Miller:** I think evolution remains a dangerous idea for two reasons:

**Evolution is  
fundamental to  
understanding  
life.**

1. Many people in the religious community continue to believe that evolution cannot be reconciled with religion. That is just not true. Most people understand that, but not everyone.
2. Evolution concerns something very fundamental. Evolution is controversial for the same reason that you can start a fight by going into a bar and saying something about somebody's mother. It concerns where we're from, what our status is as human beings, and how we relate to the rest of life on the Earth. That will always make it a controversial idea, not just in the U.S. but also in many countries around the world.

**ActionBioscience.org: *How should science respond to this public fear of evolution?***

**Evolution is  
both a fact and  
good science.**

**Miller:** Science can respond in three ways:

1. The first is by answering the objections that are frequently raised against evolution. The charge that evolution is not good science--that

there are no transitional forms, that the mechanism of evolution doesn't work, and other similar charges--can easily be answered from scientific literature.

2. The second is by emphasizing the fact that scientific ideas are different from religious ideas and therefore that science in general, and evolution in particular, does not present an obligatory threat to religion.
3. The last way to respond is simply by doing good science. Evolutionary biology is fundamentally a useful theory. It's a theory whose application and practice in the laboratory every single day yields useful scientific results. The American people are a people of practical results and consequences. When something works, when something is practical, when something earns money, it gets respect in American society, and evolution can do all of those things.

**ActionBioscience.org:** *In some regions of the U.S., educators are being encouraged, sometimes forced, by their institution to teach "alternative" ideas to evolution. What is your response to this development?*

*So-called "alternatives" to evolution are not scientific and lack evidence.*

**Miller:** Disappointment. If the ideas being offered were genuinely scientific alternatives, if they were ideas that had significant support within the scientific community or substantial experimental evidence, it might be interesting to include them in the science classroom.

Unfortunately, the "alternatives" actually being offered are not scientific at all. The insertion of an idea such as young-earth creationism, which requires a rejection of astronomy, physics, and chemistry as well as biology, into the scientific curriculum makes about as much sense as teaching witchcraft in medical school. The other alternative often proposed, so-called "intelligent" design, doesn't even rise to the level of being a scientific hypothesis. It has no explanatory power and approaches scientific problems by nothing more than an appeal to the "designer." Since such appeals are not testable, they don't amount to science and can only mislead students as to the nature of science and scientific evidence.

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**About the author:** [Kenneth T. Miller, Ph.D., a Christian and evolutionist, is professor of biology in the Department of Molecular Biology, Cell Biology, and Biochemistry at Brown University, in Providence, RI. His research delves into problems of structure and function in biological membranes using a variety of techniques associated with electron microscopy. One of his principal interests is the public understanding of evolution. He has written a number of articles defending the scientific integrity of evolution, answering challenges such as that posed by intelligent design, and has publicly debated anti-evolutionists. He has written a series of high school and college textbooks with Joseph S. Levine, called \*Biology\*, the most recent of which is known as the "Dragonfly" book \(Pearson Prentice Hall, 2002\); he also wrote \*Finding Darwin's God: A Scientist's Search for Common Ground between God and Evolution\* \(HarperCollins, 1999\). Miller was interviewed at the AIBS Symposium "Evolutionary Science and Society: Educating a New Generation" at the 2004 NABT convention. <http://bms.brown.edu/faculty/m/kmiller/>](#)

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## Science and Religion

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### Brown University Evolution Resources

Links to Kenneth Miller's articles, debates, and even a couple of online videos.

[www.millerandlevine.com/km/evol/index.html](http://www.millerandlevine.com/km/evol/index.html)

### Dialogue on Science, Ethics and Religion (DOSER)

The Doser site is provided by the The American Association for the Advancement of Science. It provides articles, meetings notices, and other information.

<http://www.aaas.org/spp/dser/>

### National Center for Science Education (NCSE)

NCSE, a nonprofit organization, is "a nationally recognized clearinghouse for information and advice to keep evolution in the science classroom and 'scientific creationism' out." The second link takes you to a historical overview, by Eugenie Scott, explaining the range of creationist views (12/00).

» [www.natcensci.org](http://www.natcensci.org)

» [www.natcensci.org/resources/articles/1593\\_the\\_creationevolution\\_continu\\_12\\_7\\_2000.asp](http://www.natcensci.org/resources/articles/1593_the_creationevolution_continu_12_7_2000.asp)

### "Antievolution: The Critic's Resource"

This "critical examination of the antievolution movement...aims to provide links to both the anti-evolutionists making their own arguments and also to the critics who provide mainstream science answers to those arguments."

[www.antievolution.org](http://www.antievolution.org)

### "Science and..."

Explore the connections between science and ethics, gender, art, culture, race, literature, religion, and politics.

[www.chemistrycoach.com/science\\_and.htm](http://www.chemistrycoach.com/science_and.htm)

### Separation of church and state resources

The first link takes you to a website authored by two legal experts on the issue. The second link takes you to a site by Tom Peters, a University of Louisville professor. The third link is the religiousintolerance.org site's home page.

» <http://members.tripod.com/~candst>

» <http://members.tripod.com/~candst/tnppage/tnpidx.htm>

» [www.religioustolerance.org/const\\_am.htm](http://www.religioustolerance.org/const_am.htm)

### ActionBioscience.org article about evolution

"Evolution: Fact and Theory" by Richard E. Lenski succinctly explains the theory of evolution and examines evidence for its support.

[www.actionbioscience.org/evolution/lenski.html](http://www.actionbioscience.org/evolution/lenski.html)

### Essay: "Life's Grand Design"

Kenneth Miller writes for PBS Nova about intelligent design and evolution.

[www.pbs.org/wgbh/evolution/change/grand](http://www.pbs.org/wgbh/evolution/change/grand)

### Read a book

» *Finding Darwin's God: A Scientist's Search for Common Ground between God and Evolution* is an analysis of the religious implications of evolution by Kenneth R. Miller, a devout Christian and evolutionist. HarperCollins, 2000. To read an excerpt from Millers' book, go to

[www.brown.edu/Administration/Brown\\_Alumni\\_Magazine/00/11-99/features/darwin.html](http://www.brown.edu/Administration/Brown_Alumni_Magazine/00/11-99/features/darwin.html).

» *Darwin and Intelligent Design* by Francisco J. Ayala (a scientist as well as a person of faith) is a short, concise paperback examines science, faith, and theology (Minneapolis: Fortress Press, 2006).

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### Panda's Thumb

The Panda's Thumb is the "virtual pub" where "patrons gather to discuss evolutionary theory, critique the claims of the antievolution movement, defend the integrity of science and science education in America and around the world, and share good conversation."

[www.pandasthumb.org](http://www.pandasthumb.org)

### An Open Letter Concerning Religion and Science

If you are a member of the Christian clergy and want to endorse evolution, sign this open letter in support of evolution and the teaching of evolutionary science. Over 9,000 signatures have been collected as of November 2005.

[http://www.uwosh.edu/colleges/cols/religion\\_science\\_collaboration.htm](http://www.uwosh.edu/colleges/cols/religion_science_collaboration.htm)

### **Americans United for the Separation of Church and State**

News, views, and information from this organization, which is a religious liberty watchdog group based in Washington, D.C. Register for e-mail updates or get involved in one of their campaigns.

[www.au.org/site/PageServer](http://www.au.org/site/PageServer)

### **Christian Ecology Movements**

Christian organizations concerned with the environment:

» Christian Ecology Link (CEL), UK

[www.christian-ecology.org.uk](http://www.christian-ecology.org.uk)

» Earth Ministry (US)

<http://www.earthministry.org/>

» Alliance for Religions and Conservation (ARC)

[www.arcworld.org/faiths.asp?pageID=40](http://www.arcworld.org/faiths.asp?pageID=40)

» Green Christianity, NZ

[www.kiwilink.co.nz/~hippies/green.htm](http://www.kiwilink.co.nz/~hippies/green.htm)

### **Dialogue on Science, Ethics, and Religion (DoSER)**

"Through conferences, lectures, research seminars, and electronic and print publications, DoSER assists religious communities to explore the religious implications of evolution and seeks to engage the religious communities in support of research and education about evolution."

<http://www.aaas.org/spp/dser/>

### **For Educators: PBS Evolution**

The PBS evolution series, which first aired in September 2001, has a superb website of teaching resources for evolution.

[www.pbs.org/wgbh/evolution](http://www.pbs.org/wgbh/evolution)

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