

## *Program of Dialogue on Science, Ethics, & Religion*

### Summary

#### Time to abandon Darwin? The Challenge from Intelligent Design

By Catherine Baker

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The anti-evolution movement is alive and well but its rallying cry is no longer creationism; instead it is “intelligent design.” This is a religious and cultural crusade that seeks to change teaching practices through political lobbying rather than through the persuasive force of empirical evidence within the scientific community.

So says Dr. Kenneth R. Miller, professor of biology at Brown University and author of *Finding Darwin's God: A Scientist's Search for Common Ground between God and Evolution*. Dr. Miller presented his critique of intelligent design in a May 22 lecture sponsored by the Dialogue on Science, Ethics, and Religion (DoSER), a program of the American Association for the Advancement of Science (AAAS).

The battle over teaching evolution did not end with the Scopes trial in 1925. The latest front opened in 1999 when the Kansas Board of Education voted to remove mention of evolution from the science curriculum. Dr. Miller was among those who lobbied to undo the vote, “in effect, campaigning for Darwin,” as he explained. In elections a year later all but one of the school board members who had voted against evolution were unseated. Evolution is now back in the Kansas curriculum, but the composition of the school board has changed once again so the issue may well resurface. The controversy is not confined to Kansas. Many states minimize or do not explicitly include the teaching of evolution in their state educational standards.

Intelligent design surfaced most recently as a challenge to the standard biological curriculum in Ohio. In 2002 the state's board of education spent two months studying the topic before deciding against its inclusion in the curriculum “despite a tremendous amount of pressure,” Dr. Miller said. “I am worried that victories like this are only temporary, because the pressures continue.”

[In October 2002 the AAAS Board of Directors adopted on a [resolution](#) opposing the inclusion of intelligent design in science education.]

Dr. Miller said that when he engages in debates over evolution, his main point is that evolution is a testable theory. Indeed the fossil record shows that, as Darwin predicted, new species arise from the split of a single species into two or more additional species, and this branching and pruning by extinction continues over time. Quoting from his book, Dr. Miller said:

“If organisms show common ancestry, then we should find a nested series of relationships between existing organisms, which in fact we do. We should find that novel organs and structures are found only in the actual descendants of

ancient species in which those structures first appeared, which is also true. Finally, and most importantly, we should find a consistent pattern of ancestor-descendant relationships that expands as new discoveries fill in the details of the fossil record. We have.”

The fossil record of the planktonic diatom *Rhizosolenia*, for example, conforms to Darwin’s theory of speciation. The human fossil record, though less complete, also conforms to Darwin’s original prediction.

Yet critics allege that Darwinism is insufficient and fails to account for the complexity of living organisms. They present intelligent design as the mechanism which overcomes this insufficiency in nature. This is creationism in new clothing, Dr. Miller said, because design requires not only a plan but also an active, creative agent to execute the plan.

Several institutions foster the intelligent design movement, with a leading role played by the Discovery Institute in Seattle and its Center for Science and Culture. Citing materials from these groups, Dr. Miller supported his claim that the theory has a religious and cultural bias. A definition of intelligent design presented by advocates during the Ohio debate asserts that design theory is “is compatible with belief in God and the Bible” while evolution is “consistent with atheism.” The Discovery Institute’s website presents Darwinism as synonymous with materialism which leads to moral relativism, lawlessness, and a denial of the existence of God. Darwinism also has been presented historically by its opponents as the root of many so-called social ills including homosexuality, abortion, and divorce.

The bacterial flagellum, the rotary propeller by which bacterial cells move, is the “poster child” of the intelligent design movement, according to Dr. Miller. It is controlled by 50 genes and consists of several sub-parts including a rotor, filament, hook, and collar. According to intelligent design proponents, the bacterial flagellum could not have been produced through a series of slight evolutionary changes because it is “irreducibly complex.” Any “precursor system” would be missing parts, therefore nonfunctional, and not available to natural selection. Thus the intervention of an intelligent agent is required to account for the existence this structure.

This argument does not hold, said Dr. Miller, who explained that you can remove 40 of the involved genes and still have a functional part. The 10 remaining genes control for the collar which on its own enables a bacterium to inject proteins into other cells. “In fact, the bacterial flagellum contains at least four distinct functions, each of which can be favored by natural selection,” the biologist said.

Another “irreducibly complex” system often cited by intelligent design advocates is the blood-clotting cascade, a group of proteins that work together in vertebrates for the sole function of clotting blood. “Evolution has done this experiment,” Dr. Miller said, because whales and dolphins lack one of the proteins of this group.

Dr. Miller sported a mousetrap as a tie clip and explained that this man-made device has been used as an analogy by intelligent design proponents. They have argued that the mousetrap with its five parts (platform, hold-down bar, hammer, spring, and catch) is irreducibly complex because without all components it cannot function. Dr. Miller demonstrated how it is possible to take away one part or even most of the parts and still have a functioning mousetrap.

More importantly, the parts of the trap can serve other functions – not only as tie clip but also as key ring, tooth pick, fish hook, and more. “The important point is that parts can be fully functional in another context” and thus amenable to natural selection. This makes it possible for the parts to converge together in a new context, Dr. Miller explained. “The paradox is that the mousetrap provides a good argument *for* Darwinism.”

According to Dr. Miller, intelligent design proponents claim that scientists are against them because they are making a novel claim. But this is not the real source of the opposition, he said. Rather, what scientists oppose is the attempt to overstep the usual process by which scientific ideas are accepted – that of conducting experiments to generate empirical evidence, presenting the research for peer review and debate, and refining the theory based on new evidence “until it meets a scientific consensus, and then it makes its way into teaching and textbooks.”

By contrast, he argued, the actions in Kansas and elsewhere show that the movement’s concept of how science works is to “directly inject design into classrooms and textbooks” through political lobbying. He maintained that intelligent design has no place in the curriculum “because there is no evidence.”

Dr. Miller also leveled criticism at his own community, suggesting that the impetus for anti-evolutionary ideas like intelligent design “comes from us, from scientists.” It has been claimed by some scientists that Darwinian evolution explains away any religious interpretation of life, he said. This unnecessarily antagonizes those who believe in God. Although science cannot be used to reach theological conclusions, some have used science to make anti-religious statements. “I would argue that science has no business commenting on religion.”

A practicing Christian, Dr. Miller said that intelligent design should not be confused with theism, which he defined as a belief in a transcendent intelligence, “sometimes expressed as a view that there is an intelligent design to the universe.” It is possible to reconcile a belief in evolution with a theistic faith, he said, because evolution is not random and arbitrary; rather, every change is constrained by what has gone before. “All histories are contingent processes. It leaves the future open and undetermined.” This is analogous to the religious belief in a God who allows humans to make choices, including the choice of whether to love God and follow God’s word. He quoted St. Thomas Aquinas, who said: “It would be contrary to the nature of providence and to the perfection of the world if nothing happened by chance.”

The creationist view of a fixed order to the world is more pagan than Christian, argued Dr. Miller, who concluded by saying that “evolution defines a relationship between the Creator and humankind. In the final analysis, he used evolution to set us free.”

A response to Dr. Miller’s presentation was offered by Brent Waters, director of the Center for Ethics and Values and assistant professor of Christian Social Ethics at Garrett-Evangelical Theological Seminary in Evanston, Ill.

“The Darwinian or evolutionary principle of descent is not particularly troubling to me as a theologian,” he said. “It does not seem to me particularly troubling to expect that change would occur over time. In fact for theologians one would be surprised to find it any other way.”

But, he added, it does raise the question of whether God influences the pattern of evolutionary development. “I don’t think that can be answered scientifically; I think it is a philosophical point of speculation,” he said.

By the same token, Dr. Waters continued, the evolutionary idea of simpler systems within a species converging to create complex systems “does not seem particularly distressing for, after all, why shouldn’t something that has been created be able to adapt and change and be able to play different functions?”

Two questions raised by the intelligent design theory are “what divine intelligence would be and what evidence we could look for to find it.” Divine intelligence might be beyond our ability to discover empirically and may be perceptible only through religious revelation, he said.

Dr. Waters mused that intelligent design implies a “mechanistic understanding” of life. “I would presume that organisms, even if they were designed, would not function as machinery. That is, they would require an inherent randomness and an emergence; seemingly, a lack of control is what makes life work and survive over time.”

Dr. Waters echoed the biologist’s assertion that scientists themselves might in part be responsible for the recurrent anti-Darwinism. “Perhaps part of this reaction is not so much against Darwinism per se but against ideological Darwinism, or one could say a misuse of Darwinism,” the theologian said, mentioning in particular the eugenic theories and practices of the previous century. “Are there misapplications of sound scientific principles, for which the scientific community itself has a responsibility to speak out against?” he asked.

Another intriguing question is why anti-Darwinism doesn’t disappear. The argument continues even though Darwinists have won all the debates, he noted, suggesting that perhaps what fuels the antagonism is that “it looks to outsiders that science is materialistic and anti-religious.” This impression is prompted by such things as the “*a priori* understanding of what God inherently must be like” that some scientists hold and then use to assert that “the scientific evidence has dispelled all possibility” of a divine being. As another example of anti-religious sentiment, he mentioned the “extravagant claim” in evolutionary psychology that ethics itself is no more than selfish behavior.

Dr. Waters asked, “Has intelligent design not done us a favor by identifying and making us call to account the misapplication of science?” He concluded by suggesting that scientists have an obligation not only to oppose bad science but also to stand up for good science, which “has something to do with the modesty of claims.”