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The Still-Passionate Debate over Darwinism

A Survey of Recent Articles

One hundred and thirty-seven years after the appearance of Charles Darwin's *Origin of Species*, debate about his theory of evolution through natural selection is heating up again. The publication of one book last year by a philosopher touting the theory's immense implications and of another this year by a scientist challenging its very validity have filled the nation's journals with controversy.

The general public, meanwhile, seems nowhere near as enchanted with Darwinian theory as the intelligentsia is. Many Americans utterly reject Darwin's concept of naturalistic evolution. Forty-seven percent, according to a 1993 Gallup Poll, say they believe that God created man and woman in approximately their present form only within the last 10,000 years. Only nine percent accept the Darwinian view. It is hardly surprising, therefore, that the battle over the teaching of evolution in the schools still goes on. But this struggle, contends Eugenie C. Scott, executive director of the National Center for Science Education, writing in the *Sciences* (Jan.–Feb. 1996), is not between science and religion. "Some of the strongest criticism of creation 'science' has come from mainstream Christian denominations, which hold that evolution is part of God's plan." Some 40 percent of Americans, according to the Gallup survey, believe that "man has developed over millions of years from less advanced forms of life, but God guided this process, including man's creation."

Politically sensible as it may be for Scott's organization (which fights to keep creation "science" out of the public schools) to reach out to those Americans in the middle, many scientists insist that, in the debate over Darwinism, there really is no intellectual middle ground. "The dichotomy is precisely between religion and science, and one cannot evade the issue," geneticist Anthony R. Kaney of Bryn Mawr College asserts in the *Sciences* (Mar.–Apr. 1996). Any scientist "who accepts Darwin's theory must face the conflict. Darwin himself was fully aware of [it]."

Daniel C. Dennett, director of the Center for Cognitive Studies at Tufts University and author of *Darwin's Dangerous Idea* (1995), agrees, likening the Darwinian theory of evolution by natural selection to a "universal acid" that eats through anything it touches. It "cuts much deeper into the fabric of our most fundamental beliefs than many of its sophisticated apologists have yet admitted, even to themselves."

Indeed, there is considerable debate among Darwinists themselves about some of Darwinian theory's basic features. Whereas "ultra-Darwinists" regard natural selection working on genetic variation as sufficient to explain the evolution of life, other scientists, such as Harvard paleontologist Stephen Jay Gould, do not. Rejecting the notion that the destiny of species is worked out solely by the slow working of natural selection, he has stressed the role of mass extinctions and other sudden changes.

John Maynard Smith, an evolutionary biologist at the University of Sussex, scoffs in the *New York Review of Books* (Nov. 30, 1995) at the widely published scientist's views. Gould, he complains, is painting "a largely false picture of the state of evolutionary theory."

But serious debate about Darwinian theory is not confined to Darwinists, as the publication this year of Michael Behe's *Darwin's Black Box* attests. A professor of biological sciences at Lehigh University, Behe argues that gradual, undirected evolution cannot explain cellular biochemistry's "irreducibly complex" adaptive systems, such as blood clotting. Such systems are like the mousetrap: collectively, its elements trap mice, but individually, none do, and deprived of even one of its elements, the device does not work. Hence, there is no way that a mousetrap—or any such irreducibly complex system—could gradually evolve in the Darwinian fashion, because there would be no function to select until all the elements were in place and properly organized to work together.

Behe stresses the importance of "intelligent design" in biology. But he goes too far, argues James A. Shapiro, a microbiologist at the University of Chicago, writing in *National Review* (Sept. 16, 1996), when he suggests "that intelligent design may lie outside the domain of scientific investigation." Nevertheless, Shapiro says, Behe does succeed in showing "that evolution remains a mystery. Its fundamental driving forces have not been resolved either in detail or in principle."

Shapiro says he is amazed "that Darwinism is accepted as a satisfactory explanation for such a vast subject—evolution—with so little rigorous examination of how well its basic theses work in illuminating specific instances of biological adaptation or diversity."

In Dennett's view, however, "the basic Darwinian idea . . . is as secure as any in science." Evolution by natural selection is an algorithmic process, he argues in the *Sciences* (May–June 1995). An algorithm is a mechanical procedure whose power derives from its logical structure; its rules are so simple that they require no intelligence to carry them out, and the results, whatever they are, are always the same. "Incredible as it may seem," he says, "the entire biosphere is the outcome of nothing but a cascade of algorithmic processes feeding on chance. Who designed the cascade? Nobody. It is itself the outcome of a blind algorithmic process." The slow pace of natural selection is sometimes accelerated by other forces, such as sexual reproduction (a relative latecomer to the evolutionary game) and human culture.

Britain's Richard Dawkins is another ultra-Darwinist. The author of best-selling books on Darwinian themes, he "promotes his subject in a way that—if you wanted to drive him crazy—you could call evangelical," reports Ian Parker in the *New Yorker* (Sept. 9, 1996). In his latest book, *Climbing Mount Improbable* (1996), writes Parker, Dawkins notes that to achieve the complexity of, say, an eye through natural selection, it would seem necessary "to scale sheer cliffs of improbability." Natural selection, for one thing, does not provide for developments that will turn out to be advantageous only after a million years of evolution. "What good is a half-evolved eye? But Dawkins points out the long, winding paths that lead to the summit of Mount Improbable—paths that have the gentlest of slopes and require no freakish upward leaps. He takes his reader up the slope from no eye to eye: a single (not entirely useless) photosensitive cell caused by genetic mutation, a group of such cells, a group arranged on a curve, and so forth."

David Berlinski, a former university teacher of mathematics and philosophy and the author of *A Tour of the Calculus* (1995), is not persuaded. "What is at work in sight," he writes in the course of a wide-ranging critique of Darwinism in *Commentary* (June 1996), "is a visual *system*, one that involves not only the anatomical structures of the eye and forebrain, but the remarkably detailed and poorly understood algorithms required to make these structures work." Could a system imperfectly understood be constructed "by means of a process we cannot completely specify? The intellectually responsible answer . . . is that we do not know—we have no way of knowing. But that is not the answer evolutionary theorists accept."

In one of many letters in *Commentary* (Sept. 1996) in response to Berlinski's attack on evolution, former *Scientific American* columnist Martin Gardner writes that it "contains one huge, glaring omission. Nowhere does he tell us what brand of creationism he supports." Berlinski replies: "It is not necessary to choose between doctrines. The rational alternative to Darwin's theory is intelligent uncertainty."