

Darwin vs. Design: Evolutionists' New Battle

JAMES GLANZ

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By JAMES GLANZ

When Kansas school officials restored the theory of evolution to statewide education standards a few weeks ago, biologists might have been inclined to declare victory over creationism

Instead, some evolutionists say, the latter stages of the battle in Kansas, along with new efforts in Michigan and Pennsylvania as well as in a number of universities and even in Washington, suggest that the issue is far from settled.

This time, though, the evolutionists find themselves arrayed not against traditional creationism, with its roots in biblical literalism, but against a more sophisticated idea: the intelligent design theory.

Proponents of this theory, led by a group of academics and intellectuals

and including some biblical creationists, accept that the earth is billions of years old, not the thousands of years suggested by a literal reading of the Bible

But they dispute the idea that natural selection, the force Darwin suggested drove evolution, is enough to explain the complexity of the earth's plants and animals. That complexity, they say, must be the work of an intelligent designer.

This designer may be much like the biblical God, proponents say, but they are open to other explanations, such as the proposition that life was seeded by a meteorite from else-

where in the cosmos, possibly involving extraterrestrial intelligence, or the new age philosophy that the universe is suffused with a mysterious but inanimate life force.

In recent months, the proponents of intelligent design have advanced their case on several fronts.

In Kansas, after the backlash against the traditional biblical creationism, proponents of the design theory have become the dominant anti-evolution force, though they lost an effort to have theories like intelligent design considered on an equal basis with evolution in school curriculums.

In Michigan, nine legislators in the House of Representatives have introduced legislation to amend state education standards to put intelligent design on an equal basis with

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evolution

¶In Pennsylvania, where biblical creationists and design theorists have operated in concert, state officials are close to adopting educational standards that would allow the teaching of theories on the origin and development of life other than evolution.

¶Backers of intelligent design organized university-sanctioned conferences at Yale and Baylor last year, and the movement has spawned at least one university student organization — called Intelligent Design and Evolution Awareness, or the IDEA club — at the University of California in San Diego.

¶The Discovery Institute, a research institute in Seattle that promotes conservative causes, organized a briefing on intelligent design last year on Capitol Hill for prominent members of Congress.

"They are skilled in analyzing evidence and ideas," said Representative Tom Petri, a Wisconsin Republican and one of several members of Congress who was a host at the session in a Congressional hearing room. "They are making a determined effort to attempt to present the intelligent design theory, and ask that it be judged by normal scientific criteria."

Polls show that the percentage of Americans who say they believe in creationism is about 45 percent. George W. Bush took the position in the presidential campaign that children should be exposed to both creationism and evolution in school.

Supporters of Darwin see intelligent design as more insidious than creationism, especially given that many of its advocates have mainstream scientific credentials, which creationists often lack.

"The most striking thing about the intelligent design folks is their potential to really make anti-evolutionism intellectually respectable," said Dr. Eugene Scott, executive director of the National Center for Science Education in Oakland, Calif., which promotes the teaching of evolution.

Dr. Adrian Melott, a professor of physics and astronomy at the University of Kansas in Lawrence and a member of Kansas Citizens for Science, a group that helped win the restoration of evolution to the state education standards, said the design theory was finding adherents among doctors, engineers and people with degrees in the humanities.

Intelligent design is "the language that the creationists among the student body tend to use now," Dr. Melott said.

One of the first arguments for the design theory was set out in "Darwin's Black Box: The Biochemical Challenge to Evolution" (Simon & Schuster, 1996), by Dr. Michael J. Behe, a professor of biological sciences at Lehigh University in Pennsylvania. Dr. Behe argued that various biochemical structures in cells could not have been built in a stepwise Darwinian fashion.

Since then, the movement has gained support among a few scientists in other disciplines, most of them conservative Christians.

"I'm very impressed with the level of scientific work and the level of scientific dialogue among the leaders of the design movement," said Dr. Guillermo Gonzalez, an astronomer at the University of Washington in Seattle. The theory "warrants further research," Dr. Gonzalez said.

Leaders of the design movement also look for flaws in evolutionist thinking and its presentation, and have scored heavily by publicizing embarrassing mistakes in prominent biology textbooks.

"There is a legitimate intellectual project here," said Dr. William Dembski, a leading proponent of intelligent design who has a doctorate in mathematics from the University of Chicago and who is on the faculty at Baylor, which receives a small part of its financing from the Texas Baptist Convention. "It is not creationism. There's not a commitment to Genesis literalism."

Dr. Dembski conceded that his interest in alternatives to Darwinian theory was partly brought on by the fact that he is an evangelical Christian, but he said intelligent design could withstand strict scientific scrutiny.

"The religious conviction played a role," he said. But he added, "As far as making me compromise in my work, that's the last thing I want to do."

Evolutionary biologists maintain that the arguments of intelligent design do not survive scrutiny, but they concede that a specialist's knowledge of particular mathematical or biological disciplines is often needed to clinch the point.

"I would use the words 'devilishly clever,'" said Dr. Jerry Coyne, a professor of ecology and evolution at the University of Chicago, speaking of the way the theory is constructed. "It has an appeal to intellectuals who don't know anything about evolutionary biology, first of all because the proponents have Ph.D.'s and second of all because it's not written in the sort of populist, folksy, anti-intellectual style. It's written in the argot of academia."

Despite that gloss, Dr. Leonard Kravitz, a biologist and director of the University of Kansas Natural History Museum and Biodiversity Research Center, said recently, "Intelligent design is nothing more than creationism dressed in a cheap tux-



Salvatore C. DiMarco Jr. for The New York Times

An originator of a theory on life that challenges Darwin's theory of evolution, Dr. Michael J. Behe argues that various biochemical structures in cells could not have been built in a stepwise Darwinian fashion.

Variations on an Embryo

A cornerstone college textbook, "Molecular Biology of the Cell," reprints Ernst Haeckel's doctored 1874 illustration suggesting that early embryonic stages of many animals, including humans, were virtually identical. But photographs of the embryos show great variation in very early stages of development.



Source: James Hanks, Harvard University; Michael K. Richardson, Leiden University, Netherlands; Ernst Haeckel, Anthropogenie oder Entwicklungsgeschichte des Menschen

The New York Times

Biology Text Illustrations More Fiction Than Fact

The anti-evolution movement called intelligent design has helped its cause by publicizing some embarrassing mistakes in leading biology textbooks.

Biologists attribute them to inattention, but design proponents say the errors show that Darwinists are more than willing to accept shoddy evidence if it supports evolution.

In particular, design proponents cite the 19th-century drawings of the German biologist Ernst Haeckel, who asserted that the early embryonic stages of many animals, including humans, were virtually identical and diverged only later. He said that the resemblance proved that all animals had a common ancestor.

The drawings were reproduced in textbook after textbook for more than a century.

Several years ago, though, biologists discovered that many of the drawings were fraudulent and

that the true resemblances were not nearly so striking. Nevertheless, some textbooks still contain them.

One of the texts that includes the faulty drawings is the third edition of "Molecular Biology of the Cell," the bedrock text of the field. Its authors include Dr. Bruce Alberts, a biochemist who is president of the National Academy of Sciences, and Dr. James D. Watson, the geneticist who shared a Nobel Prize for unraveling the structure of DNA.

In an interview, Dr. Alberts said he believed Haeckel's drawings were "overinterpreted," or highly idealized, rather than outright fakes. But he said they would be removed from the fourth edition of the textbook, to appear at the end of this year.

Biologists say the findings do not shake their confidence in the theory of evolution.

JAMES GLANZ

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Dr. Dembski said his rather vague doubts about Darwinism did not take scientific shape until he attended an academic conference in 1988, just after finishing his doctoral thesis. The conference explored the difficulty of preparing perfectly random strings of numbers, which are important in cryptography, in computer science and in statistics.

One problem is that seemingly random strings often contain patterns discernible only with mathematical tests. Dr. Dembski wondered whether he could devise a way to find evidence of related patterns in the randomness of nature.

Dr. Dembski eventually developed what he called a mathematical "explanatory filter" that he asserted

can distinguish randomness from complexity designed by an intelligent agent. He explained this idea in "The Design Inference" (Cambridge University Press, 1998).

Dr. Dembski has applied his explanatory filter to the biochemical structures in cells — and concluded that blind natural selection could not have created them.

But in a detailed critique of Dr. Dembski's filter theory, published in the current issue of the magazine The Skeptical Inquirer, Dr. Taner Edis, a physicist at Truman State University in Kirksville, Mo., said that while Dr. Dembski's mathematics were impressive, his analysis was probably detecting only the complexity that evolution itself would normally produce.

The intelligent design theory offers ideas about the origin of life.

"They have come up with something genuinely interesting in the information-theory arguments," Dr. Edis said of intelligent design theorists. "At least they make an effort to get rid of some of the blatantly fundamentalist elements of creationism."

Dr. Behe, whose book provided the biochemical basis for Dr. Dembski's work, said he believed that certain intricate structures in cells, involving the cooperative action of many protein molecules, were "irreducibly complex," because removing just one of the proteins could leave those structures unable to function. If the structure serves no function without all of its parts, Dr. Behe asks, then how could evolution have built it up step by step over the ages?

"I don't think something like that could have happened by simple natural laws," he said.

Most biologists disagree. "It's flat wrong," said Dr. H. Allen Orr, an evolutionary geneticist and professor at the University of Rochester. Dr. Orr said that cell structures might have been put together in all sorts of unpredictable ways over the course of evolution and that a protein added might not have been indispensable at first, but only later, when many more proteins were woven around it.

"The fact that that system is irreducibly complex doesn't mean you can't get there by Darwinian evolution," Dr. Orr said.

Exactly how a designer might have assembled cell structures, say, is a question seldom addressed by design theorists. But they point out that Darwinists cannot necessarily offer detailed, step-by-step sequences of events for them either.

Dr. Behe, Dr. Dembski and Phillip E. Johnson, a professor emeritus of the law school at the University of California at Berkeley, are regarded as the intellectual fathers of the design theory movement. Mr. Johnson's book "Darwin on Trial" (Intervarsity Press, 1991) has become its manifesto. The book focuses on what Mr. Johnson says are the difficulties Darwinian theory has in explaining the fossil record.

Until last fall, Dr. Dembski was the director of a center at Baylor that was dedicated to the study of intelligent design theory. After complaints from other Baylor faculty members, the center's focus and leadership were changed, and it now includes design theory as well as other philosophical, theological and scientific topics.

Dr. Dembski and Dr. Behe are fellows of the Discovery Institute, the Seattle research institute that promotes intelligent design in its Center for the Renewal of Science and Culture.

The center's \$11 million annual budget is supplied largely by Christian foundations that broadly endorse the implications of the intelligent design theory, said Bruce Chapman, Discovery's president. Mr. Johnson is an adviser to the institute, he said.

The center, which reaches people through books, articles, lectures and local activism, "is going to be of interest to academics," Mr. Chapman said. "But it's also going to be of interest to people in a more grassroots situation because they're teaching science or because they're on a school board somewhere."