

THE EVOLUTION WARS

When Bush joined the fray last week, the question grew hotter: Is "intelligent design" a real science? And should it be taught in schools?

By Claudia Wallis

SOMETIME IN THE LATE FALL, UNLESS A federal court intervenes, ninth-graders at the public high school in rural Dover, Pa., will witness an unusual scene in biology class. The superintendent of schools, Richard Nilsen, will enter the classroom to read a three-paragraph statement mandated by the local school board as a cautionary preamble to the study of evolution. It reads, in part:

Because Darwin's theory is a theory, it is still being tested as new evidence is discovered. The theory is not a fact. Gaps in the theory exist for which there is no evidence ... Intelligent design is an explanation of the origin of life that differs from Darwin's view. The reference book Of Pandas and People is available for students to see if they would like to explore this view ... As is true with any theory, students are encouraged to keep an open mind.

After that one-minute reading, the superintendent will probably depart without any discussion, and a lesson in evolutionary biology will begin.

DARWIN IN THE MIDDLE: Clockwise from top left: A textbook battle in Pennsylvania; a biology class in Lawrence, Kans.; the education President; hearings before the Kansas board of education

Textbook contains material on evolution theory, not a fact, regarding the origin of life. Material should be approached with care and carefully, and critically considered.

Approved by
Cobb County Board of Education
Thursday, March 28

That kind of scene, brief and benign though it might seem, strikes horror into the hearts of scientists and science teachers across the U.S., not to mention plenty of civil libertarians. Darwin's venerable theory is widely regarded as one of the best-supported ideas in science, the only explanation for the diversity of life on Earth, grounded in decades of study and objective evidence. But Dover's disclaimer on Darwin would appear to get a passing grade from the man who considers himself America's education President. In a question-and-answer session with Texas newspaper reporters at the White House last week, George W. Bush weighed in on the issue. He expressed support for the idea of combining lessons in evolution with a discussion of "intelligent design"—the proposition that some aspects of living things are best explained by an intelligent cause or agent, as opposed to natural selection. It is a subtler way of finding God's fingerprints in nature than traditional creationism. "Both sides ought to be properly taught," said the President, who appeared to choose his words with care, "so people can understand what the debate is about ... I think that part of education is to expose people to different schools of thought."





On its surface, the President's position seems supremely fair-minded: What could possibly be wrong with presenting more than one point of view on a topic that divides so many Americans? But to biologists, it smacks of faith-based science. And that is provocative not only because it rekindles a turf battle that goes all the way back to the Middle Ages but also because it comes at a time when U.S. science is perceived as being under fresh assault politically and competitively. Just last week, developments ranging from flaws in the space program to South Korea's rapid advances in the field of cloning were cited as examples that the U.S. is losing its edge. Bush's comments on intelligent design were the No. 1 topic for bloggers for days afterward. "It sends a signal to other countries because they're rushing to gain scientific and technological leadership while we're getting distracted with a pseudoscience issue," warned Gerry Wheeler, executive director of the 55,000-member National Science Teachers Association in Arlington, Va. "If I were China, I'd be happy."

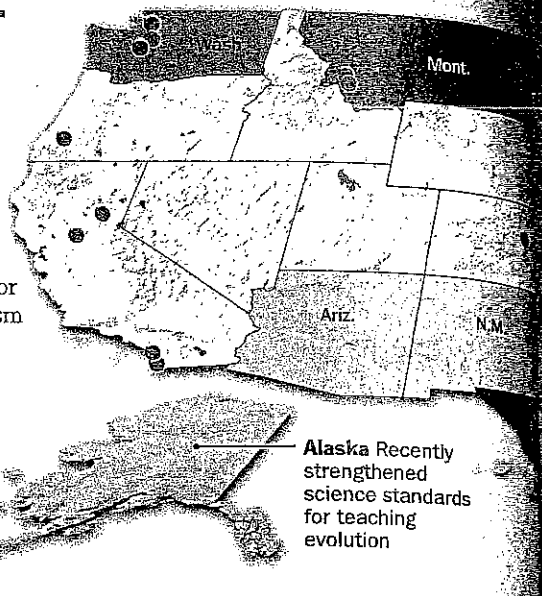
As far as many Americans are concerned, however, the President was probably preaching to the choir. In a Harris poll conducted in June, 55% of 1,000 adults surveyed said children should be taught

COAST-TO-COAST CHALLENGES

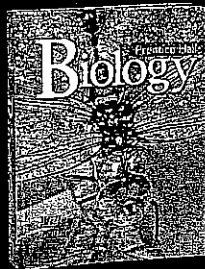
Across the U.S., states and localities have considered changing the way biological evolution is taught. Some call for critical analysis of the theory; others seek equal time for intelligent design and creationism

Antievolution proposals considered since 2001 by:

-  State board of education
-  State legislature
-  Both
-  Local schools or panels (2005 only)



A TALE OF TWO TEXTBOOKS Excerpts from a leading traditional vol.



Biology

By Kenneth Miller and Joseph Levine

-  Prentice Hall
-  1,146 pages
-  More than 2 million copies sold

“Darwin made bold assumptions about heritable variation—the age of Earth and relationships among organisms. New data from genetics, physics and biochemistry could have proved him wrong on many counts. They didn’t. Scientific evidence supports the theory that living species descended with modification from common ancestors that lived in the ancient past.” (p. 410)

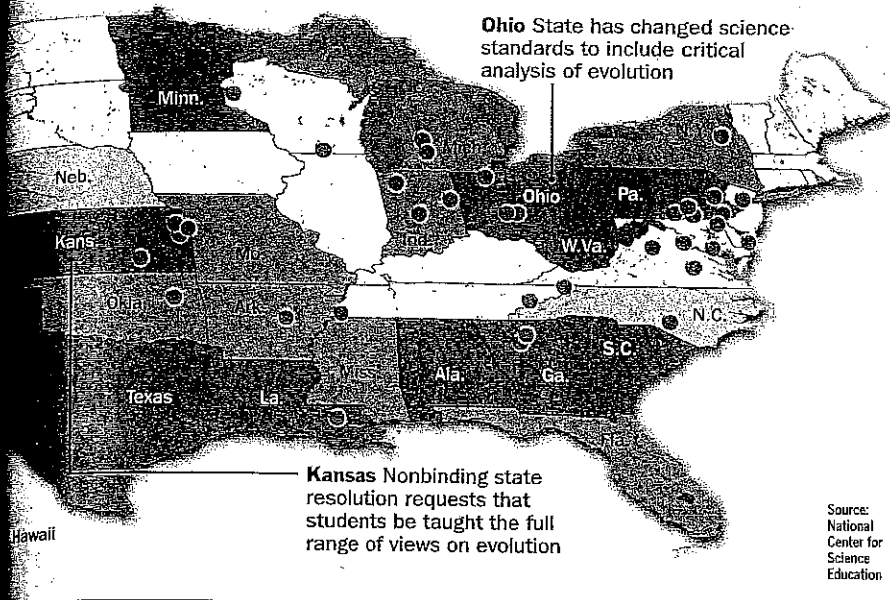
creationism and intelligent design along with evolution in public schools. The same poll found that 54% did not believe humans had developed from an earlier species—up from 45% with that view in 1994—although other polls have not detected this rise.

Around the U.S., the prevalence of such beliefs and the growing organization and clout of the intelligent-design movement are beginning to alter the way that most fundamental tenets of biology are presented in public schools. New laws that in some sense challenge the teaching of evolution are pending or have been considered in 20 states, including such traditionally liberal bastions as Michigan and New York. This week in Kansas, a conservative-leaning state board of education is expected to accept a draft of new science standards that emphasize the theoretical nature of evolution and require students to learn about “significant debates” about the

theory. The proposed rules, which won't be put to a final vote until fall, would also alter the state's basic definition of science. While current Kansas standards describe science as “the human activity of seeking natural explanations for what we observe in the world,” the rewritten definition leaves the door open, critics say, for the supernatural as well.

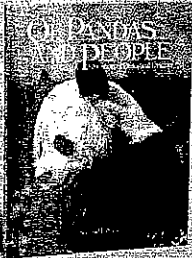
A SUBTLER ASSAULT

DARWIN'S THEORY HAS BEEN A HARD SELL to Americans ever since it was unveiled nearly 150 years ago in *The Origin of Species*. The intelligent-design movement is just the latest and most sophisticated attempt to discredit the famous theory, which many Americans believe leaves insufficient room for the influence of God. Early efforts to thwart Darwin were pretty crude. Tennessee famously banned the teaching of evolution and convicted school-



Source: National Center for Science Education

it, and one published by advocates of intelligent design



Of Pandas and People

By Percival Davis and Dean Kenyon

- Houghton Publishing
- 170 pages
- More than 20,000 copies sold

“Intelligent design means that various forms of life began abruptly through an intelligent agency, with their distinctive features already intact—fish with fins and scales, birds with feathers, beaks and wings, etc. Some scientists have arrived at this view since fossil forms first appear in the rock record with their distinctive features intact, rather than gradually developing.” (pp. 99-100)

teacher John Scopes of violating that ban in the “monkey trial” of 1925. At the time, two other states—Florida and Oklahoma—had laws that interfered with teaching evolution. When such laws were struck down by a Supreme Court decision in 1968, some states shifted gears and instead required that “creation science” be taught alongside evolution. Supreme Court rulings in 1982 and 1987 put an end to that. Offering creationism in public schools, even as a side dish to evolution, the high court held, violated the First Amendment’s separation of church and state.

But some anti-Darwinists seized upon Justice Antonin Scalia’s dissenting opinion in the 1987 case. Christian fundamentalists, he wrote, “are quite entitled, as a secular matter, to have whatever scientific evidence there may be against evolution presented in their schools.” That line of argument—an emphasis on weaknesses and gaps in evolution—is at the heart of

the intelligent-design movement, which has as its motto “Teach the controversy.” “You have to hand it to the creationists. They have evolved,” jokes Eugenie Scott, executive director of the National Center for Science Education in Oakland, Calif., which monitors attacks on the teaching of evolution.

HOLES IN DARWIN?

SINCE THE 1987 DECISION, A DEVOTED BAND of mostly religious Christians, including hundreds of scientists, engineers, theologians and philosophers, has written papers and books, contributed to symposiums on the perceived problems with Darwin’s theory. The headquarters for such thinking is the Center for Science and Culture at a nonpartisan but generally conservative think tank called the Discovery Institute, founded in Seattle in 1990.

What exactly is their critique of Dar-

win? Much of it revolves around the appealing idea that living things are simply too exquisitely complex to have evolved by a combination of chance mutations and natural selection. The dean of that school of thought is Lehigh University biologist and Discovery Institute senior fellow Michael Behe, author of the 1996 book *Darwin’s Black Box*, a seminal work on intelligent design. Behe’s main argument points to the fact that living organisms contain such ingenious structures as the eye and systems like the mechanism for clotting blood, which involves at least 20 interacting proteins. He calls such phenomena “irreducibly complex” because removing or altering any part invalidates the whole. Behe claims they could not have arisen through the gradual fits and starts of evolution, which, he says, “has been oversold to the public.” Although his writing is couched in the language of science, Behe, a practicing Catholic who home schools his nine children, believes the hand of the designer is self-evident. “That’s why most people disbelieve Darwinian evolution,” he says. “People go out and look at the trees and say, ‘Nah.’”

Other arguments in this new brand of anti-Darwinism focus on missing pieces in the fossil record, particularly the Cambrian period, when there was an explosion of novel species. Still other advocates, including mathematician, philosopher and theologian William Dembski, who is heading up a new center for intelligent design at Southern Baptist Theological Seminary, use the mathematics of probability to try to show that chance mutations and natural selection cannot account for nature’s complexity. In contrast to earlier opponents to Darwin, many proponents of intelligent design accept some role for evolution—heresy to some creationists. They are also careful not to bring God into the discussion (another sore point for hard-line creationists), preferring to keep primarily to the language of science. This may also help them avoid the legal and political pitfalls of teaching creationism.

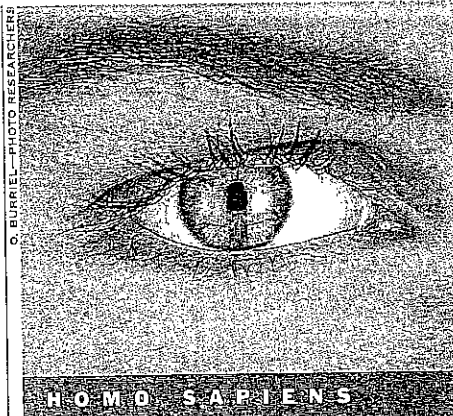
The Discovery Institute and its scientists have been actively involved in many of the recent skirmishes over evolution at local school-board meetings and in state legislatures. In Ohio, for instance, the institute sent representatives to the state board of education meetings last year to push for science standards that would support teaching critiques of evolution. “All we’re advocating for is that if a teacher wants to bring up the scientific debate over design, they should be allowed to do

that," says institute spokesman John West. In fact, Ohio modified its standards to say that evolution should be critically analyzed, which West regards as a victory.

Statewide curriculum standards for science are a relatively new target for Darwin doubters, one that has a broader impact than local school-board decisions. In addition, by working at the state level, intelligent-design advocates can largely avoid dealing with unpolished local activists who make rash religious statements that don't hold up in court. (Supporters of the Darwin disclaimer in Dover, Pa., have publicly proclaimed the country a Christian nation, a point cited in an American Civil Liberties Union lawsuit.) It has been only since the late 1980s and early '90s that most states have created science-curriculum standards as part of a national movement to bring more accountability to education. "Savvy creationists are focusing their efforts on this relatively new arena," says Glenn Branch of the National Center for Science Education. "The decision-making bodies involved in approving state science standards tend to be small, not particularly knowledgeable and, above all, elected, so it's a good opportunity for political pressure to be applied."

In Kansas, conservative members of the state school board, like Connie Morris, who represents the sparsely populated western half of Kansas, have repeatedly injected scientifically abstruse, jargon-heavy documents from the Discovery Institute into the debate about teaching evolution, making the discussion tough for the average citizen to follow. "Personally, I believe in the *Genesis* account of God's creation," says Morris. "But as a policymaker looking at science standards, I rely mostly on research and expert documentation."

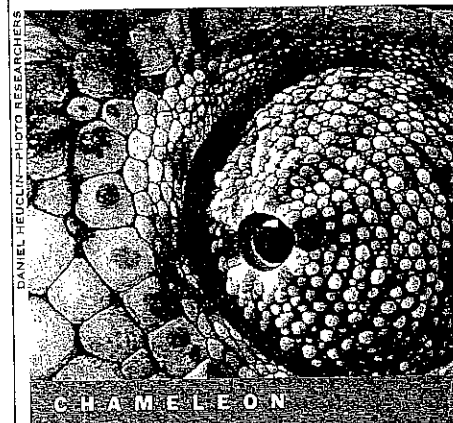
Oddly enough, the President's remarks last week promoting intelligent design made Morris and many other Darwin doubters uncomfortable because they have a different timetable in mind. "His support is appreciated, but I plan to move forward on attempting to get criticism of Darwinian evolution in the science standards, not intelligent design," says Morris. Pennsylvania Senator Rick Santorum, a leading voice on the religious right, seemed to be reading from the same script. "What we should be teaching are the problems and holes in the theory of evolution," he said in an interview with National Public Radio a few days after Bush made his comments. Santorum also said, "As far as intelligent



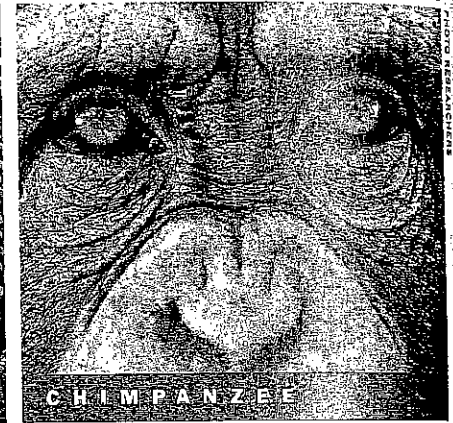
HOMO SAPIENS



GREAT HORNED OWL



CHAMELEON



CHIMPANZEE

FACE-OFF

Darwinians vs. Anti-Darwinians

The two sides rarely see eye to eye, but their opposing points of view come into particularly sharp focus when they try to explain how the eye itself came to be.

WHO DESIGNED THE FIRST EYE?

The eye couldn't possibly be the product of accidental mutations, say Darwin's critics. Sure, a bird with sharper eyes might catch more prey and have more offspring, but where did the first eye come from? How could a process of gradual improvements produce a complex organ that needs all its parts—pinhole, lens, light-sensitive surface—in order to work? It's no accident, says Michael Behe, author of *Darwin's Black Box*, that the eye resembles a camera, which everybody instantly recognizes as a product someone designed. "If it looks, walks and quacks like a duck," Behe writes, "then absent compelling evidence to the contrary, we have warrant to conclude it's a duck."

WHO NEEDS A DESIGNER?

Nonsense, say biologists. It's easy to imagine how a random mutation might have produced a patch of light-sensitive cells that helped a primitive creature tell day from night. You can also imagine how another mutation might have bent this patch of cells into a concave shape that could detect the direction a light or shadow was coming from—helping creatures with the mutation stay clear of predators. Simple structures that enable an organism to do one thing—follow the light—can easily get co-opted for a different and more complex function, like sight. The fact that there is no fossil evidence of the interim steps cannot be taken as proof that a designer—intelligent or otherwise—deliberately skipped them.

design is concerned, I really don't believe it has risen to the level of a scientific theory at this point that we would want to teach it alongside of evolution." The Senator tried to get a teach-the-controversy addendum into the 2001 No Child Left Behind bill.

Even scientists who believe in intelligent design do not feel it is ready for prime time. Many would prefer to move forward gradually, building their case, in order to avoid a backlash. "It's premature for all kinds of reasons," says oceanographer Edward Peltzer, a senior researcher at the Monterey Bay Aquarium Research Institute in California. "The science is there, but the science textbooks are not.

advocates of intelligent design do not play by the rules of science. They do not publish papers in peer-reviewed journals, and their hypothesis cannot be tested by research and the study of evidence. Indeed, Behe concedes, "You can't prove intelligent design by an experiment." Dawkins compares the idea of teaching intelligent-design theory with teaching flat earthism—perfectly fine in a history class but not in science. He says, "If you give the idea that there are two schools of thought within science—one that says the earth is round and one that says the earth is flat—you are misleading children."

But the strategy of disengagement may be backfiring on those who care about

they can't account for every minute of crime—a very ancient one—based on what they found at the scene. "You have to make inferences from footprints and other types of evidence." As it happens, he notes, there is a huge amount of evidence of evolution not only in the fossil record but also in the letters of the genetic code shared in varying degrees by all species. "The pattern," says Dawkins, "is precisely what you would expect if evolution would happen." Dawkins insists that critics of Darwin are wrong to say that evolution has become an article of faith among scientists. He cites biologist J.B.S. Haldane who, when asked what would disprove evolution, replied, fossil rabbits in the Precambrian era, a period

more than 540 million years ago, when life on Earth seems to have consisted largely of bacteria, algae and plankton. "Creationists are fond of saying that there are very few fossils in the Precambrian, but why would there be?" asks Dawkins. "However, if there was a single hippo or rabbit in the Precambrian, that would completely blow evolution out of the water. None have ever been found."

Mathematical arguments against evolution are equally misguided, says Martin Nowak,

Harvard professor of mathematics and evolutionary biology. "You cannot calculate the probability that an eye came about," he says. "We don't have the information to make this calculation." Nowak, who describes himself as a person of faith, sees no contradiction between Darwin's theory and belief in God. "Science does not produce any evidence against God," he observes. "Science and religion ask different questions."

Intelligent Design The assertion that some features of living things are best explained as the work of a designer rather than as the result of a random process like natural selection

The teachers have to be trained. Its time will come. But its time is not now." The emphasis for now is on dissing Darwinism, which opens the door to other explanations without specifically invoking an intelligent creator. Many advocates of intelligent design complain that Darwinism has become a kind of faith in itself. "There's religion on both sides," insists David Keller, a chemistry professor at the University of New Mexico, who taught a seminar on problems with evolution at an anti-Darwin forum in Greenville, S.C., last week.

BIOLOGISTS ASK, WHAT HOLES?

MANY SCIENTISTS HAVE BEEN RELUCTANT to engage in a debate with advocates of intelligent design because to do so would legitimize the claim that there's a meaningful debate about evolution. "I'm concerned about implying that there is some sort of scientific argument going on. There's not," says noted British biologist Richard Dawkins, professor of the public understanding of science at Oxford University, whose most recent book about evolution is *The Ancestor's Tale*. He and other scientists say

teaching evolution. When scientists and science teachers boycotted the discussion of biology standards at a Kansas school-board meeting last May, they left the floor wide open to critics of evolution, who won the day. "Are they wilting young maids that can't stand the heat of a hearing?" asks Washington attorney Edward Sisson, who was a co-counsel for the 23 academics who testified on the anti-Darwin side.

Scientists say it is, in fact, easy to gain-say the intelligent-design folks. Take Behe's argument about complexity, for example. "Evolution by natural selection is a brilliant answer to the riddle of complexity because it is not a theory of chance," explains Dawkins. "It is a theory of gradual, incremental change over millions of years, which starts with something very simple and works up along slow, gradual gradients to greater complexity. Not only is it a brilliant solution to the riddle of complexity; it is the only solution that has ever been proposed." To attribute nature's complexity to an intelligent designer merely removes the origin of complexity to the unseen designer. "Who designs the designer?" asks Dawkins.

As for gaps in the fossil record, Dawkins says, that is like detectives complaining that

WHAT SHALL BE TAUGHT?

BUT FOR THOSE WHO READ *GENESIS* LITERALLY and believe that God created the world along with all creatures big and small in just six days, there's no reconciling faith with Darwinism. And polls indicate that approximately 45% of Americans believe that. It's no wonder that almost one-third of the 1,050 teachers who responded to a National Science Teachers Association online survey in March said they had felt pressured by parents and students to include lessons on intelligent design, creationism or other nonscientific alternatives to evolution in their science classes; 30% noted that they felt pressured to omit evolution or evolution-related topics from their curriculum.

But some science teachers voluntarily take alternative theories to class. Eric Schweain has been teaching high school biology in St. Louis, Mo., for a decade. Although he follows the district's policy of teaching Darwin's theory, he also talks about intelligent design, an idea he personally favors. "I teach according to fossil evidence, though I make sure to tell students that it's important to talk to family and friends and, if you go to a church, talk to your clergy."

The standards movement in education has, overall, strengthened the teaching of evolution, even as it has presented a new target for anti-Darwinists. In 2000, 10 states had no mention of evolution in their curriculum standards. Now only Florida, Kentucky, Mississippi and Oklahoma—states with long creationist traditions—make this omission. In June, Alaska's state board

of education was pressured by scientists, teachers and concerned citizens to add evolution to science standards that had avoided the topic. Other states, most notably Kansas and New Mexico, have wobbled on whether to teach evolution, deleting and then restoring it to state standards depending on who was elected to the school board. The Kansas reinstatement occurred after the state was given an F- in a 2000 report by the Fordham Foundation, titled "Good Science, Bad Science: Teaching Evolution in the States." Only 24 states earned an A or B for teaching the topic well. Kansas' flunking grade was based on the fact that, at the time, it had not only cut Darwin from the curriculum but had also deleted all references to the age of the earth and universe. Now evolution is back in the Kansas curriculum, but a new, more conservative board is seeking a teach-the-controversy requirement.

The new, presumably Constitution-proof way of providing coverage for communities that wish to teach ideas like intelligent design is to employ such earnest language as "critical inquiry" (in New Mexico), "strengths and weaknesses" of theories (Texas), and "critical analysis" (Ohio). It's difficult to argue against such benign language, but hard-core defenders of Darwin are wary. "The intelligent-design people are trying to mislead people into thinking that the reference to science as an ongoing critical inquiry permits them to teach I.D. crap in the schools," says David Thomas, president of New Mexicans for Science and Reason. On the other hand, tinkering in that way with the standards won't necessarily weaken instruction on evolution. "Where you have strong science programs now, they'll ignore the [state] standards," says Bill Wagnon, a pro-

A T I M E F O R U M

Can You Believe in God and Evolution?

Four experts with very different views weigh in on the underlying question. Compiled by David Van Biema

FRANCIS COLLINS
Director, National Human Genome Research Institute



I see no conflict in what the Bible tells me about God and what science tells me about nature. Like

St. Augustine in A.D. 400, I do not find the wording of *Genesis 1* and *2* to suggest a scientific textbook but a powerful and poetic description of God's intentions in creating the universe. The mechanism of creation is left unspecified. If God, who is all powerful and who is not limited by space and time, chose to use the mechanism of evolution to create you and me, who are we to say that wasn't an absolutely elegant plan? And if God has now

given us the intelligence and the opportunity to discover his methods, that is something to celebrate.

I lead the Human Genome Project, which has now revealed all of the 3 billion letters of our own DNA instruction book. I am also a Christian. For me scientific discovery is also an occasion of worship.

Nearly all working biologists accept that the principles of variation and natural selection explain how multiple species evolved from a common ancestor over very long periods of time. I find no compelling examples that this process is insufficient to explain the rich variety of life forms present on this planet. While no one could claim yet to have ferreted out every detail of how evolution works, I do not see any significant "gaps" in the progressive development of life's complex structures that would require divine intervention. In any case, efforts to insert God into the gaps of contemporary

human understanding of nature have not fared well in the past, and we should be careful not to do that now.

Science's tools will never prove or disprove God's existence. For me the fundamental answers about the meaning of life come not from science but from a consideration of the origins of our uniquely human sense of right and wrong, and from the historical record of Christ's life on Earth.

STEVEN PINKER
Psychology professor, Harvard University



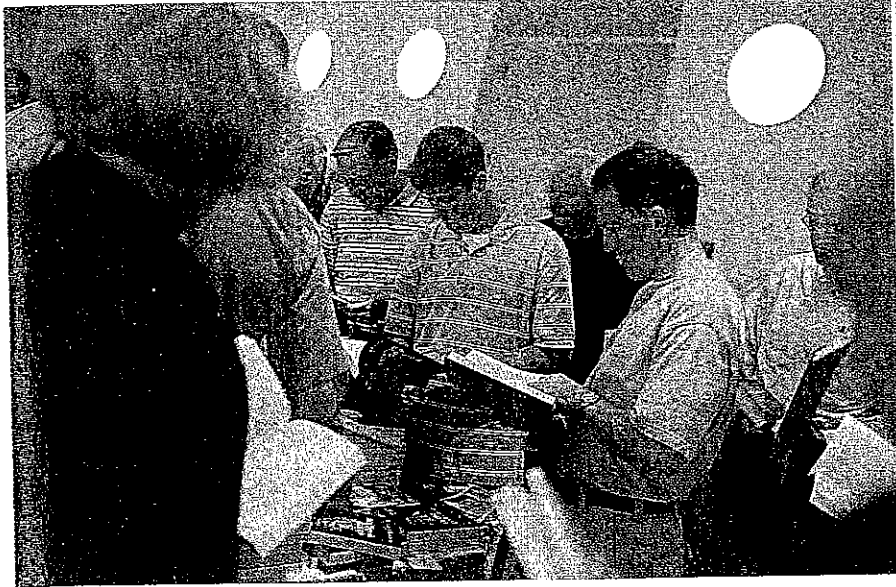
It's natural to think that living things must be the handiwork of a designer. But it was also natural to think that the sun went around the earth. Overcoming naive impressions to figure out how things really work is one of humanity's highest callings.

Our own bodies are riddled with quirks that no competent engineer would have planned but that disclose a history of trial-and-error tinkering: a retina installed backward, a seminal duct that hooks over the ureter like a garden hose snagged on a tree, goose bumps that uselessly try to warm us by fluffing up long-gone fur.

The moral design of nature is as bungled as its engineering design. What twisted sadist would have invented a parasite that blinds millions of people or a gene that covers babies with excruciating blisters? To adapt a Yiddish expression about God: If an intelligent designer lived on Earth, people would break his windows.

The theory of natural selection explains life as we find it, with all its quirks and tragedies. We can prove mathematically that it is capable of producing adaptive life forms and track it in computer simulations, lab experiments and real ecosystems. It doesn't pretend to solve one mystery (the origin of complex life) by slipping in another (the origin of a complex designer).

JAMES KEGLEY FOR TIME; RICK FRIEDMAN FOR TIME



VINCENT J. MUSI—AURORA FOR TIME

DEBUNKING DARWIN: Students browse anti-evolution books at a forum in Greenville, S.C.

professor of history at Washburn University who represents Topeka on the Kansas school board.

The new school year is certain to bring more battles over teaching evolution, not only in Kansas and Pennsylvania but also in the many states that are preparing new standards-based tests in science. By raising the profile of intelligent design, the President has doubtless emboldened those who differ with Darwin and furthered one goal of that movement: he has taught all of us the controversy. —*With reporting by Melissa August/Washington, Jeremy Caplan/New York, Jeff Chu and Constance E. Richards/Greenville, Rita Healy/Denver, Christopher Maag/Cleveland, Bud Norman/Wichita, Adam Pitluk/Dallas, Jeffrey Ressler/Los Angeles and Sean Scully/Philadelphia*

Many people who accept evolution still feel that a belief in God is necessary to give life meaning and to justify morality. But that is exactly backward. In practice, religion has given us stonings, inquisitions and 9/11. Morality comes from a commitment to treat others as we wish to be treated, which follows from the realization that none of us is the sole occupant of the universe. Like physical evolution, it does not require a white-coated technician in the sky.

■ **MICHAEL BEHE**
Biochemistry professor,
Lehigh University; Senior
fellow, Discovery Institute



Sure, it's possible to believe in both God and evolution. I'm a Roman Catholic, and Catholics have always understood that God could make life any way he wanted to. If he wanted to make it by the playing out of natural law, then who were we to object? We were taught in parochial school that Darwin's theory was the best guess at

how God could have made life.

I'm still not against Darwinian evolution on theological grounds. I'm against it on scientific grounds. I think God *could* have made life using apparently random mutation and natural selection. But my reading of the scientific evidence is that he did not do it that way, that there was a more active guiding. I think that we are all descended from some single cell in the distant past but that that cell and later parts of life were intentionally produced as the result of intelligent activity. As a Christian, I say that intelligence is very likely to be God.

Several Christian positions are theologically consistent with the theory of mutation and selection. Some people believe that God is guiding the process from moment to moment. Others think he set up the universe from the Big Bang to unfold like a computer program. Others take scientific positions that are indistinguishable from those atheist materialists might take but say that their nonscientific intuitions or philosophical considerations or the existence of the mind lead them to

deduce that there is a God.

I used to be part of that last group. I just think now that the science is not nearly as strong as they think.

■ **ALBERT MOHLER**
President, Southern Baptist
Theological Seminary



Given the human tendency toward inconsistency, there are people who will say they hold both positions. But you cannot coherently affirm the Christian-truth claim and the dominant model of evolutionary theory at the same time.

Personally, I am a young-Earth creationist. I believe the Bible is adequately clear about how God created the world, and that its most natural reading points to a six-day creation that included not just the animal and plant species but the earth itself. But there have always been Evangelicals who asserted that it might have taken longer. What they should not be asserting is the idea of God's having set the rules for evolution and then stepped back. And even less so, the

model held by much of the scientific academy: of evolution as the result of a random process of mutation and selection.

For one thing, there's the issue of human "descent." Evangelicals must absolutely affirm the special creation of humans in God's image, with no physical evolution from any nonhuman species. Just as important, the Bible clearly teaches that God is involved in every aspect and moment in the life of His creation and the universe. That rules out the image of a kind of divine watchmaker.

I think it's interesting that many of evolution's most ardent academic defenders have moved away from the old claim that evolution is God's means to bring life into being in its various forms. More of them are saying that a truly informed belief in evolution entails a stance that the material world is all there is and that the natural must be explained in purely natural terms. They're saying that anyone who truly feels this way must exclude God from the story. I think their self-analysis is correct. I just couldn't disagree more with their premise. ■

VINCENT J. MUSI—AURORA FOR TIME; SOUTHERN BAPTIST THEOLOGICAL SEMINARY