



The Latest Face of Creationism

Creationists who want religious ideas taught as scientific fact in public schools continue to adapt to courtroom defeats by hiding their true aims under ever changing guises

• • • BY GLENN BRANCH & EUGENIE C. SCOTT

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rofessors routinely give advice to students but usually while their charges are still in school. Arthur Landy, a distinguished professor of molecular and cell biology and biochemistry at Brown University, recently decided, however, that he had to remind a former premed student of his that “without evolution, modern biology, including medicine and biotechnology, wouldn’t make sense.”

The sentiment was not original with Landy, of course. Thirty-six years ago geneticist Theodosius Dobzhansky, a major contributor to the foundations of modern evolutionary theory, famously told the readers of *The American Biology Teacher* that “nothing in biology makes sense, except in the light of evolution.” Back then, Dobzhansky was encouraging biology teachers to present evolution to their pupils in spite of religiously motivated opposition. Now, however, Landy was addressing Bobby Jindal—the governor of the state of Louisiana—on whose desk the latest antievolution bill, the so-called Louisiana Science Education Act, was sitting, awaiting his signature.

Remembering Jindal as a good student in his genetics class, Landy hoped that the governor would recall the scientific importance of evolution to biology and medicine. Joining Landy in his opposition to the bill were the American Institute of Biological Sciences, which warned that “Louisiana will undoubtedly be thrust into the

national spotlight as a state that pursues politics over science and education,” and the American Association for the Advancement of Science, which told Jindal that the law would “unleash an assault against scientific integrity.” Earlier, the National Association of Biology Teachers had urged the legislature to defeat the bill, pleading “that the state of Louisiana not allow its science curriculum to be weakened by encouraging the utilization of supplemental materials produced for the sole purpose of confusing students about the nature of science.”

But all these protests were of no avail. On June 26, 2008, the governor’s office announced that Jindal had signed the Louisiana Science Education Act into law. Why all the fuss? On its face, the law looks innocuous: it directs the state board of education to “allow and assist teachers, principals, and other school administrators to create and foster an environment within public elementary and secondary schools that promotes critical thinking skills, logical analysis, and open and objective discussion of scientific theories being studied,” which includes providing “support and guidance for teachers regarding effective ways to help students understand, analyze, critique, and objectively review scientific theories being studied.” What’s not to like? Aren’t critical thinking, logical analysis, and open and objective discussion exactly what science education aims to promote?

KEY CONCEPTS

- Creationists continue to agitate against the teaching of evolution in public schools, adapting their tactics to match the roadblocks they encounter.
- Past strategies have included portraying creationism as a credible alternative to evolution and disguising it under the name “intelligent design.”
- Other tactics misrepresent evolution as scientifically controversial and pretend that advocates for teaching creationism are defending academic freedom.

—The Editors

ZACHARY ZAVISLAK (photograph); KURSTEN BRACCHI (styling)

INJECTING RELIGION into the science curricula of public schools is often a hidden goal of state legislation addressing the teaching of evolution.



As always in the contentious history of evolution education in the U.S., the devil is in the details. The law explicitly targets evolution, which is unsurprising—for lurking in the background of the law is creationism, the rejection of a scientific explanation of the history of life in favor of a supernatural account involving a personal creator. Indeed, to mutate Dobzhansky's dictum, nothing about the Louisiana law makes sense except in the light of creationism.

ESTABLISHMENT CLAUSE OF the U.S. Constitution's First Amendment is now understood to require the separation of church and state. It has led the Supreme Court to strike down as unconstitutional laws aimed at teaching creationism in public schools—which is why creationists now disguise that aim.

Creationism's Evolution

Creationists have long battled against the teaching of evolution in U.S. public schools, and their strategies have evolved in reaction to legal setbacks. In the 1920s they attempted to ban the teaching of evolution outright, with laws such as Tennessee's Butler Act, under which teacher

John T. Scopes was prosecuted in 1925. It was not until 1968 that such laws were ruled to be unconstitutional, in the Supreme Court case *Epperson v. Arkansas*. No longer able to keep evolution out of the science classrooms of the public schools, creationists began to portray creationism as a scientifically credible alternative, dubbing it creation science or scientific creationism. By the early 1980s legislation calling for equal time for creation science had been introduced in no fewer than 27 states, including Louisiana. There, in 1981, the legislature passed the Balanced Treatment for Creation-Science and Evolution-Science in Public School Instruction Act, which required teachers to teach creation science if they taught evolution.

The Louisiana Balanced Treatment Act was based on a model bill circulated across the country by creationists working at the grassroots level. Obviously inspired by a particular literal interpretation of the book of Genesis, the model bill defined creation science as including creation ex nihilo ("from nothing"), a worldwide flood, a "relatively recent inception" of the earth, and a rejection of the common ancestry of humans and apes. In Arkansas, such a bill was enacted earlier in 1981 and promptly challenged in court as unconstitutional. So when the Louisiana Balanced Treatment Act was still under consideration by the state legislature, sup-

Bill of Rights
Congress of THE United States,
*begun and held at the City of New York, on
Wednesday, the fourth of March, one thousand seven hundred and eighty nine.*

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.

It's Your Move

This time line notes some key events in the seesawing history of the battle between creationists and evolutionists. It highlights the way creationist tactics have shifted in response to evolution's advances in classrooms and to court rulings that have banned religious proselytizing in public schools.

Late 1910s and early 1920s:

As high school attendance rises, more American students become exposed to evolution.

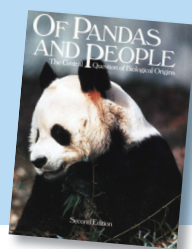
1925: Butler Act in Tennessee outlaws teaching of human evolution.



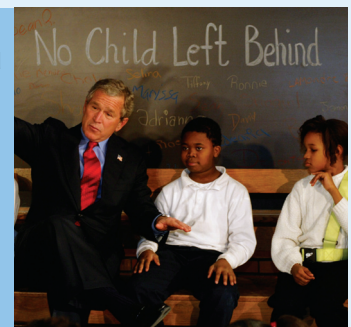
Teacher John T. Scopes (*above*) is prosecuted and convicted under the law, although the conviction is later overturned on a technicality.

1958: Biological Sciences Curriculum Study (BSCS) is founded with funds from a federal government concerned about science education in the wake of Sputnik. BSCS's textbooks emphasize evolution, which was largely absent from textbooks after the Scopes trial; commercial publishers follow suit.

1989: *Of Pandas and People*, the first book systematically to use the term "intelligent design" is published; it touts the notion as an alternative to evolution.



2001: Passage of the No Child Left Behind Act cements the importance of state science standards, which have become a new battleground between creationism and evolution (because inclusion of evolution in science standards increases the likelihood that evolution will be taught).



ISTOCKPHOTO.COM (Bill of Rights); AP PHOTO (Scopes); LAWRENCE JACKSON AP Photo (George W. Bush with students)

AP PHOTO (Epperson); CAROLYN KASTER AP Photo (Kitzmiller); RICHARD CUMMINS Corbis (Louisiana state seal); BILL HABER AP Photo (Jindal); G. PAUL BISHOP (Branch); STEVE MIRSKY (Scott)

porters, anticipating a similar challenge, immediately purged the bill's definition of creation science of specifics, leaving only "the scientific evidences for creation and inferences from those scientific evidences." But this tactical vagueness failed to render the law constitutional, and in 1987 the Supreme Court ruled in *Edwards v. Aguillard* that the Balanced Treatment Act violated the Establishment Clause of the First Amendment to the Constitution, because the act "impermissibly endorses religion by advancing the religious belief that a supernatural being created humankind."

Creationism adapts quickly. Just two years later a new label for creationism—"intelligent design"—was introduced in the supplementary textbook *Of Pandas and People*, produced by the Foundation for Thought and Ethics, which styles itself a Christian think tank. Continuing the Louisiana Balanced Treatment Act's strategy of reducing overt religious content, intelligent design is advertised as not based on any sacred texts and as not requiring any appeal to the supernatural. The designer, the proponents say, might be God, but it might be space aliens or time-traveling cell biologists from the future. Mindful that teaching creationism in the public schools is unconstitutional, they vociferously reject any characterization of intelligent design as a form of creationism. Yet on careful inspection, intelligent design proves to be a rebranding of creationism—silent on a number of creation science's distinctive claims (such as the young age of the earth

and the historicity of Noah's flood) but otherwise riddled with the same scientific errors and entangled with the same religious doctrines.

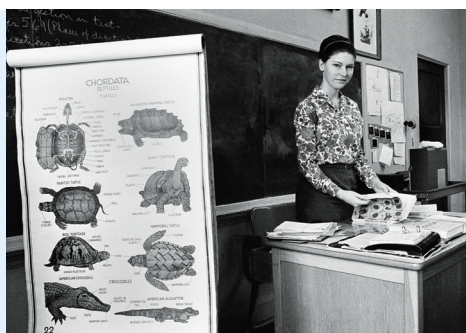
Such a careful inspection occurred in a federal courtroom in 2005, in the trial of *Kitzmiller v. Dover Area School District*. At issue was a policy in a local school district in Pennsylvania requiring a disclaimer to be read aloud in the classroom alleging that evolution is a "Theory... not a fact," that "gaps in the Theory exist for which there is no evidence," and that intelligent design as presented in *Of Pandas and People* is a credible scientific alternative to evolution. Eleven local parents filed suit in federal district court, arguing that the policy was unconstitutional. After a trial that spanned a biblical 40 days, the judge agreed, ruling that the policy violated the Establishment Clause and writing, "In making this determination, we have addressed the seminal question of whether [intelligent design] is science. We have concluded that it is not, and moreover that [intelligent design] cannot uncouple itself from its creationist, and thus religious, antecedents."

The expert witness testimony presented in the *Kitzmiller* trial was devastating for intelligent design's scientific pretensions. Intelligent design was established to be creationism lite: at the trial philosopher Barbara Forrest, co-author of *Creationism's Trojan Horse: The Wedge of Intelligent Design*, revealed that references to creationism in *Of Pandas and People* drafts were replaced with refer-

THE AUTHORS



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1968: Supreme Court rules in case of *Epperson v. Arkansas* that laws barring the teaching of evolution in public schools are unconstitutional. Teacher Susan Epperson is shown at the left in 1966.

1981: Louisiana passes the Balanced Treatment for Creation-Science and Evolution-Science in Public School Instruction Act. Also in the 1980s legislators in more than 25 states introduce bills calling for "creation science" to have equal time with evolution.

1987: Supreme Court rules in the case of *Edwards v. Aguillard* that the Louisiana Balanced Treatment Act violates the Establishment Clause of the First Amendment.

2005: Decision in *Kitzmiller v. Dover Area School District* rules that teaching intelligent design in the public schools is unconstitutional. The photograph at the right captures plaintiff Tammy Kitzmiller during a break from the trial.



June 2008: Governor Bobby Jindal (right) signs the Louisiana Science Education Act into law. Marketed as supporting critical thinking in classrooms, the law threatens to open the door for the teaching of creationism and for scientifically unwarranted critiques of evolution in public school science classes.



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NONSENSE PHRASE “*cdesign proponentsists*” resulted when the words “*design proponents*” were substituted incompletely for “*creationists*” in the manuscript for *Of Pandas and People*. This and other evidence revealed that references to creationism were systematically replaced with references to “*intelligent design*” after the Supreme Court ruled in 1987 that teaching creationism in public schools is unconstitutional. The discovery helped to convince a federal district court in 2005 to declare the teaching of intelligent design unconstitutional as well.

ences to design shortly after the 1987 *Edwards* decision striking down Louisiana’s Balanced Treatment Act was issued. She even found a transitional form, where the replacement of “*creationists*” by “*design proponents*” was incomplete—“*cdesign proponentsists*” was the awkward result. More important, intelligent design was also established to be scientifically bankrupt: one of the expert witnesses in the trial, biochemist Michael Behe, testified that no articles have been published in the scientific research literature that “provide detailed rigorous accounts of how intelligent design of any biological system occurred”—and he was testifying in *defense* of the school board’s policy.

Donning a Fake Mustache

Failing to demonstrate the scientific credibility of their views, creationists are increasingly retreating to their standard fallback strategy for undermining the teaching of evolution: misrepresenting evolution as scientifically controversial while remaining silent about what they regard as the alternative. This move represents only a slight rhetorical shift. From the *Scopes* era onward, creationists have simultaneously employed three central rhetorical themes, sometimes called the three pillars of creationism, to attack evolution: that evolution is unsupported by or actually in conflict with the facts of science; that teaching evolution threatens religion, morality and society; and that fairness dictates the necessity of teaching creationism alongside evolution. The fallback strategy amounts to substituting for creationism the scientifically unwarranted claim that evolution is a theory in crisis.

Creationists are fond of asserting that evolution is a theory in crisis because they assume that there are only two alternatives: creationism (whether creation science or intelligent design) and evolution. Evidence against evolution is thus evidence for creationism; disproving evolution thus proves creationism. The judge in *McLean v. Arkansas*, the 1981 case in which Arkansas’s Balanced Treatment Act was ruled to be uncon-

stitutional, succinctly described the assumption as “a contrived dualism.” Yet by criticizing evolution without mentioning creationism, proponents of the fallback strategy hope to encourage students to acquire or retain a belief in creationism without running afoul of the Establishment Clause. Creationism’s latest face is just like its earlier face, only now thinly disguised with a fake mustache.

Underscoring the conscious decision to emphasize the supposed evidence against evolution, the Institute for Creation Research, which promotes creation science, candidly recommended immediately after the *Edwards* decision that “school boards and teachers should be strongly encouraged at least to stress the scientific evidences and arguments *against evolution* in their classes ... even if they don’t wish to recognize these as evidences and arguments *for creation*.” Similarly, the Discovery Institute, the de facto institutional headquarters of intelligent design, saw the writing on the wall even before the decision in the *Kitzmiller* ruling that teaching intelligent design in the public schools is unconstitutional. Although a widely discussed internal memorandum—“The Wedge Document”—had numbered among its goals the inclusion of intelligent design in the science curricula of 10 states, the Discovery Institute subsequently retreated to a strategy to undermine the teaching of evolution, introducing a flurry of labels and slogans—“teach the controversy,” “critical analysis” and “academic freedom”—to promote its version of the fallback strategy.

“Academic freedom” was the creationist catchphrase of choice in 2008: the Louisiana Science Education Act was in fact born as the Louisiana Academic Freedom Act, and bills invoking the idea were introduced in Alabama, Florida, Michigan, Missouri and South Carolina, although, as of November, all were dead or stalled [*see box on page 98*]. And academic freedom was a central theme of the first creationist movie to tarnish the silver screen: *Expelled: No Intelligence Allowed*. (Science columnist Michael Shermer eviscerated *Expelled* in his review in the June 2008 issue of *Scientific American*, and the magazine’s staff added commentary on www.SciAm.com.) Portraying the scientific community as conspiring to persecute scientists for their views on creationism, *Expelled* was ostensibly concerned with academic freedom mainly at the college level, but it was used to lobby for the academic freedom legislation in Missouri and Florida aimed at the public schools.

COURTESY OF NICK MATZKE (text from *Of Pandas and People*)

(The movie, by the way, was a critical failure and jam-packed with errors.)

The appeal of academic freedom as a slogan for the creationist fallback strategy is obvious: everybody approves of freedom, and plenty of people have a sense that academic freedom is desirable, even if they do not necessarily have a good understanding of what it is. The concept of academic freedom is primarily relevant to college teaching, and the main organization defending it, the American Association of University Professors, recently reaffirmed its opposition to antievolution laws such as Louisiana's, writing, "Such efforts run counter to the overwhelming scientific consensus regarding evolution and are inconsistent with a proper understanding of the meaning of academic freedom." In the public schools, even if there is no legal right to academic freedom, it is sound educational policy to allow teachers a degree of latitude to teach their subjects as they see fit—but there are limits. Allowing teachers to instill scientifically unwarranted doubts about evolution is clearly beyond the pale. Yet that is what the Louisiana Science Education Act was evidently created, or designed, to do.

The Worm in the Apple

The real purpose of the law—as opposed to its ostensible support for academic freedom—becomes evident on analysis. First, consider what the law seeks to accomplish. Aren't teachers in the public schools *already* exhorted to promote critical thinking, logical analysis and objective discussion of the scientific theories that they discuss? Yes, indeed: in Louisiana, policies established by the state board of education already encourage teachers to do so, as critics of the bill protested during a legislative hearing.

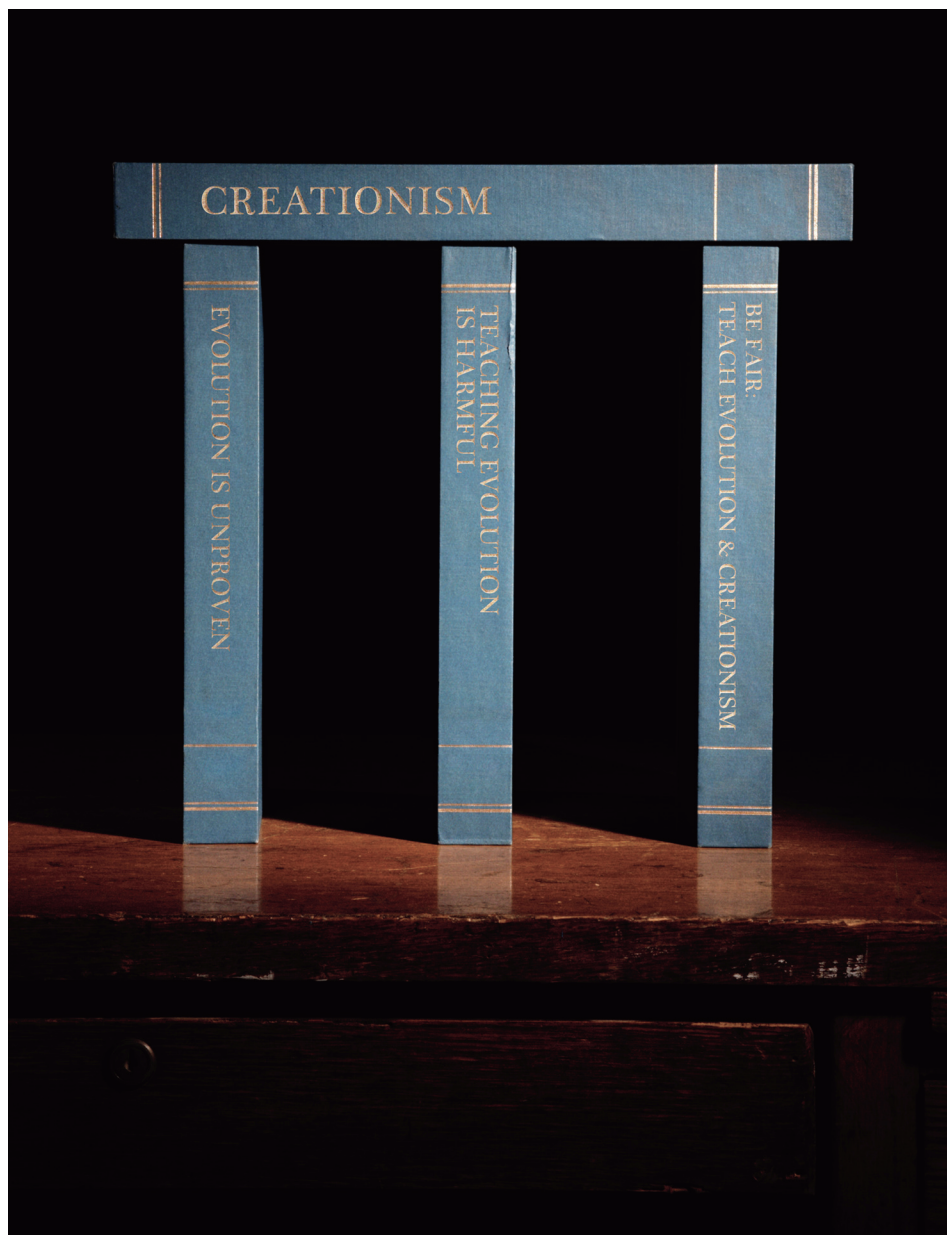
So what is the law's true intent? That only a handful of scientific topics—"biological evolution, the chemical origins of life, global warming, and human cloning"—are explicitly mentioned is a hint. So is the fact that the bill was introduced at the behest of the Louisiana Family Forum, which seeks to "persuasively present biblical principles in the centers of influence on issues affecting the family through research, communication and networking." And so is the fact that the group's executive director was vocally dismayed when those topics were temporarily deleted from the bill.

Second, was there in fact a special need for the Louisiana legislature to encourage teachers to promote critical thinking with respect to evolu-

tion in particular? No evidence seems to have been forthcoming. Patsy Peebles, a veteran science teacher in Baton Rouge, commented, "I was a biology teacher for 22 years, and I never needed the legislature to tell me how to present anything. This bill doesn't solve any of the problems classroom teachers face, and it will make it harder for us to keep the focus on accurate science in science classrooms." And of course, the National Association of Biology Teachers, representing more than 9,000 biology educators across the country, took a firm stand against the bill. In neighboring Florida, the sponsors of similar bills alleged that there were teachers who were prevented from or penalized for "teaching the 'holes'" in evolution. But no such teachers were ever produced, and the state department of education and local newspapers were unable to confirm that the claimed incidents of persecution ever occurred.

And, third, what are these "holes" in evolu-

ASSERTIONS dubbed the "three pillars of creationism" underlie many antievolution campaigns. Because portraying creationism as scientifically credible has failed as a tactic for inserting religion into public schools, creationists are increasingly focusing on insisting that evolutionary theory is flawed, dangerous to religion, morality and society, and taught dogmatically.

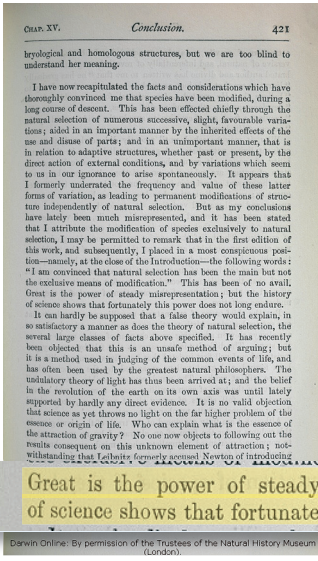


Antievolution Bills of 2008

Several states aside from Louisiana entertained antievolution bills last year. Clearly, efforts to push such legislation continue unabated.

STATE (BILL)	OSTENSIBLE AIM	STATUS
Alabama (HB 923)	Support academic freedom	Died May 2008
Florida (HB 1483)	Foster critical analysis	Died May 2008
Florida (SB 2692)	Support academic freedom	Died May 2008
Michigan (SB 1361)	Support academic freedom	In committee when this issue went to press
Michigan (HB 6027)	Support academic freedom	Identical to SB 1361; in committee when this issue went to press
Missouri (HB 2554)	Promote teaching of evolution's strengths and weaknesses	Died May 2008
South Carolina (SB 1386)	Promote teaching of evolution's strengths and weaknesses	Died June 2008

SIXTH EDITION of *On the Origin of Species* includes Charles Darwin's lament over the power of "steady misrepresentation." He took comfort in science's past victories over falsehood, but the authors of this article argue that science is not enough to combat campaigns designed to mislead schoolchildren; activism is needed as well.



tion, anyhow? The savvier supporters of bills such as Florida's and Louisiana's realize that it is crucial to disclaim any intention to promote creationism. But because there is no scientifically credible challenge to evolution, only long-ago-debunked creationist claptrap [see "15 Answers to Creationist Nonsense," by John Rennie; SCIENTIFIC AMERICAN, June 2002], the supporters of such bills are forced to be evasive when asked about what material would be covered.

In Florida, for example, a representative of the Discovery Institute dithered when asked whether intelligent design constituted "scientific information" in the sense of the bill, saying, "In my personal opinion, I think it does. But the intent of this bill is not to settle that question," and adding, unhelpfully, "The intent of this bill is ... it protects the 'teaching of scientific information.'" Similarly, during debate on the Senate floor, the bill's sponsor was noticeably reluctant to address the question of whether it would license the teaching of creationism, preferring instead to simply recite its text.

Thus, despite the lofty language, the ulterior intent and likely effect of these bills are evident: undermining the teaching of evolution in public schools—a consequence only creationists regard as a blessing. Unfortunately, among their numbers are teachers. A recent national survey conducted by researchers at Pennsylvania State University reveals that one in eight U.S. high school biology teachers already presents creationism as a "valid scientific alternative to Darwinian ex-

planations for the origin of species," with about the same percentage emphasizing that "many reputable scientists" view creationism as a scientifically valid alternative to evolution.

Not all creationist teachers are as extreme as John Freshwater, a Mount Vernon, Ohio, middle school teacher who became immersed in legal troubles over his religious advocacy in the classroom, which included not only teaching creationism but also, allegedly, using a high-voltage electrical apparatus to brand his students with a cross. But even the less zealous will probably take laws such as Louisiana's as a license to miseducate. Such laws are also likely to be used to bully teachers who are not creationists: nationally, three in 10 already report pressure to present creationism or downplay evolution.

These bills will also further encourage school districts where creationists are politically powerful to adopt antievolution policies. A statement by a member of the Livingston Parish School Board who supported the Louisiana bill is instructive. After saying "both sides—the creationism side and the evolution side—should be presented," he explained that the bill was needed because "teachers are scared to talk about" creation. How plausible is it, then, that the law's provision that it is not to be "construed to promote any religious doctrine" will be honored in practice? As conservative columnist John Derbyshire commented, "the Act will encourage Louisiana local school boards to unconstitutional behavior. That's what it's *meant* to do."

The Future of Steady Misrepresentation

What are the legal prospects of the creationist fallback strategy? A case in Georgia, *Selman v. Cobb County School District*, is suggestive, if not decisive. In 2002 the Cobb County board of education, bowing to the demands of local creationists, decided to require warning labels for biology textbooks. Using a phrase employed by creationists even before the Scopes trial in 1925, the labels described evolution as "a theory, not a fact," while remaining silent about creationism. Five parents in the county filed suit in federal district court, arguing that the policy requiring the labels was unconstitutional, and the trial judge agreed, citing the abundant history linking the warning labels with creationist activity in Cobb County in particular and linking the fallback strategy with creationism in general. The case was vacated on appeal because of concerns about the evidence submitted at trial, remanded

DARWIN ONLINE University of Cambridge (page from On the Origin of Species); ZACHARY ZAVISLAK (textbook photograph); KURSTEN BRACCHI (textbook styling)



to the trial court and settled on terms favorable to the parents. It remains to be seen whether the fallback strategy will survive constitutional scrutiny elsewhere—but it is likely that it will be challenged, whether in Louisiana or elsewhere.

In the meantime, it is clear why the Louisiana Science Education Act is pernicious: it tacitly encourages teachers and local school districts to miseducate students about evolution, whether by teaching creationism as a scientifically credible alternative or merely by misrepresenting evolution as scientifically controversial. Vast areas of evolutionary science are for all intents and purposes scientifically settled; textbooks and curricula used in the public schools present precisely such basic, uncomplicated, uncontroversial material. Telling students that evolution is a theory in crisis is—to be blunt—a lie.

Moreover, it is a dangerous lie, because Dobzhansky was right to say that nothing in biology makes sense except in the light of evolution: without evolution, it would be impossible to explain why the living world is the way it is rather than otherwise. Students who are not given the chance to acquire a proper understanding of evolution will not achieve a basic level of scientific literacy. And scientific literacy will be indispensable for workers, consumers and policymakers in a future dominated by medical, biotechnological and environmental concerns.

In the sesquicentennial year of *On the Origin of Species*, it seems fitting to end with a reference to Charles Darwin's seminal 1859 book. In the first edition of *Origin of Species*, Darwin was careful to acknowledge the limits to his project, writing, "I am convinced that natural selection has been the main but not the exclusive means of modification." Nevertheless, he was misinterpreted as claiming that natural selection was entirely responsible for evolution, provoking him to add a rueful comment to the sixth edition: "Great is the power of steady misrepresentation; but the history of science shows that fortunately this power does not long endure."

The enactment of the Louisiana Science Education Act, and the prospect of similar legislation in the future, confirms Darwin's assessment of the power of steady misrepresentation. But because the passage of such antievolution bills ultimately results from politics rather than science, it will not be the progress of science that ensures their failure to endure. Rather it will take the efforts of citizens who are willing to take a stand and defend the uncompromised teaching of evolution. ■

What to Do

If controversy over the teaching of evolution erupts in your area, here are some actions you can take:

- ✓ Resolving the controversy requires thinking politically, which means forming coalitions. Join with like-minded science educators, scientists, members of the clergy and other citizens to convince policymakers not to accede to creationist proposals.
- ✓ Keep in mind that the goal is not only to keep creationism out of the science classroom but also to ensure that evolution is taught properly—without qualifiers such as "only a theory" and unaccompanied by specious "evidence against evolution."
- ✓ Be ready to rebut assertions that evolution is a theory in crisis; that evolution is a threat to religion, morality and society; and that it is only fair to teach "both sides" of the issue.
- ✓ Arrange for defenders of evolution to write letters to the editor and op-eds, attend and speak at meetings of the board of education or legislature, and work to turn out the vote on Election Day.

Adapted from "Defending the Teaching of Evolution: Strategies and Tactics for Activists," by Glenn Branch, in *Not in Our Classrooms: Why Intelligent Design Is Wrong for Our Schools*. Edited by Eugenie C. Scott and Glenn Branch. Beacon, 2006.

MORE TO EXPLORE

Analyzing Critical Analysis: The Fallback Antievolutionist Strategy.

Nicholas J. Matzke and Paul R. Gross in *Not in Our Classrooms: Why Intelligent Design Is Wrong for Our Schools*. Edited by Eugenie C. Scott and Glenn Branch. Beacon, 2006.

Evolution: The Triumph of an Idea.

Carl Zimmer. Harper Perennial, 2006.

Creationism's Trojan Horse: The Wedge of Intelligent Design.

Revised edition. Barbara Forrest and Paul R. Gross. Oxford University Press, 2007.

The Devil in Dover: An Insider's Story of Dogma v. Darwin in Small-Town America.

Lauri Lebo. New Press, 2008.

Evolution vs. Creationism:

An Introduction. Second edition. Eugenie C. Scott. Greenwood, 2009.