

A reprint from

American Scientist

the magazine of Sigma Xi, The Scientific Research Society

Being Stalked by Intelligent Design

Pat Shipman

I GNORED THE THREAT for a long time. I groaned at the letters to the editor in our local paper that dismissed evolution as “just a theory” and proclaimed the superiority of “Intelligent Design” (ID) to explain the world around us. When a particular emeritus professor pestered me with e-mails asking how I explained this or that aspect of the fossil record (How could a flying bird evolve from a non-flying species? Did I think feathered dinosaurs were real?), I answered him time and again—until I realized that he was reading neither my answers nor the references I suggested. When this same man stood up, yet again, after a lecture to read a “question” that was actually a prepared statement about ID, I rolled my eyes.

But on October 18, 2004, the school board in Dover, Pennsylvania, changed its official curriculum, mandating that: “Students will be made aware of gaps/problems in Darwin’s theory and of other theories of evolution including, but not limited to, intelligent design. Note: Origins of life will not be taught.” The new policy required teachers to read to their biology classes a four-paragraph disclaimer questioning the validity of evolution and suggesting that students consult ID literature. Seven biology teachers in Dover refused to comply and risked their jobs by writing a powerful letter to the superintendent of schools, Richard Nilsen. The letter read, in part: “‘INTELLIGENT DESIGN’ IS NOT SCIENCE. ‘INTELLIGENT DESIGN’ IS NOT BIOLOGY. ‘INTELLIGENT DESIGN’ IS NOT AN ACCEPTED SCIENTIFIC THEORY.” (Emphasis in original.)

Pat Shipman is an adjunct professor of anthropology at the Pennsylvania State University. Address: Department of Anthropology, 315 Carpenter Building, Pennsylvania State University, University Park, PA 16801. Internet: pls10@psu.edu

Scientists must stop ignoring Intelligent Design—religious prejudice disguised as intellectual freedom

Dover is a small town not far from my home. I became alarmed—ID was in my neighborhood, and it was harming the teaching of science by confusing it with religion. I and many other colleagues signed a petition in support of the embattled teachers. Since the actions of the school board last fall, 11 parents, represented by the American Civil Liberties Union and Americans United for Separation of Church and State, have filed a lawsuit to stop the reading of the disclaimer and the teaching of ID in science classes.

Of Questionable Intelligence

The main premise of ID is that the living organisms on Earth are so complex and so intricately constructed that they cannot *plausibly* have arisen through the unguided action of natural selection, so there must be an “intelligent designer.” (This entity is usually identified as God, but in a deposition taken January 3, 2005, Dover Superintendent Nilsen suggested that the “master intellect” described in an ID textbook might also be an alien.)

In rhetoric, the line of reasoning used by ID advocates is known as an argument by incredulity. Because what is entirely plausible to one person is ludicrously unlikely to another, arguments by incredulity are inherently weak. ID is not a scientific theory amenable to testing, but an opinion, a philosophical preference, a belief. That fact made it

easy for me to dismiss the ID movement as scientifically unimportant.

I might have settled back into complacency had I not learned that students in the public high school in my town—a town dominated by a major university—can “opt out” of learning about evolution if their parents send a letter to the school. Allowing students to “opt out” of learning the basic facts and theories of biology is about as wise as allowing them to “opt out” of algebra or English: It constitutes malfeasance.

Do not mistake my objection. If my neighbors and their children wish to believe in Intelligent Design *as a matter of faith* that is fine with me. What I object to most strenuously is the presentation of a religious belief as a scientific theory in a science class.

Nearly everyone educated in science agrees that there is neither controversy nor debate over the fundamental premise of evolutionary theory: Species evolve over time through the mechanism of natural selection (differential survival and reproduction) acting on variability produced by genetic diversity and mutation. Evolutionary theory is the unifying theme of all of modern biology, witness statements from many groups, including the American Association for the Advancement of Science, the American Association of University Professors, the American Geophysical Union, the American Chemical Society, the American Institute of Biological Sciences, the American Physical Society, the National Academy of Sciences, the National Center for Science Education, and the National Science Teachers Association. As the late, great geneticist and evolutionary theorist Theodosius Dobzhansky, a devout Christian, explained in the title of his famous paper, “Nothing in biology makes sense except in the light of evolution.” Others agree that evolutionary theory is compatible with a belief in God, such as the Bishop of Oxford, the Archbishop of Canterbury, the

Presbyterian Church (USA) and the late Pope John Paul II (despite one cardinal's recent reinterpretation of his writings).

The threat posed by ID became more real to me when colleagues at Ohio State University—professors Brian McEnnis (mathematics), Jeffrey McKee (anthropology) and Steve Rissing (evolution, ecology and organismal biology)—became involved in an extraordinary situation. A Ph.D. candidate in science education, high school teacher Bryan Leonard, wrote a dissertation on the following research questions: “When students are taught the scientific data both supporting and challenging macroevolution, do they maintain or change their beliefs over time? What empirical, cognitive and/or social factors influence students’ beliefs?”

Leonard described his project and identified himself as a graduate student at OSU during his testimony at the evolution “hearing” put on by the Kansas Board of Education in May 2005. One of the Ohio State professors called the Graduate School to learn more and discovered that Leonard’s thesis defense was scheduled for June 6, 2005. The trio wrote a letter to the dean of the school on June 3 requesting that Leonard’s dissertation defense be postponed until several problems were investigated. First, they argued that Leonard’s research questions contained a fundamental flaw:

There are no valid scientific data challenging macroevolution. Mr. Leonard has been misinforming his students if he teaches them otherwise. His dissertation presents evidence that he has succeeded in persuading high school students to reject this fundamental principle of biology. As such, it involves deliberate miseducation of these students, a practice that we regard as unethical.

Second, they asked if Leonard had received approval to experiment on human subjects and if he had followed the prescribed protocol; universities that fail to follow exacting procedures for human experimentation may lose federal funding. Finally, they questioned the composition of Leonard’s

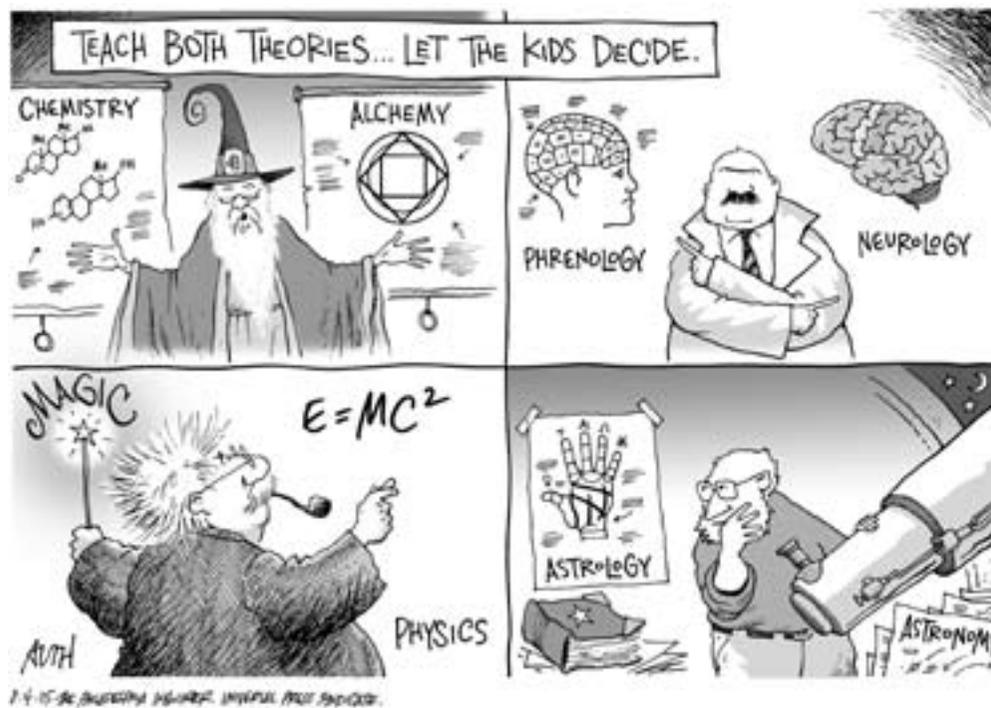
dissertation committee, which lacked expertise in both science education and evolutionary biology, the subjects of his dissertation. Two members of the committee—professors Glen R. Needham from the Department of Entomology and Robert DiSilvestro from the Department of Human Nutrition—had publicly supported the teaching of ID and denied the validity of evolution.

At OSU, Ph.D. committees are required to have one member from outside the candidate’s college to ensure

unless I act soon and effectively. If you are reading this, the chances are that you are in the same position.

“Science” by Assumption

The Intelligent Design movement is a deliberate campaign to undermine the teaching of science in America, and the evidence of this intent is brazenly posted on ID Web sites. The movement’s founder and chief theorist, lawyer Phillip Johnson, and most of its advocates are fellows of the Center for Science



that correct procedure is followed. The outsider on Leonard’s committee was an assistant professor in French and Italian who resigned and was replaced by Joan Herbers, dean of the College of Biological Sciences. Immediately after the replacement, Leonard’s adviser, an expert in teaching with computers who had “inherited” Leonard as the former student of a departed faculty member, requested that the defense be postponed.

These events prompted me to take ID seriously, and this movement scares me. Now I feel like a jogger in the park at night who realizes that she is far too isolated and that the shadows are far too deep. At first I ignored that faint rustling behind me, convincing myself it was just wind in the leaves. Louder noises made me jump and turn around, but I saw nothing. Now I know that I and my colleagues in science are being stalked with careful and deadly deliberation. I fear my days are numbered

and Culture at a conservative think tank called the Discovery Institute. The Center’s publicly stated aims include:

challenging various aspects of neo-Darwinian theory; ... developing the scientific theory known as intelligent design; ... [and] encouraging schools to improve science education by teaching students more fully about the theory of evolution, including the theory’s scientific weaknesses as well strengths [sic].

With these statements, the Center hides its true agenda behind a false claim that it is promoting intellectual freedom when, in fact, it is doing the opposite: stunting intellectual growth by encouraging students to believe that a scientific theory is the same as a philosophical assertion.

Intelligent Design is part of a calculated strategy that Johnson calls the “Wedge,” referring to the tool used to

split a solid object—in this case, the cornerstone of biological science. According to a document that appeared on the Discovery Institute's Web site in 1999, the goal of this plan is "nothing less than the overthrow of materialism and its cultural legacies." The document also makes sweeping, inaccurate claims such as "new developments in biology, physics and cognitive science raise serious doubts about scientific materialism and have re-opened the case for a broadly theistic understanding of nature." This statement is pure propaganda. (The document can still be found on the Discovery Institute's Web site by searching for "wedge," although it is now prefaced by 12 pages of insistent justification.)

In the ID lexicon, "scientific materialism"—the idea that the world around us can be explained without resorting to supernatural forces—is the enemy. ID advocates favor instead something they call "theistic realism," which "assumes that the universe and all its creatures were brought into existence for a purpose by God." The most revealing word in this statement is *assumes*. Scientists rely not on assumption but on evidence, and there is none for ID. Theistic realism and ID are statements of religious faith, which does not require evidence.

The Discovery Institute promotes Intelligent Design with a sophisticated scheme that floods the public with academic-sounding conferences, op-ed pieces (written by Fellows of the Institute who do not always identify themselves as such), press releases, media coverage, teacher-training seminars and materials, classes in the "defense and proof" of Christianity, audiotapes, books, and special briefings for members of Congress. The core of this strategy is to keep saying that evolutionary theory is controversial until—despite all the evidence to the contrary—people start believing it. As Johnson cynically told an interviewer:

[Y]ou have to have people that talk a lot about the issue and get it up front and take the punishment and take all the abuse, and then you get people used to talking about it. It becomes an issue they are used to hearing about, and you get a few more people and a few more, and then eventually you've legitimated it as a regular part of the academic discussion. And that's my goal: to legitimate the argument over evolution. . . . We're bound to win.

A special five-year goal of the Center is publishing 100 scientific or technical publications in support of ID, but here they have failed. Philosopher Barbara Forrest of Southeast Louisiana University, who has written extensively about the rise of the movement, searched the peer-reviewed scientific literature exhaustively and failed to find a single published paper in which scientific data support Intelligent Design.

Battering Biology

The success of the ID movement to date is terrifying. In at least 40 states, ID is being considered as an addition to the required science curriculum in public schools. This year a poll by the National Science Teachers Association showed that one-third of science teachers feel pressured to include ID, creationism or other "nonscientific alternatives" in their science classrooms. Some teachers are so intimidated by the threat of parental complaints that they skip material dealing with evolution in their classes.

And on August 5, President George W. Bush endorsed the teaching of intelligent design in science classes so that students learn "both sides of the debate." This comment explicitly parallels the talking points of the Discovery Institute, revealing the reach of its persuasive campaign. In response, John H. Marburger, III, director of the federal Office of Science and Technology Policy, flatly stated, "Intelligent Design is not a scientific concept."

The ID movement is more than an attack on biology because evolutionary theory unifies the life and earth sciences with physics and chemistry. If ID is accepted as a credible science, then the most basic definition of a scientific theory and the fundamental principles of the scientific method are not being taught. Johnson is right: ID can be the wedge that splits science wide apart.

Science education is already in trouble in the United States, particularly in comparison to other countries. On international tests, U.S. students in the 4th and 8th grades score at or above the average in scientific literacy and mathematics, but by the time those students reach the end of high school, they have slipped to 19th out of 21 nations in science and math, according to the most recent data for each age group. As the scientific preparedness of American students falls, others fill the gap. At American institutions in

2001–2002, 41 percent of those receiving doctoral or professional degrees in biological science, engineering and physical science combined were international students. Similarly, in the 2000 U.S. Census, 44.9 percent of the Ph.D.s in life science who worked in industry were foreign born. Should Johnson's vision come to pass, these numbers are likely to worsen, and our country will jeopardize its position of leadership in many kinds of scientific research, including medicine, agriculture and biotechnology.

ID is an insidious attempt by a religious caucus to impose its views on the whole country. The avowed aim of ID advocates—to undermine science and replace it with their personal religious convictions—amounts to a form of prejudice that is both poisonous and horribly frightening. Inevitably, young people will suffer most. As Francisco Ayala wrote in "From the President" (July–August 2004), science training will be a fundamental necessity in the technological world of the future.

As scientists, we must stop ignoring the ID movement. It won't go away. Each of us must learn to avoid jargon in order to communicate better with the public. Every scientist should become a mentor; share your experience of the wonder and beauty of science! Finally, critically, we must expose Intelligent Design for what it really is: religious prejudice masked as intellectual freedom.

Bibliography

- Dobzhansky, T. 1973. Nothing in biology makes sense except in the light of evolution. *American Biology Teacher* 35:125–129.
- Lawrence, J. 1999. Interview: Phillip E. Johnson. *Communiqué*. http://www.communique-journal.org/q6_johnson.html
- Forrest, B. 2001. The Wedge at work: How Intelligent Design creationism is wedging its way into the cultural and academic mainstream. In *Intelligent Design Creationism and Its Critics: Philosophical, Theological, and Scientific Perspectives*, ed. R. T. Pennock. Cambridge, Massachusetts: MIT Press.
- Matzke, N. J. 2004. Design on trial in Dover, Pennsylvania. *Reports of the National Center for Science Education* 24(5): 4–9.
- National Center for Education Statistics. 2003. *Highlights From the Trends in International Mathematics and Science Study: TIMSS 2003*. <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2005005>
- National Center for Education Statistics. 1998. *Pursuing Excellence: A Study of U.S. Twelfth-Grade Mathematics and Science Achievement in International Context: Initial findings from the Third International Mathematics and Science Study*. <http://nces.ed.gov/pubs98/twelfth/>