

# Evolution and Creationism: One Long Argument

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## A Brief History

Ever since Darwin published *On the Origin of Species* in 1859, creationists have argued against the scientific theory of evolution. Creationists do not want God's hand to be removed from the creation of species and they see Darwin's dangerous idea (Dennett, 1995) doing just that. In *The Creationists*, Numbers (1993) provides an excellent history of the creationist movement, with emphasis on the so-called "scientific creationists" in the United States. A more recent book by Alters and Alters (2001) also examines the creation-evolution controversy, with more emphasis on ideas for biology teachers. Many other books, including those by Dawkins (1987, 1996), Eldridge (2000), Futuyma (1995), Gould (1989, 1999), Kitcher (1982), National Academy of Sciences (1998), Moore (2000), Numbers (1992), Pennock (1999), and Ruse (1982, 1989) document the creation-evolution controversy. The links between racism and the anti-evolution campaign have been documented recently by Moore (2001).

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Related to the evolution-creationism struggle in Louisiana, the *Edwards v. Aguillard* (1987) decision of the U.S. Supreme Court held unconstitutional the "Creationism Act" of the Louisiana legislature. This law prohibited the teaching of evolution in public schools except when it was accompanied by instruction in "creation science." The law would have required the development of creationist teaching materials, curriculum committees, and related educational support. A decade after this decision, Don Aguillard, the biology teacher named in the *Edwards v. Aguillard* case, researched the factors influencing the teaching of biological evolution in Louisiana public schools, as part of his doctoral degree requirements at Louisiana State University in Baton Rouge. As his major professor I encouraged Don to follow his earlier activities as a science teacher and central figure in the legal case, with a careful analysis of the state of evolution education in Louisiana. Among his findings are the following (Aguillard, 1998):

1. 41% of Louisiana public school biology teachers indicated either that creationism has a scientific foundation (24%) or they were not sure (17%).
2. There is a statistically significant correlation between instructional time devoted to evolution and beliefs regarding the validity of creationism.

3. More than 75% of Louisiana public school biology teachers judged their academic training in evolution as inadequate.
4. Most biology teachers report spending fewer than 5 hours (of about 180) dealing with evolution throughout the school year.

A decade after the *Edwards v. Aguillard* United States Supreme Court decision, the U.S. District Court for the Eastern District of Louisiana rejected a school board policy requiring teachers to read to students a disclaimer saying evolution is “only a theory” (*Freiler v. Tangipahoa Parish Board of Education*, 1997). The decision identified “intelligent design” as equivalent to “creation science,” both promoted by religious fundamentalists known as “creation scientists.” Further legal appeals by the Tangipahoa School Board were unsuccessful.

Louisiana, like many other states in the U.S., has tried repeatedly to suppress the teaching of evolution. The latest effort is described in the following section.

## Darwin Ideology Is Racist

On April 15, 2001 the Baton Rouge publication, *The Advocate*, announced that Louisiana State Representative Sharon Weston Broome wanted lawmakers to pass a resolution rejecting “the core concepts of Darwinist ideology.” According to Broome, evolution promotes racism because Hitler and others have used Darwin’s writings to justify mass murder and other heinous crimes. Despite efforts by supporters of evolution education, the Louisiana House Education Committee passed the following resolution by a vote of 9 to 5.

### Louisiana House Education Committee Resolution On Teaching Evolution

**WHEREAS**, America’s fundamental document, “The Declaration of Independence,” expresses the self-evident truth that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, and that among these are Life, Liberty, and the pursuit of Happiness; and

**WHEREAS**, the Constitution of the State of Louisiana of 1974 declares that the only legitimate ends of government are to secure justice for all, preserve peace, protect the rights, and promote the happiness and general welfare of the people; and

**WHEREAS**, empirical science has documented an indisputable commonality among all people groups, or races, and has demonstrated that normal variations in the human gene pool account for our differences, of which racial differences are a trivial portion; and

**WHEREAS**, the writings of Charles Darwin, the father of evolution, promoted the justification of racism, and his books “*On the Origin of Species by Means of Natural Selection: or the Preservation of Favoured Races in the Struggle for Life*” and “*The Descent of Man*” postulate a hierarchy of superior and inferior races; and

**WHEREAS**, Adolf Hitler and others have exploited the racist views of Darwin and those he influenced, such as German zoologist Ernst Haeckel, to justify the annihilation of millions of purportedly racially inferior individuals.

**THEREFORE, BE IT RESOLVED** that the Legislature of Louisiana does hereby deplore all instances and ideologies of racism, does hereby reject the core concepts of Darwinist ideology that certain races and classes of humans are inherently superior to others, and does hereby condemn the extent to which these philosophies have been used to justify and approve racist practices.

**BE IT FURTHER RESOLVED** that the Legislature does also hereby urge and request the public education system of Louisiana, as appropriate in the curriculum, to address the commonalities of people and the weaknesses of Darwinian racism.

**BE IT FURTHER RESOLVED** that a suitable copy of this Resolution be transmitted to the commissioner of administration, who will make its contents known to the heads of each Louisiana state department and agency; to the Board of Regents, who will make its contents known to each college and university president or chancellor; and to the state superintendent of education, who will make its contents known to the superintendents of each city, parish, or other local public school system.

Following the action of the Louisiana House Education Committee, I developed a resolution on teaching evolution that was meant to represent the scientific community at Louisiana State University (LSU). The resolution was reviewed by several of my colleagues in various science departments at LSU and by other supporters of evolution education, and various suggestions were offered to strengthen the resolution. The resolution was then circulated among some of faculty in the scientific community and signed by about 100 persons. Some of those who chose not to sign seemed to feel it would be better to remain silent rather than to “confront” the same legislature that rules on LSU’s budget. Although 100 may seem like a small number, it represents most of the faculty who actually had an opportunity to read and sign the resolution. The resolution in its final form is as follows:

## LSU Resolution On Teaching Evolution

**WHEREAS**, the U.S. National Academy of Sciences, the National Science Teachers Association, the American Association for the Advancement of Science, and the National Association of Biology Teachers have continuously and strongly supported the teaching of modern evolutionary theory in our schools; and

**WHEREAS**, the U.S. Supreme Court and lower courts have ruled repeatedly that creationism in its various guises is religion, not science; and

**WHEREAS**, House Concurrent Resolution 74 is recognizable as an effort to discredit the teaching of evolution in Louisiana public schools and universities by incorrectly linking it to racism; and

**WHEREAS**, the LSU Scientific Community encourages the best possible science education opportunities for Louisiana students; and

**WHEREAS**, teaching biology without evolutionary theory is comparable to teaching physical science without atomic theory; and

**WHEREAS**, Charles Darwin stated in "Voyage of the Beagle" that "It makes one's blood boil, yet heart tremble, to think we Englishmen and our American descendents, with their boastful cry of liberty, have been and are so guilty" [of being involved in the slave trade], and

**WHEREAS**, evolutionary biology more than any other area of science has undermined racism by showing the universal biological kinship of ALL humans; and

**WHEREAS**, the misuse of scientific knowledge has nothing to do with its validity;

**THEREFORE, BE IT RESOLVED** that we members of the LSU Scientific Community are firmly committed to the teaching of evolutionary theory, atomic theory, and other scientifically valid knowledge in Louisiana's public schools.

**BE IT FURTHER RESOLVED** that we members of the LSU Scientific Community are firmly committed to the elimination of racism, sexism, and other forms of bigotry in our society by educating our citizens to understand that tolerance not censorship of science is the preferred path to enlightenment.

The signed copies of the resolution were collected and preparations were made to present them to key members of the Louisiana House of Representatives as they considered the Broome resolution. However, the Broome resolution was changed on the floor of the House, deleting all references to Darwin and Darwinist

ideology, so the final version became simply a resolution to eliminate racism and other forms of bigotry in Louisiana public education. Even in Louisiana, few legislators will publicly oppose such a resolution.

Attacking evolution by calling Darwin a racist is just one of many tactics used by those opposed to teaching evolution in our schools. At the local, state, and national levels, religious fundamentalists and others opposed to evolution education continue to try to suppress the teaching of evolution and support school prayer and the teaching of their vision of religion in our schools. It is not just in the South or in Kansas that these battles are fought (Alters and Alters, 2001; Moore, 2000); all over the U.S., fundamentalists target evolution as the main enemy of their visions of God/religion (Alters & Alters, 2001; Moore, 2000). The long argument continues between evolutionists and creationists.

## Taking History & Philosophy of Science Seriously

One would think that 140+ years after Darwin published *On the Origin of Species* the most scientifically-advanced nation on Earth would understand and embrace his ideas as important to a sound science education. However, science education research (Alters & Alters, 2001; Good et al., 2000; Moore, 2000) and polls by Gallup (Gallup & Newport, 1991) and others (National Academy of Sciences, 1998; Sagan, 1996) reveal widespread ignorance among U.S. citizens regarding scientific evolutionary theory.

Both cognitive and religious obstacles to evolution education are real, persistent, and often interrelated. Trying to deal only with the cognitive obstacles (e.g., misconceptions) while ignoring the religious/political obstacles seems likely to be less effective than taking both into account.

Fortunately, there are many good resources for biology teachers and others who want to help students understand the basics of evolutionary theory and its implications. The recent (September 2001) PBS television special *Evolution* is one of the best instructional resources of its kind ever produced. In eight one-hour programs Darwin's ideas on evolution of life are presented, recognizing the potential controversy that might arise because of opposition by religious fundamentalists and others who dislike the implications of evolutionary theory for human behavior. In addition to the eight one-hour programs, a free teacher's guide and an extensive website ([www.pbs.org](http://www.pbs.org)) offer the interested teacher or parent or student valuable information on evolutionary theory and how to teach it.

The current position of the National Association of Biology Teachers (NABT), the National Science Teachers

Association (NSTA), and similar professional groups is that religion and religious beliefs should be kept out of science classroom discussions of evolution and other scientific topics. This is also the position of our courts. The current PBS special on *Evolution* complicates this position because it recognizes that a major obstacle to evolution education is fundamentalist/creationist religious belief. From Darwin's day to the present, there has been widespread opposition to evolution education in our public schools. **Taking history and philosophy of science seriously, where evolution is concerned, means that one must include adequate coverage of the role religion has played in the development of the theory of evolution.** The developers and producers of the PBS special on *Evolution* realized this, beginning their eight-hour television series with a two-hour program entitled "Darwin's Dangerous Idea" and ending with a one-hour program entitled "What About God?" Historical facts about the development of Darwin's theory of evolution by natural selection automatically include religion and religious beliefs.

Two of the expert commentators in *Evolution* are Daniel Dennett and the late Stephen Gould, both well-known academics who have written widely about evolution and the nature of science. Dennett (1995) has taken the position that science and religion are deeply incompatible but Gould (1999) disagreed and the *Evolution* special seems to side with Gould. Although history suggests that Dennett is correct, the current public position among most scientific and science education organizations is that science and religion are separate spheres of activity with separate goals. In other words, science tells us about the heavens and religion tells us how to get to Heaven. When it comes to science education and religion, a strong case can be made for Dennett's position (see Good, 2001; Mahner & Bunge, 1996; and Martin, 1997 for supporting arguments), but the question here is: Should history and philosophy of science be taken seriously where evolution education is concerned? The answer is an unequivocal yes! Just as Galileo's conflicts with the religious powers of his time should be a central part of physics education, Darwin's conflicts with religion should be a central part of biology/evolution education. This is what *Evolution* does and it is the educationally correct (although perhaps not politically correct) thing to do. Helping students see the personal struggles Darwin had with religion, including his own beliefs, humanizes the development of his theory of evolution and places it within a real social context. It may be the best and most important story science has to tell.

There are many other useful instructional resources for evolution education, including the National Academy of Sciences 1998 document *Teaching About Evolution and the Nature of Science*. It combines ideas about the nature

of science with important ideas about evolution, and it includes many activities for students that are designed to help them better understand evolution. This guide and the PBS *Evolution* series are two very useful resources for the science teacher. A third instructional resource is the BSCS (2000) document *Genes, Environment, and Human Behavior*. This guide, by the best producer of evolution education materials since its beginning in 1958, introduces the reader to ideas and issues about the genetic components of human behavior. The authors explain the relationship between genetics and evolution: "Because genetics is the study of the root source of biological variation, which is central to evolutionary mechanisms, an understanding of basic principles in genetics is central to an understanding of evolution itself" (BSCS, 2000, p. 11). Religious fundamentalists' opposition to this area of study, known as "behavioral genetics," is similar to their opposition to evolutionary theory; they do not want to believe that humans are closely related to chimpanzees and other living things. And of course the 'evils' of homosexuality are placed in a different light when the genetic components of human behavior are considered (Good et al., 2000, Hamer & Copeland, 1998).

The habits of mind associated with science are not only different than those associated with religion (and especially fundamentalist religion), they are basically incompatible. Most religions encourage believers to accept without evidence the authority of holy books and leaders while science encourages a respect for real evidence and a questioning attitude toward authority. Nature is the final authority in science. When young children are indoctrinated into believing that for which there is no evidence (God, Heaven, Hell, etc.) a habit of mind is being developed that is inconsistent with the open, inquiring mind needed for scientific study. The habits of mind are not merely different, they are incompatible between science and religion, especially where an unseen God, or angels, or other agents are said to intervene into people's lives. The fact that some scientists believe in a God that intervenes into our world, causing things to happen that otherwise would not, in no way "proves" that science and religion are compatible. It simply shows that some people are able to separate their lives as scientists from their religious lives. Of course Einstein's God (Jammer, 1999) and similar conceptions of God are not incompatible with a scientific outlook, but few people develop this kind of God belief. Most believe in a personal God who listens to prayers and occasionally answers them in some way.

The long argument between science and fundamentalist religion will continue because the habits of mind promoted by the two domains are basically incompatible. The PBS television program *Evolution* got it right. The story of evolution must include the history of the struggle between religion and science, not just

the facts of evolutionary science. Understanding how scientific ideas are developed is just as important in science education as understanding the idea itself. One kind of knowledge without the other is insufficient to attain the goal of real scientific literacy.

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