

A Moment of Science: Teaching Evolution in the Public School System

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“If we are going to teach creation science as an alternative to evolution, then we should also teach the stork theory as an alternative to biological reproduction”

- Judith Hayes

History has shown that the time span between scientific breakthrough and public acceptance is often quite large. It took years for the public to accept the Copernican view of the cosmos, and even longer to accept the fact that our planet is not, indeed, flat. Such is the same with the teaching of evolution in public schools today. Despite the fact that scientists have ample evidence backing the theory, fundamentalist forces are still trying desperately to oppose these findings and, often times, succeed. From the Scopes trial to current battles in Kansas, the topic of evolution has proven to be one of the fiercest battles for nearly a century.

Darwin’s groundbreaking interpretations on the development of species created controversy when it met nineteenth century religious belief and contemporary science. The battle intensified years later, especially in the southern United States, when the South’s conservative values connected with the outer world’s views on biology and Creationism. When textbooks with a high emphasis on evolution were published, the question of evolution deemed parents as the decision makers about what American children should learn. An unending barrage of court cases has continued to redefine the legality of teaching evolution and creation. From the printing of *Origin of Species* to current legislative statutes, the search to define the evolutionary concept has placed Darwinian theory on trial.

One of America’s fundamental principles is the freedom of religion. The tenet of separation of faith and governmental affairs coincides with this Bill of Rights component. Nonetheless, the United States is historically pious—especially in the Bible Belt stretching from the Great Plains to the Appalachian Mountains. In such places, ideas against fundamental Christian values have led to problems for the scientific community.

Darwin himself knew the implications of his findings, stating, “I think I shall avoid the whole

subject, as so surrounded by prejudice.” Unfortunately he didn’t have to say anything to cause a problem. The wave of criticism came shortly after his publication and culminated in several court cases.

The fight between rabid fundamentalists and true scientists began in 1925 with the Scopes “monkey” trial. This landmark case established that evolution could be taught in the nation’s public schools. John T. Scopes, a young teacher in Dayton, Tennessee, was brought to trial for teaching the theory of evolution to his high school science class. His teaching of evolution allegedly violated a new state law that prohibited the teaching of “any theory that denies the story of the Divine Creation of man as taught in the Bible” (Larson).

In another case, Appellant Epperson, an Arkansas public school teacher, brought an action for declaratory and injunctive relief challenging the constitutionality of Arkansas’ “anti-evolution” statute. That statute made it unlawful for a teacher in any state-supported school or university to teach or to use a textbook teaching “that mankind ascended or descended from a lower order of animals.” The State Chancery Court held the statute as an abridgment of free speech violating the First and Fourteenth Amendments. The State Supreme Court, expressing no opinion as to whether the statute prohibits “explanation” of the theory or only teaching that the theory is true, reversed the Chancery Court. In a two-sentence opinion it sustained the statute as within the State’s power to specify the public school curriculum (Hunt, Maxson 268). Although one may agree with the court’s decision that school curriculum is the State’s choice, it seems staggering that a proven theory cannot be taught in school, simply because it is mistakenly understood to mean that man came from apes.

Almost everyone who has been upset with Darwinian theory seems to have a misconception

that man came from apes. Evolution, in fact, does not teach this idea at all. It contends that somewhere in the far past, the ape family and the human family shared a common ancestor. Later their evolutionary lines diverged; apes became apes, and people became people. On the whole, creationists are complaining about a theory of which they know relatively little. Another major flaw in creationist arguments is that they merely point out flaws in evolutionary theory, supposing that if one theory is debunked, then the other is inherently correct. Confining oneself to simply pointing out inconsistencies in another theory is no way to go about proving yours.

At the state and local level, from South Carolina to California, conservative advocates are using lawsuits and school board debates to counter evolutionary theory. Alabama and Georgia legislators recently introduced bills to allow teachers to challenge evolutionary theory in the classroom. Ohio, Minnesota, New Mexico and Ohio have approved new rules allowing such challenges. A school board member in a Tennessee county even wants stickers pasted on textbooks that say evolution remains unproven.

In recent news, the state of Georgia's school superintendent replaced all references to evolution in biology texts with the term "biological changes over time" (Cartwright); a revision that critics say will further weaken learning in a critical subject. Surprisingly, a severe and quick backlash came from the public. A few days after the announcement over 13,000 signatures had been added to an online petition challenging the superintendent, as well as endorsements from Jimmy Carter speaking against the movement. If Georgia passes the revision curriculum, the state will be among six that avoid the word "evolution" in science teaching. Indeed, Alabamian science textbooks contain a disclaimer in the front cover stating the controversiality of the issue and stating that evolution is only a theory.

Unfortunately, many fundamentalists, truly ignorant of evolutionary theory, govern this country. Recently, Alabama House Bill 391 passed the Senate Education Committee. If enacted, the bill will provide teachers "the affirmative right and freedom to present scientific, historical, theoretical, or evidentiary information pertaining to alternative theories or points of view on the subject of origins"

(Boyle). This bill also protects teachers for teaching alternatives and students from learning these alternatives, as long as the students demonstrate an acceptable understanding of the course materials. The bill sounds fair, but once enacted, will give "license to teachers to teach alternative views on evolutions and provide a statutory safety net against frivolous lawsuits from groups like the ACLU," said the Alabama Christian Coalition president. Senator Beason (R AL) voiced his opinion during the conference, noting that the bill's intent was to protect creationism. He also mentioned that the bill could open the door to, what he considered to be, undesirable alternative origin ideas like those of Hinduism.

The chief concern with removing evolution from school curriculum is that evolution ties all aspects of biology into one cohesive subject. Without evolution's basic principles, biology becomes chaotic. Undoubtedly, evolution is a central truth, which is embraced by virtually every mainstream scientist in the world. Scientific facts and practices make sense only in the context of evolution. Studying biology without studying evolution is "like teaching English but making grammar optional" (Gould 154). It is like teaching chemistry without ever looking at a periodic table—entirely hopeless and futile.

Recently, the conservative advocates have gathered under a new "scientific" theory called the Intelligent Design (ID) Theory. The followers of ID believe many cellular structures are much too complex to have evolved and therefore require some sort of unexplained creator. Such ID advocates maintain that their theory is scientific and provides empirical proof for the existence of an intelligent creator. They believe that design is empirically detectable in nature and in living systems. Also, ID theorists claim that ID should be taught in the science classroom, because it is a valid alternative to the scientific theory of natural selection.

The arguments of the ID advocates may seem like a rehash of the creationist arguments. However, the defenders of ID theory claim that they do not simply reject evolution because it does not fit with their understanding of the Bible. Instead, they present natural selection as an implication that the universe could not have been designed or created,

which is nonsense. To deny that God has the power to create living organisms using natural selection is to assert something unknowable. Furthermore, this assertion is also inconsistent with the belief in an omnipotent Creator.

Recent tactics to cast doubt on the veracity or robustness of the theory of evolution have included placing disclaimer stickers in the front of high school biology textbooks (Alabama, Georgia), mandating or recommending the inclusion of ID in high school biology courses (e.g., Pennsylvania, Maryland), development of statewide lesson plans that encourage students to examine "weaknesses" in the theory of evolution (Ohio), and plans to revisit parts of state science standards that focus on evolution (Kansas State Board of Education). If these challenges have not yet reached where your home, they are likely to do so in time.

One of the largest faults of creationism is that it assumes the Earth is less than ten thousand years old. Given this opinion, and assuming that God creating everything that exists on this planet, it is easy to see why one could assume that evolution is false. The key to evolution is time, and ten thousand years is insufficient time for much change to occur. The fact is, the Earth is at least four billion years old. Given this amount of time, about four hundred thousand times as long as the Bible dictates, evolution could progress by leaps and bounds. The key problem lies in perspective. Seeing the Earth as a young planet that was created at the same time as the universe is a very limited viewpoint. The universe is actually billions of years older than the Earth—approximately 15 billion or more. Genesis also proclaims that God created plant life before creating the sun, which is a wholly impossible task.

Most Christian fundamentalists are absolutely convinced that the continuing drop in church attendance is because of high school science classes. Figures show this belief is not true. Only 9% of the general population is atheistic, yet church attendance is well below 40%. Very few people reject God, while many people reject Christian institutions for a variety of reasons. The majority of Americans believe in evolution as fact. Nonetheless, over 80% of those Americans believe in theistic

evolution, where evolution is the work of God. Most of those individuals complaining do so because their particular view of theology and the absurd claims of the literal six-day creationism were rejected. Those claims also happen to be rejected by many churches as well. This rejection of six-day creationism is not a product of high schools, but college, where 75% reject six-day creationism. The fact is, most people stop attending church as adults because of what they witness at the pulpit.

A recent national study surveyed every state in America and gave out letter grades displaying how well the state educates high school children. California, Rhode Island, Indiana and other states were awarded the highest marks, while thirteen states were given failing grades. Among those that failed were Georgia, Florida, Alabama, Mississippi, and Tennessee. The survey ranked states on introducing basic principles of evolution early on, building on them later, and making evolution the centerpiece of all life sciences. States that failed did so because the subject "is avoided altogether or barely mentioned, reducing the sciences—especially the biological sciences—to a disjointed list of facts" (Schevitz). Setting theology aside, this is a major problem in education. Students are going into college totally unprepared, and some will have great difficulty passing the science section of the SAT or AP tests. Absolutely no southern states made passing grades. The closest southern states to pass were North and South Carolina, both of which are known for their superb education systems. Clearly, some public school systems need to evolve.

Studies show that by comparison with thirteen major countries, the United States ranks last in biology. This statistic is especially true in the south—for religious, economic and social reasons. The United States must maintain freedom in scientific research and must educate its citizenry in science if it is to compete effectively within the modern world. Unless the level of science instruction drastically improves in this country, Europe and Japan will annihilate the United States, both economically and technologically. Unless the schools are "free to teach modern science without trying to adapt it to the whims of every minority group, this situation may become reality" (Miller 5).

Many people simply do not understand how the principles of evolution have been implemented

to everyday things that we take for granted. The improvement of domesticated plants and animals is a direct result of evolution. Most of our modern agriculture is a product of artificial selection. That is, evolutionary biology is necessary in the control of insect pests in agriculture, as well as the control of disease microorganisms in medicine. Entire pharmaceutical companies are founded on the application and consequence of their products. A basic understanding of evolution is, at the very least, required to maintain some type of common scientific knowledge in the country.

Just as the Inquisition effectively ended the scientific renaissance in Italy and Spain with the burning of Bruno and the censorship of Galileo, fundamentalists are attempting the same thing in the modern world. For any type of scientific progress, intellectuals can never be intimidated through fear of punishment for new scientific ideas. An excellent example of political regulation of science is found in the Lysenko affair in the late USSR. Trofim Lysenko convinced the Communist Party of the USSR to outlaw Mendelian genetics in 1948, because he believed in the inheritance of acquired characteristics. As a result, genetics research was ended and an entire generation was educated on false biological fundamentals. This is the main reason the Soviets had so many agricultural problems in the 1950's.

Likewise, Southern teachers can be made to look atheistic if they advocate evolution and condemn the teaching of creationism. Local efforts by creationists prove to be extremely effective in controlling biology curriculum, although not lawful. The fear of reprisal from parents, religious groups and administrators often forces evolution to be taught so minimally, that it bears absolutely no meaning to students. Approximately 75% of Alabamian biology teachers teach evolution to some degree, while only 25% emphasize it as a fundamental principle of biology. There is also a direct correlation between pressure to emphasize creation and small community size. Rural areas are much more likely to approve creationism as science. When people treat science and religion as opposites, as most people do, there will never be a final conclusion to this argument. The conflict is similar to the class skirmish between rich and poor, in that a solution will never bring opposing forces into

harmony. A godless mechanism of nature and a holy creation cannot coexist.

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