

Creationism and the Theory of Biological Evolution in the North Carolina Standard Course of Study

by Drew D. Dropkin

For almost a century, American religious leaders, scientists, and the public have been embroiled in heated debates over the teaching of evolutionary science in the public schools.¹ For one particular group of North Carolinians, this dispute can present a significant professional dilemma. Each year, some of the state's biology teachers must reconcile their personal convictions about the origins and development of life with the North Carolina science curriculum they teach.² To provide teachers and other school officials some insight into the legal principles underlying the treatment of this topic in the North Carolina curriculum, this article addresses two questions:

- Why does the North Carolina biology curriculum include the theory of biological evolution?
- Why doesn't the curriculum include the subject of creationism?

Before considering these central questions, it will be helpful to define the terms *evolution* and *creationism* as they are generally understood. *Webster's Revised Unabridged Dictionary* defines *creationism* as "the literal belief in the account of creation given in the Book of Genesis."³ Judicial definitions of the word rarely diverge from this characterization. One federal district court has identified creationism as a "religious doctrine based on an interpretation of the Bible, which purports to explain the creation of the universe and human life." A U.S. Supreme Court justice has defined "the doctrine or theory of creation" as "holding that matter, the various forms of life, and the world were created by a transcendent God out of nothing."⁴

Among creationists, two schools of thought are most prominent. Young Earth creationists generally believe that the earth was created less than ten thousand years ago and reject Darwin's theory of natural selection and the evolution of species.⁵ Old Earth creationists also reject evolution through natural selection, but they reconcile scientific evidence of an older earth with creationism by loosely interpreting the length of the creation week presented in the Bible. Despite these important differences, virtually all forms of creationism are characterized by reliance on a religious source (typically the Bible) and an explanation that posits a "creation out of nothing" (*creatio ex nihilo*).

Webster's definition of *evolution* in its biological sense is "[a] general name for the history of the steps by which any living organism has acquired the morphological and physiological characters which distinguish it; a gradual unfolding of successive phases of growth or development." United States

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1. The public debate about creationism and the theory of evolution began with Charles Darwin's *On The Origin of Species by Means of Natural Selection*, published in 1859. The controversy resurfaced in the 1920s when William Jennings Bryan led a Christian conservative crusade against the teaching of evolution in public schools. By 1930, twenty state legislatures had considered banning the teaching of evolution, but only three (Arkansas, Tennessee, and Mississippi) actually enacted such legislation. In 1925, high school science teacher John T. Scopes violated Tennessee's newly enacted Anti-Evolution Act of 1925 and, with the assistance of the American Civil Liberties Union, challenged the act's constitutionality. At the celebrated "Monkey Trial," Scopes was convicted and fined \$100. The Tennessee Supreme Court subsequently reversed Scopes's conviction on technical grounds but never declared the Anti-Evolution Act unconstitutional. See *Scopes v. State*, 289 S.W. 363, 364 (Tenn. 1927).

The evolution/creationism dispute took on new life after the 1960s as funding for the sciences increased and the number of scientists multiplied tenfold in the post-Sputnik era. For an account of the continuing controversy over evolution and the influence of science, see Edward J. Larson, *Summer for the Gods: The Scopes Trial and America's Continuing Debate over Science and Religion* (New York, 1997); and Marjorie George, "And Then God Created Kansas? The Evolution/Creationism Debate in America's Public Schools," *University of Pennsylvania Law Review* 149 (2001): 843-72.

2. See State Board of Education/Department of Public Instruction, *North Carolina Standard Course of Study*, <http://www.ncpublicschools.org/curriculum/> (last visited March 31, 2002).

3. All definitions are from *Webster's Revised Unabridged Dictionary* (1996) and can be accessed at <http://www.dictionary.com/cgi-bin/dict.pl?term> (last visited March 31, 2002).

4. *Pfeifer v. City of West Allies*, 91 F. Supp. 2d 1253, 1255 (E.D. Wis. 2000); *Edwards v. Aguillard*, 482 U.S. 578, 599 (1987).

5. Young Earth Creationists are most often associated with the work of the Institute of Creation Research based in Santee, California. For further information, see the Institute of Creation Research's Web site: Institute for Creation Research, <http://www.icr.org>.

Supreme Court Justice Lewis F. Powell Jr. defined evolution as “the theory that the various types of animals and plants have their origin in other preexisting types, the distinguishable differences being due to modifications in successive generations.”⁶

Many courts have struggled with the relationship between the theory of evolution and hypotheses about the origin of life itself. One federal decision attributes to evolutionary theory the theory that life sprang from inorganic matter, that is, “that all plant, animal, and human life ‘have arisen from a single source which itself came from an inorganic form.’” Another federal court disagrees, holding that “the scientific community does not consider [the] origins of life a part of evolutionary theory. The theory of evolution *assumes* the existence of life and is directed to an explanation of how life evolved.”⁷

As most scientists and courts have concluded, on balance, that evolutionary science does not necessarily incorporate a theory about the origins of life, we will assume for the purposes of this article that it does not. However, although evolutionary science does not incorporate a particular theory about the origin of life, some theories about the question are easily reconciled with evolutionary theory and can, together with the latter, offer a comprehensive explanation of the origin and subsequent development of life.⁸ Other ideas about how life arose—Young Earth creationism, for instance—appear to be in direct conflict with the theory of evolution. This interplay among evolutionary theory, creationism, and various explanations of the origins of life has sparked heated debate about the teaching of evolutionary theory and creationism in public schools and provides an appropriate framework for examining the legal basis of North Carolina’s biology curriculum.

Evolution in the North Carolina Science Curriculum

The North Carolina Standard Course of Study (NCSCS) prescribed for the state’s public schools calls for students to receive instruction in the theory of biological evolution. Competency Goal 2 of the Science Curriculum for Biology states that “the learner will develop an understanding of the

continuity of life and the changes in organisms over time.”⁹ North Carolina’s Curriculum Support Resources program (NCCSR), which provides guidance for teachers in achieving the goals prescribed by the curriculum, advises teachers that 7 percent of the high school biology curriculum should be devoted to the study of biological evolution. It also details the specific biological concepts and processes related to evolution that teachers need to present and students need to learn to achieve the sixth objective of Competency Goal 2 (Objective 2.06). They include:

- The origins of life: including the concepts of biogenesis and abiogenesis,¹⁰ the work of Louis Pasteur, and early hypotheses and experiments about the formation of earth’s atmosphere;
- Patterns and similarities among different organisms as inferred from the fossil record: adaptive radiation,¹¹ vestigial organs, and biochemical similarities. (Patterns in embryology, homology, and analogy are omitted.¹²)
- Variation: which provides material for natural selection; the roles of variation and reproductive and geographic isolation in speciation; current applications of (e.g., in pesticides, antibiotics).
- Natural Selection: Darwin’s development of as the mechanism of evolution.

The NCCSR Web site suggests that teachers employ computer simulations to help students “[m]easure [and] graph variation in populations of organisms” and study simulations of “selection [and] reproduction over several generations.”¹³

The inclusion in Competency Goal 2 of “the origins of life” as one of four components of the study of biological evolution

9. See State Board of Education/Department of Public Instruction, *Science Curriculum — Biology*, Competency Goal 2. <http://www.ncpublicschools.org/curriculum/science/biology.htm> (last visited March 31, 2002).

10. *Biogenesis* is “[a] doctrine that the genesis or production of living organisms can take place only through the agency of living germs or parents.” The term is also defined as “[l]ife development generally.” *Abiogenesis* is defined as the “supposed origination of living organisms from lifeless matter; such genesis as does not involve the action of living parents; spontaneous generation” (*Webster’s Revised Unabridged Dictionary*).

11. *Adaptive radiation* is “evolutionary diversification of a generalized ancestral form with production of a number of adaptively specialized forms” (*id.*).

12. *Embryology* is “[t]he science which relates to the formation and development of the embryo in animals and plants; a study of gradual development of the ovum until it reaches the adult stage.” *Homology* is the “[c]orrespondence or relation in type of structure in contradistinction to similarity of function; as, the relation in structure between the leg and arm of a man; or that between the arm of a man, the fore leg of a horse, the wing of a bird, and the fin of a fish, all these organs being modifications of one type of structure.” *Analogy*, “in a biological context, means “[a] relation or correspondence in function, between organs or parts which are decidedly different.” (All in *Webster’s*.)

13. Competency Goal 2.

6. *Edwards*, 482 U.S. 578 at 599 (Justice Powell, concurring).

7. *Crowley v. Smithsonian Inst.*, 636 F.2d 738, 739–40 (D.C. Cir. 1980) [quoting G. A. Kerkut, *Implications of Evolution* (New York, 1960), 157]; *McLean v. Board of Education*, 529 F. Supp. 1255, 1266 (E.D. Ark. 1982) (emphasis added).

8. For instance, theories that attempt to explain the sudden presence of life on earth by postulating that the first life-forms arose in a primordial soup or in bubbles or were carried to earth on meteorites can be seen as compatible with the theory of evolution.

is noteworthy, as is its listing as a distinct area of concentration in Objective 2.06. We can interpret the inclusion of this topic in the Course of Study for evolution in one of two ways: (1) as signaling that the study authors regard the “origins of life” as an integral component of the theory of biological evolution, contrary to common understanding; or (2) as an inadvertent association between the two areas of study that is not intended to convey any particular relationship. Regardless, the Course of Study clearly requires biology teachers to include study of the origins of life in their courses.

The study of the continuity of life does not, however, include the topic of creationism. Some teachers may be troubled by the prescribed study of biological evolution (including the origins of life) and the accompanying failure to require any instruction about creationism. Although the absence of this topic in the curriculum does not necessarily prohibit teachers from presenting it, those who wish to do so may be concerned about the legal consequences of introducing creationism into the classroom because of its inherently religious foundation. Their concerns are well founded, for the Constitution is not silent about the role of religion in the public schools.

Evolution, Creationism, and the Establishment Clause

Although school boards have wide discretion over their schools’ curricula, they need to avoid running afoul of the Establishment Clause of the First Amendment, which provides that “Congress shall make no law respecting an establishment of religion.”¹⁴ Although the express language of the clause only restricts the legislative power of Congress, the Supreme Court has extended this restriction to the states in general and to boards of education in particular.¹⁵

The fundamental principle of the Establishment Clause is generally embodied in the familiar concept of “separation of church and state.” In more specific terms, the Establishment Clause instructs that “government in our democracy, state and national, must be neutral in matters of religious theory, doctrine, and practice. It may not be hostile to any religion or to the advocacy of no-religion; and it may not aid, foster, or promote one religion or religious theory against another.”¹⁶ In other words, the Establishment Clause seeks to prevent the government from becoming excessively involved in religion.

Historically, the courts have been extremely vigilant in monitoring public school compliance with the Establishment

Clause.¹⁷ Families entrusting the education of their children to the public school system need to feel that the schools will not be employed to promote religious views to impressionable young students whose attendance is involuntary.¹⁸ The position of teachers in public schools is particularly important in this respect, the courts point out, because students are likely to emulate their teachers and view them as role models.¹⁹ For this reason, teachers need to be aware of the way the courts determine whether a public school has become so involved with religion that its actions violate the Establishment Clause.

In the last thirty years, the U.S. Supreme Court has developed three different tests—the *Lemon* test, the endorsement test, and the coercion test—to evaluate government acts that allegedly violate the Establishment Clause. In 1971, in *Lemon v. Kurtzman*, the Court concluded that a government act is constitutional under the Establishment Clause if it

1. reflects a clearly secular purpose,
2. does not advance or inhibit religion as its primary effect, and
3. does not cause excessive government entanglement with religion.²⁰

If the act fails any one of these three prongs of the *Lemon* test, it violates the Establishment Clause.²¹

More than ten years later, the Court adopted a new Establishment Clause test that focuses on whether a challenged governmental act endorses religious beliefs or practices. In *Lynch v. Donnelly*, one Supreme Court justice suggested that the second prong of the *Lemon* test—the evaluation of whether a government act “advances or inhibits religion”—should examine whether an action endorses a particular religious belief.²² Five years later, in *County of Allegheny v. ACLU*, a majority of the Court adopted the endorsement approach. According to that decision, a policy endorses religion if

1. Government officials understand the act as an endorsement of religion, or
2. An observer would perceive the act as an endorsement of religious beliefs or practices.²³

Although the *Allegheny* decision appears to replace the “advance or inhibit” inquiry of the *Lemon* test with the new

17. See, e.g., *Edwards*, 482 U.S. at 583–84.

18. See, e.g., *Grand Rapids School District v. Ball*, 473 U.S. 373, 383 (1985); *Meek v. Pittenger*, 421 U.S. 349, 369 (1975).

19. See, e.g., *Bethel School District No. 403 v. Fraser*, 478 U.S. 675, 683 (1986); *Wallace v. Jaffree*, 472 U.S. 38, 81 (1985).

20. *Lemon*, 403 U.S. 602, 612–13 (1971).

21. *Id.*

22. *Lynch*, 465 U.S. 668, 687 (1984).

23. *Allegheny*, 492 U.S. 573, 595 (1989).

14. U.S. CONST. amend. I.

15. See *Cantwell v. Connecticut*, 310 U.S. 296, 303 (1940); *Everson v. Board of Education*, 330 U.S. 1, 15 (1947).

16. *Epperson v. Arkansas*, 393 U.S. 97, 103–04 (1968).

“endorsement” inquiry, the Court has employed both formulations of the second prong in recent years.²⁴

In 1992, the Court disregarded the *Lemon* test and adopted yet another test—the coercion test—to evaluate the constitutionality of a prayer delivered at a high school graduation. In *Lee v. Weisman*, the Court concluded that a school “may not coerce anyone to support or participate in religion or its exercise, or otherwise act in a way that establishes a state religion or religious faith or tends to do so.”²⁵ The Court applied the coercion test again in 2000 to evaluate the constitutionality of prayers before high school athletic events.²⁶

Although it is unclear which test—the *Lemon* test, the endorsement test, the coercion test, or some combination of the three—a particular court will apply in an Establishment Clause case, school boards must consider all the tests when creating and changing their curriculum. A decision on a proposed course of study or proposed change in the curriculum may be unconstitutional if

- the decision is not enacted for a secular purpose,
- the primary or principal effect of the decision will be to advance or inhibit religion,
- the decision causes excessive government entanglement with religion,
- government officials understand the decision as an endorsement of particular religious beliefs or practices,
- an observer would perceive the decision as an endorsement of particular religious beliefs or practices, or
- the decision will require students to support religion or participate in a religious exercise.

Supreme Court Guidance

The United States Supreme Court has reviewed two cases that address the role of creationism and evolution in public schools. The first, *Epperson v. Arkansas*, was decided in 1968, before the Court developed any of the three Establishment Clause tests.²⁷ In it, the Court focused on the underlying rationale of the Establishment Clause. The second decision, *Edwards v. Aguillard*, reached the Supreme Court in 1987; in that case, the Court applied the *Lemon* test to evaluate the constitutionality of a Louisiana law.²⁸ Although the Supreme Court’s treatment of the Establishment Clause has become more complex since these decisions were rendered, *Epperson*

and *Edwards* still provide the legal framework for determining the role of evolution and creationism in the school science curriculum.

In 1968, in *Epperson v. Arkansas*, the U.S. Supreme Court invalidated a 1929 Arkansas law that prohibited teachers from discussing evolution in the classroom. The law made it unlawful for any teacher at a state-supported school or university “to teach the theory or doctrine that mankind ascended or descended from a lower order of animals” or “to adopt or use in any such institution a textbook that teaches” this theory.²⁹ In 1965, Susan Epperson, a tenth-grade biology teacher in Little Rock, received a new biology textbook adopted by the school administration; it contained a chapter on the theory of evolution. Aware of the old law and fearful that she would be dismissed and subject to criminal penalties if she used the textbook for classroom instruction, Epperson filed a lawsuit requesting the court to determine whether the Arkansas law was constitutional.³⁰

The lowest Arkansas state court ruled that the law was unconstitutional;³¹ the Arkansas Supreme Court reversed the ruling and reinstated the law. In its two-sentence opinion, that court held that the Arkansas law was a “valid exercise of the state’s power to specify the curriculum in its public schools.”³²

The U.S. Supreme Court unanimously reversed the Arkansas Supreme Court’s decision and invalidated the Arkansas law. Seven members of the court grounded their ruling in the requirements of the First Amendment’s Establishment Clause.³³ The Court observed that the First Amendment restricts the power of a state to determine school curricula by mandating “governmental neutrality between religion and religion, and between religion and nonreligion. . . . There is and can be no doubt that the First Amendment does not permit the State to require that teaching and learning must be tailored to the principles or prohibitions of any religious sect or dogma.”³⁴

24. *Compare* Capitol Square Rev. and Advisory Board v. Pinette, 515 U.S. 753 (1995) (relying on the endorsement inquiry) with *Rosenberger v. Rector and Visitors of the Univ. of Va.*, 515 U.S. 819 (1995) (relying on the original articulation of the *Lemon* test).

25. *Lee*, 505 U.S. at 577–78 (1992).

26. *Santa Fe Independent School District v. Doe*, 530 U.S. 290, 301–02 (2000).

27. *Epperson*, 393 U.S. 97 (1968).

28. *Edwards*, 482 U.S. 578 (1987).

29. Initiated Act No. 1, Ark. Acts 1929.

30. *Epperson*, 393 U.S. at 100.

31. The Chancery Court of Arkansas held that the law violated Epperson’s free speech rights under the First Amendment, noting that the law “tends to hinder the quest for knowledge, restrict the freedom to learn, and restrain the freedom to teach” (*id.*). Although the U.S. Supreme Court eventually agreed that the statute was unconstitutional, the Court did not endorse the view that the statute violated a teacher’s free speech rights. It is clear that public school teachers relinquish their unadulterated right to free speech in the course of instruction.

32. *See* *State v. Epperson*, 416 S.W.2d 322, 322 (1967).

33. *Epperson*, 393 U.S. at 109. All nine members of the court voted to invalidate the law. Justices Black and Harlan voted to invalidate the statute on the grounds that it was too vague because it did not specify whether the law entirely prohibited the discussion of evolution or only prohibited the discussion of evolution as an established fact. The other seven justices ruled that the law was an unconstitutional establishment of religion.

34. *Id.* at 106.

The Court subsequently determined that the Arkansas law did not reflect a neutral approach to the curriculum: “Arkansas’ law selects from the body of knowledge a particular segment which it proscribes for the sole reason that it is deemed to conflict with a particular religious doctrine; that is, with a particular interpretation of the Book of Genesis by a particular religious group. . . . It is clear that fundamentalist sectarian conviction was and is the law’s reason for existence.”³⁵

The Court based its decision on the fact that the Arkansas law was “an attempt to blot out a particular theory [evolution] because of its supposed conflict with the Biblical account, literally read.”³⁶ In short, the Court held that the First Amendment mandates religious neutrality in the curriculum and that Arkansas’s attempt to exclude the discussion of evolution from public schools was unconstitutional because it was motivated by a sectarian desire to avoid conflict with the biblical account of human origins.

The Court observed that the Arkansas law was not religiously neutral because it did not forbid discussion of all theories of human origins—that is, *both* the theory of evolution and creationism—from the school curriculum. In noting this fact, the Court seemed to indicate that it might uphold a law that removes discussion of human origins from the curriculum altogether or one that permits the discussion of both evolution and creationism.³⁷

School administrators, teachers, and lawyers alike can draw three general principles from the *Epperson* decision:

1. Under the First Amendment, a school’s curriculum must reflect governmental neutrality between religions, and between religion and nonreligion.
2. Although a school board has discretion when establishing the curriculum, it is unconstitutional for the curriculum to be tailored to the principles of a religious sect.
3. It might be constitutional for a school board to require a balanced treatment of creationism and the theory of evolution by either eliminating all study of human origins or by requiring the presentation of both evolution and creationism.

In 1987, the U. S. Supreme Court addressed the role of evolution in school curricula for a second time, in the process slightly modifying the three principles established in *Epperson*.³⁸ In *Edwards v. Aguillard*, the Court assessed the constitutional-

ity of the Louisiana Balanced Treatment for Creation-Science and Evolution Science in Public School Instruction Act (the Creationism Act).³⁹ The act forbade public school teachers to teach the theory of evolution unless they also provided instruction in “creation science.” In practical terms, the statute required balanced treatment of evolution and creation science; no school was required to teach evolution or creationism, but if either was taught, the other must also be taught.

Teachers, religious leaders, and parents challenged the constitutionality of the Creationism Act in the federal district court for the Eastern District of Louisiana, which declared it unconstitutional. The district court, relying on the principles set forth in *Epperson*, reasoned that a prohibition against teaching evolution did not further secular objectives and that the balanced-treatment requirement compelled schools and teachers to tailor instruction to the principles of a religious sect or group.⁴⁰

The Court of Appeals for the Fifth Circuit affirmed the district court’s decision. Notably, the Fifth Circuit concluded that the Creationism Act was enacted for a religious purpose, even though Louisiana officials claimed that it was intended to protect academic freedom. The circuit court wrote: “Although the record here reflects self-serving statements made in the legislative hearings by the Act’s sponsors and supporters, this testimonial avowal of secular purpose is not sufficient, in this case, to avoid conflict with the first amendment. . . . [T]his scheme of the statute, focusing on the religious *bête noire* of evolution, as it does, demonstrates the religious purpose of the statute.”⁴¹

In a 7–2 decision, the U. S. Supreme Court, employing the *Lemon* test, declared the Louisiana act unconstitutional because it was intended to advance a particular religious belief.⁴² Under the first prong of the *Lemon* test, Louisiana’s Creationism Act could be constitutional only if it were enacted for a secular purpose, but the Court did not accept the legislature’s stated purpose—that the act was intended to promote academic freedom—at face value: “While the Court is normally deferential to a State’s articulation of a secular purpose, it is required that the statement of such purpose be sincere and not a sham.”⁴³ The Court subsequently determined that the promotion of academic freedom was a sham and that the genuine purpose of the act was the advancement of a religious belief.

35. *Id.* at 103, 108.

36. *Id.* at 109.

37. The Court observed that “Arkansas’ law cannot be defended as an act of religious neutrality. Arkansas did not seek to excise from the curricula of its schools and universities all discussion of the origin of man. The law’s effort was confined to an attempt to blot out a particular theory” (*id.*).

38. *Edwards*, 482 U.S. 578 (1987).

39. LA. REV. STAT. ANN. §§ 17:286.1–17:286.7 (West 1982).

40. *Aguillard v. Treen*, 634 F. Supp. 426, 426–27 (E.D. La. 1985).

41. *Aguillard v. Treen*, 765 F.2d 1251, 1256 (5th Cir. 1985).

42. *Edwards*, 482 U.S. at 592–93. Justice Brennan delivered the opinion of the Court, joined by Justices Marshall, Blackmun, Powell, and Stevens, and joined in part by Justice O’Connor; Justice Powell concurred, joined by Justice O’Connor; Justice White concurred in the judgment.

43. *Id.* at 586–87.

[W]e need not be blind in this case to the legislature's pre-eminent religious purpose. . . . The preeminent purpose of the Louisiana Legislature was clearly to advance the religious viewpoint that a supernatural being created humankind. . . . The legislative history documents that the Act's primary purpose was to change the science curriculum of public schools in order to provide persuasive advantage to a particular religious doctrine that rejects the factual basis of evolution in its entirety. . . . Because the primary purpose of the Creationism Act is to advance a particular religious belief, the Act endorses religion in violation of the First Amendment."⁴⁴

The Supreme Court's decision in *Edwards* effectively modified the three general principles from *Epperson* as follows:

1. Under the First Amendment, a school's curriculum must reflect governmental neutrality between religions, and between religion and nonreligion.
2. Although a school board has discretion when establishing the curriculum, it is unconstitutional for the curriculum to be tailored to the principles of a religious sect. Courts will examine the genuine purpose of the curriculum change, even if the stated purpose of the change is secular.
3. It is not constitutional for a school board to require balanced treatment of creationism and the theory of evolution, either by eliminating all study of the origin of man or by requiring both evolution and creationism to be presented, if the modification is motivated by a religious purpose.

Recent Developments

Although these principles provide significant guidance to teachers, school administrators, and school board officials, the Supreme Court decisions in *Epperson* and *Edwards* do not address every possible approach to creationism and the theory of biological evolution in public school curricula. In the fifteen years since *Edwards*, several school boards have challenged the general understanding that creationism should not be presented in the science classroom. It is therefore worthwhile to consider the various arguments—both constitutional and practical—that have been raised in these attacks.

Creationism As Science

The most frequent challenge to the current understanding of the role of evolution and creationism in public schools contends that creationism is a genuine scientific theory and that, therefore, its introduction does not violate the strictures

of the Establishment Clause. This challenge is most often grounded in the Supreme Court's decision in *Edwards*, in which the Court wrote: "We do not imply that a legislature could never require that scientific critiques of prevailing scientific theories be taught. . . . In a similar way, teaching a variety of scientific theories about the origins of humankind to schoolchildren might be validly done with the clear secular intent of enhancing the effectiveness of scientific instruction."⁴⁵

In *Edwards*, the Court clearly stated that *scientific* theories about the origin of life—and scientific critiques of prevailing scientific theories—may be introduced in public schools. Most recent challenges to the exclusion of creationism have focused on the merits of creationist theory as a scientific theory, or as a scientific critique of the prevailing theory of evolution.

One of the most prominent examples of this "creationism as science" approach is the minority opinion filed by Justice Antonin Scalia (joined by Chief Justice William Rehnquist) in *Edwards*. The dissenters concluded that creationism is a legitimate scientific theory that could be presented in the classroom without violating the requirements of the Establishment Clause. They argued that "[t]he body of scientific evidence supporting creation science is as strong as that supporting evolution. In fact, it may be *stronger*. . . . Creation science is educationally valuable. Students exposed to it better understand the current state of scientific evidence about the origin of life. Those students even have a better understanding of evolution. Creation science can and should be presented to children *without any religious content*."⁴⁶

The dissenting justices also concluded that there are only two possible explanations of the origin of life—evolution and creationism—and that, consequently, "any evidence that tends to disprove the theory of evolution necessarily tends to prove the theory of creation science, and vice versa."⁴⁷

The dissenting opinion by Justice Scalia and Chief Justice Rehnquist, although insightful, should be viewed with caution. At the outset, one must remember that the opinion is a dissent; their conclusions did not garner the support of the majority of the Court. Furthermore, the dissent may be somewhat misleading. It is beyond debate that science instructors can introduce scientific critiques of the theory of evolution; in fact, the majority in *Edwards* specifically indicated that a school could compel its teachers to introduce such scientific critiques. However, because the dissenters believe that there are only two explanations for the origin of life, they categorize all evidence that may disprove evolution as "creation-science evidence" and contend that it can be presented in a religiously neutral manner. To a degree, the dissenters are quite correct: scientific

45. *Edwards*, 482 U.S. at 593–94.

46. *Id.* at 623 (Justice Scalia, dissenting) (emphasis added).

47. *Id.* at 622.

44. *Id.* at 585–86, 592, 593.

evidence that tends to disprove the theory of evolution may be presented as long as it is presented in a religiously neutral manner. The dissent is disingenuous, however, in labeling this evidence “creation-science evidence.” School administrators and school board members should be cautious in accepting the dissent’s distinction between “creation-science evidence” (which according to the dissenters is religiously neutral scientific evidence that tends to disprove the theory of evolution) and creationism (which consists of an inherently religious foundation).

Despite the distinction drawn by Justice Scalia and Chief Justice Rehnquist in *Edwards*, most federal courts have rejected the “creationism as science” theory because creationism cannot satisfy the requirements of a scientific theory. The prevailing opinion in this regard is *McLean v. Arkansas Board of Education*, an extremely comprehensive opinion issued by a federal district court in 1982. In *McLean*, the district court was called upon to assess the validity of Arkansas’s Balanced Treatment for Creation-Science and Evolution Science Act.⁴⁸ The court found the Balanced Treatment Act—which was substantially similar to the Louisiana act the U.S. Supreme Court invalidated five years later in *Edwards*—to be unconstitutional in that it violated the Establishment Clause.

The *McLean* court carefully contemplated the characteristics of a scientific theory and ultimately concluded that “creation science . . . is simply not science.”⁴⁹ Assisted by several witnesses, the court identified five essential characteristics of science:

- It is guided by natural laws,
- It explains phenomena by reference to natural laws,
- It is testable against the empirical world,
- Its conclusions are tentative,
- It is falsifiable.⁵⁰

The district court rigorously evaluated the fundamental principles of creationism under this five-part test. It concluded that creationism does not satisfy the first inquiry, because evidence for creation “out of nothing” by a supernatural force is not the product of an inquiry guided by natural laws. For substantially the same reason, creationism also fails to satisfy the second inquiry—supernatural creation and a worldwide flood cannot be explained with reference to natural laws. Furthermore, the court concluded, because the existence of God or a Creator cannot be established scientifically, supernatural creation is neither testable nor falsifiable.⁵¹

48. *McLean*, 529 F. Supp. 1255 (E.D. Ark. 1982); ARK. STAT. ANN. § 80-1663 *et seq.* (1981 Supp.).

49. *McLean*, 529 F. Supp. at 1267.

50. *Id.*

51. *Id.* at 1267–68. The *McLean* court relied heavily on creationist literature to support this conclusion. In a footnote, the court quoted from a book by the

The *McLean* court’s most telling observation may be its evaluation of the “scientific” methodology employed by creationists. Under the court’s five-part test, one essential characteristic of a scientific theory is its tentativeness—it must always be subject to revision or abandonment. “A theory that is by its own terms dogmatic, absolutist and never subject to revision is not a scientific theory.” The court concluded that creationists generally do not collect and weigh scientific data to reach conclusions. On the contrary, they accept the biblical account of creation and attempt to find scientific support for it. The court concluded, therefore, that “while anybody is free to approach a scientific inquiry in any fashion they choose, they cannot properly describe the methodology used as scientific if they start with a conclusion and refuse to change it regardless of the evidence developed during the course of the investigation.”⁵²

In summary, the *McLean* court reached the matter-of-fact conclusion that creationism cannot be a mandatory component of a school’s science curriculum because creationism is not a scientific theory.

Evolution As Religion

Other voices have challenged the current treatment of evolution and creationism by advancing the complementary argument: if creationism is not a scientific theory, evolution may be an inherently religious theory. This approach contends that evolution is a central tenet of a religion called “Secular Humanism.” Because of its quintessentially religious nature, say the challengers, evolutionary theory and the presentation of evolution in the classroom violate the Establishment Clause.

Webster’s defines *secular humanism* as “an outlook or philosophy that advocates human *rather than* religious values” (emphasis added). By definition, therefore, it appears that secular humanism may not qualify as a religion for purposes of the Establishment Clause. Yet federal courts have disagreed among themselves about its status for Establishment Clause purposes. In *Crowley v. Smithsonian Institution*, one court implied that secular humanism is a religion—one that advocates the theory of evolution, the right to divorce, the right to birth control, universal education, and a world community.⁵³ Other federal

associate director of the Institute for Creation Research: “We do not know how God created, what processes He used, for God used processes which are not now operating anywhere in the natural universe. This is why we refer to divine creation as Special Creation. We cannot discover by scientific investigation anything about the creative processes used by God” (*id.* at 1267 n.25, quoting Duane T. Gish, *Evolution? The Fossils Say No!*, 3d ed. [San Diego, 1979], 42 [emphasis added]).

52. *Id.* at 1269.

53. *Crowley*, 636 F.2d 738 (D.C. Cir. 1980). Although the D.C. Court of Appeals did not discretely hold that secular humanism is a religion, the language employed in the court’s opinion certainly supports the implication that the court viewed it as a religion. The court wrote: “The dispute about whether the evolution theory was based on scientific proof or on faith is immaterial to the question of whether the [challenged government exhibits] supported establishment of Secular Humanism as a religion. The fact that

courts, including the Courts of Appeals for the First and Ninth Circuits, have held that secular humanism may be a religion.⁵⁴

Only one federal appellate court—the Ninth Circuit—has evaluated an Establishment Clause challenge to the introduction of evolution premised on the assertion that evolution promotes secular humanism. In *Peloza v. Capistrano Unified School District*, a California high school biology teacher asserted that “evolutionism” is a belief system based on the assumption that life and the universe evolved randomly.⁵⁵ The teacher contended that evolution is not a scientific theory because it is based on events that occurred in the non-observable and nonrecreatable past and are therefore not subject to scientific observation. The Ninth Circuit relied on two familiar rationales to reject *Peloza*’s Establishment Clause claim. First, the court observed that the theory of evolution does not incorporate a viewpoint regarding the creation of the universe:

“Evolution” and “evolutionism” define a biological concept: higher life forms evolve from lower ones. The concept has nothing to do with *how* the universe was created; it has nothing to do with whether or not there is a divine Creator (who did or did not create the universe or did or did not plan evolution as part of a divine scheme). . . . Only if we define “evolution” and “evolutionism” as does *Peloza* as a concept that embraces the belief that the universe came into existence without a Creator might he make out a claim. This we need not do.⁵⁶

Second, the court concluded that secular humanism may not be a religion for the purposes of the Establishment Clause. It ruled that the common definition of *religion* and the case law addressing secular humanism support the conclusion that secular humanism is not a religion under the Establishment Clause.⁵⁷

The Ninth Circuit’s decision in *Peloza* appears to reflect the current understanding of evolution and secular humanism as it relates to the requirements of the Establishment Clause. As an ideology, secular humanism—by definition—rejects religious values and does not embrace a supernatural power. Because the philosophy lacks a religious component, courts have been extremely hesitant to characterize it as a *religion* as that term is defined pursuant to the Constitution’s Establishment Clause. Even if secular humanism were a religion under the Establishment Clause, however, the presentation of evolution in the classroom would not necessarily be unconstitutional. As the *Crowley* court deftly noted, the introduction

of a particular message is not unconstitutional just because the message coincides or harmonizes with one particular tenet of one religion.⁵⁸

Disclaimers

As we have seen, recent legal attempts to reinstate creationism in public schools on the grounds that it is a scientific theory have failed—as have challenges to the teaching of evolution arguing that it is a fundamental tenet of the religion of secular humanism. In light of these developments, school boards, school administrators, and citizens have acknowledged that the basic landscape of the public school science curriculum is unlikely to undergo significant change: evolution will continue to be presented as a scientific theory, but creationism will not. In the context of this general understanding of the legal principles underlying the treatment of creationism and the theory of evolution, some schools and school boards have mounted more subtle attacks on the established approach.

A number of boards have required that teachers, as they begin the unit on biological evolution, present a disclaimer stating that evolution is an unproven scientific theory. One federal circuit, the Court of Appeals for the Fifth Circuit, has addressed the constitutionality of this mandatory “evolution is only a theory” disclaimer. In *Freiler v. Tangipahoa Parish Board of Education*, the court ruled that a mandatory disclaimer violated the Establishment Clause.⁵⁹

In 1994, the Tangipahoa (La.) Parish School Board adopted a resolution requiring teachers to present the following disclaimer:

It is hereby recognized by the Tangipahoa Board of Education that the lesson to be presented, regarding the origin of life and matter, is known as the Scientific Theory of Evolution and should be presented to inform students of the scientific concept and not intended to influence or dissuade the Biblical version of Creation or any other concept.

It is further recognized by the Board of Education that it is the basic right and privilege of each student to form his/her own opinion or maintain beliefs taught by parents on this very important matter of the origin of life and matter. Students are urged to exercise critical thinking and gather all information possible and closely examine each alternative toward forming an opinion.⁶⁰

The plaintiffs, three parents of school-aged children in Tangipahoa Parish, challenged the constitutionality of this disclaimer in the federal district court for the Eastern District of Louisiana. The district court judge applied the three-part *Lemon* test to assess the constitutionality of the school board’s resolution and concluded that the mandatory disclaimer violated the Establishment Clause. According to the court, the

appellants were able to identify one *religious group* that espoused evolution as one of its tenets is immaterial” (*id.* at 743, emphasis in original).

54. See *Rhode Island Federation of Teachers v. Norberg*, 630 F.2d 850, 854 (1st Cir. 1980); *Grove v. Mead School District No. 354*, 753 F.2d 1528, 1534 (9th Cir. 1985).

55. *Peloza*, 37 F.3d 517 (9th Cir. 1994).

56. *Id.* at 521.

57. *Id.*

58. *Crowley*, 636 F.2d at 742–43.

59. *Freiler*, 185 F.3d 337 (5th Cir. 1999).

60. *Freiler v. Tangipahoa Parish Board of Education*, 975 F. Supp. 819, 821 (E.D. La. 1997).

parish's disclaimer failed the first prong of the *Lemon* test because it was not implemented for a secular purpose: "The manner and the contemporaneous proposal and adoption of the disclaimer, the discussions and comments at the School Board meeting during which it was passed, the testimony submitted at trial, and the historical context in which the subject arises, demonstrate by a preponderance of the evidence that religious concerns motivated the disclaimer."⁶¹

The district court did not evaluate the constitutionality of the disclaimer under the second or third prongs of the *Lemon* test because, once the disclaimer failed the first prong, the court was compelled to declare the resolution unconstitutional.⁶²

The Tangipahoa Parish Board of Education appealed the district court's ruling, but the decision was ultimately affirmed by the Court of Appeals for the Fifth Circuit.⁶³ Surprisingly, however, the Fifth Circuit did not support the district court's conclusion that the disclaimer did not serve a legitimate secular purpose. On the contrary, the circuit court ruled, the dual objectives of the disclaimer—namely, disclaiming orthodoxy of belief and reducing student/parent offense—were permissible secular objectives that satisfied the first requirement of the *Lemon* test. Instead, the appeals court invalidated the parish's disclaimer under the second prong of the *Lemon* test, concluding that its effect was to protect and maintain a particular religious viewpoint.⁶⁴

Although *Freiler* provides the clearest guidance regarding the constitutionality of an "evolution is only a theory" disclaimer, the Fifth Circuit's decision must be viewed with caution for two reasons. First, the decision has been widely criticized. After the three-judge panel issued the opinion in *Freiler*, several judges on the Fifth Circuit urged that the case be reheard *en banc* (meaning that all Fifth Circuit judges, not just a three-judge panel, would rehear the case).⁶⁵ Though the petition was denied, seven Fifth Circuit judges indicated that they questioned the three-judge panel's application of Estab-

lishment Clause principles.⁶⁶ And at least three U.S. Supreme Court justices had similar concerns; when the Court declined to review the Fifth Circuit's decision in *Freiler*, Justice Scalia, joined by Chief Justice Rehnquist and Justice Thomas, issued an opinion asserting that the Fifth Circuit's decision may be erroneous and may reflect a deficiency in the manner in which the courts examine potential Establishment Clause violations.⁶⁷

A second reason for viewing the Fifth Circuit's decision in *Freiler* with caution is that the court explicitly limited it to the particular circumstances and the particular disclaimer in effect in Tangipahoa Parish. The three-judge panel clarified the scope of its opinion as follows:

[W]e emphasize that we do not decide that a state-mandated statement violates the Constitution simply because it disclaims any intent to communicate to students that the theory of evolution is the only accepted explanation of the origin of life, informs students of their right to follow their religious principles, and encourages students to evaluate all explanations of life's origins, including those taught outside the classroom. We decide only that under the facts and circumstances of this case, the statement of the Tangipahoa Parish School Board is not sufficiently neutral to prevent it from violating the Establishment Clause.⁶⁸

The Fifth Circuit's ruling thus did not declare all mandatory disclaimers unconstitutional but only the disclaimer required in the Tangipahoa Parish schools.⁶⁹ Although this limitation of the *Freiler* decision must be duly acknowledged, the method of constitutional evaluation employed by the Fifth Circuit indicates how future courts are likely to assess the constitutionality of disclaimers conveying the message that evolution is an unproven theory.

61. *Id.* at 830.

62. Although the district court appeared to rule exclusively on the "purpose" prong of the *Lemon* test, the opinion can also be read as concluding that the parish's disclaimer constitutes an unconstitutional endorsement of religion (as enunciated in *Allegheny*). The court wrote: "In mandating this disclaimer, the School Board is endorsing religion by disclaiming the teaching of evolution in such a manner as to convey the message that evolution is a religious viewpoint that runs counter to the religious belief of the Biblical theory of Creation, or other religious views. An endorsement of religion is a violation of the Establishment Clause and thus must be invalidated" (*id.* at 830).

63. *Freiler v. Tangipahoa Parish Board of Education*, 185 F.3d 337 (5th Cir. 1999).

64. *Id.* at 346.

65. A member of the circuit court may request that the other members of the court be polled to determine if a particular case will be reheard *en banc*. Pursuant to Federal Rule of Appellate Procedure 35, a majority of the judges in active service must vote in favor of rehearing for the petition to be granted.

66. *Freiler v. Tangipahoa Parish Board of Education*, 201 F.3d 602 (5th Cir. 2000). Justice Barksdale dissented from the denial of rehearing *en banc*, joined by Justices Jolly, Higginbotham, Jones, Smith, Garza, and DeMoss.

67. *Tangipahoa Parish Board of Education v. Freiler*, 530 U.S. 1251 (2001). Justice Scalia dissented from the denial of certiorari, joined by Chief Justice Rehnquist and Justice Thomas. The dissenters expressed their desire to revisit the merits of the *Lemon* test in general. Their opinion continued: "Even assuming, however, that the Fifth Circuit correctly chose to apply the *Lemon* test, I believe the manner of its application [to be] so erroneous as independently to merit the granting of certiorari, if not summary reversal. Under the second prong of *Lemon*, the 'principal or primary effect [of a state action] must be one that neither advances nor inhibits religion.' Far from advancing religion, the 'principal or primary effect' of the disclaimer at issue here is merely to advance freedom of thought" (*id.* at 1253).

68. *Freiler*, 201 F.3d at 603.

69. The three Supreme Court justices who dissented from the denial of certiorari in *Freiler* also took issue with the Fifth Circuit's narrow decision: "Reference to unnamed 'facts and circumstances of this case' is not a substitute for judicial reasoning" (*Freiler*, 530 U.S. at 1254–55).

The Theory of Intelligent Design

Another very controversial recent development in the school science curriculum is the introduction of the “theory of intelligent design.” This theory is based on the general notion that the world and its creatures are too complex to have arisen through randomness and must therefore be the product of an “intelligent designer.” It has received significant attention lately because of its incorporation into a science textbook entitled *Of Pandas and People: The Central Question of Biological Origins*.⁷⁰

Of Pandas and People attempts to skirt the perilous constitutional line that forbids introducing religious doctrine into the classroom by scrupulously avoiding speculation about who the “intelligent designer” might be. Nonetheless, the book is easily reconciled with the creationist approach that identifies God as the intelligent designer. In fact, when asked whether he could think of any other “intelligent designer,” a university professor who endorsed the book responded, “You could think of a time-traveler, or other strange things, but offhand, no.”⁷¹ The authors concede that species may undergo change over time but also accuse evolutionists of “subjective judgments” and “circular argument.”⁷²

The manner in which it presents the theory of intelligent design has sparked interest in *Of Pandas and People* and aroused heated debate in many communities. In Idaho, for instance, several communities have contemplated adopting the textbook in its public schools; and citizens in Louisville, Ohio, purchased fifty copies of the book and donated them to their school’s science library.⁷³ These communities are not alone, and the debate surrounding this controversial textbook has reignited the creationism/evolution clash across the country.⁷⁴

School adoptions of *Of Pandas and People* may constitute a violation of the Establishment Clause, although no court has yet addressed this precise issue. The American Civil Liberties Union (ACLU) has indicated that an adoption of the textbook could prompt it to initiate a legal challenge to its classroom use.⁷⁵ Some legal observers have already concluded that

70. Percival Davis and Dean H. Kenyon, *Of Pandas and People: The Central Question of Biological Origins*, 2d ed. (Dallas, 1993).

71. Todd Pruzan, “The Secret Creator,” *N.Y. Times Magazine*, August 29, 1999.

72. *Id.*

73. Andrea Tortora, “Teachers Tiptoe around Evolution,” *Cincinnati (Ohio) Enquirer*, Dec. 13, 1999, B1; and Pruzan, “Secret Creator.”

74. For an account of the legal controversy about the book, see George, “And Then God Created Kansas?”; and Jay D. Wexler, “Of Pandas, People, and the First Amendment: The Constitutionality of Teaching Intelligent Design in the Public Schools,” *Stanford Law Review* 49 (1997): 439–43.

75. Pruzan, “Secret Creator” (quoting the legal director of the Ohio branch of the ACLU).

introducing the theory of intelligent design into public school biology courses would be unconstitutional.⁷⁶ Others, however, have argued that the theory is not religious and therefore does not violate the Establishment Clause; their implicit argument seems to be that the relationship between intelligent design theory and creationism is similar to that between evolution and secular humanism: although the theory of intelligent design harmonizes with religious doctrine, its introduction as a scientific theory does not, by itself, constitute presentation of a religious view.⁷⁷ Because compelling arguments can be made to challenge and defend the constitutionality of placing *Of Pandas and People* in the classroom, and because no court has addressed the constitutionality of doing so, school administrators and officials must heed the general guidance provided by the Supreme Court’s Establishment Clause jurisprudence to assess the constitutionality of adopting the textbook.

Removing Evolution from State Curriculum Standards

Possibly the boldest challenge to the treatment of evolution and creationism is also the subtlest: some states have considered removing the study of evolution from state science curriculum standards. This decision effectively diminishes the importance of evolution relative to other biological concepts presented in biology class: evolution would no longer be a required concept, and the theory of biological evolution would not be included on statewide standardized tests. The removal of evolution from the curriculum would not, however, bar teachers from introducing evolution into their classrooms or make its presentation contingent on concurrent teaching of creationism. Such a removal can thus be distinguished both from the balanced-treatment requirement invalidated in *Edwards* and from the Arkansas statute the Court invalidated in *Epperson*. For these reasons, the constitutionality of removing evolution from a state’s course of study is not clear, and no court has addressed the constitutional ramifications of doing so.

Most recently, the state of Kansas was embroiled in a heated controversy about just such a possible removal of evolution from the state science curriculum.⁷⁸ The state’s experience may provide significant insight into the constitutionality and wisdom of eliminating the teaching of evolution. Initially, a committee of scientists, educators, and citizens drafted a set of science education standards based on standards proposed by the National Academy of Sciences; the proposed standards

76. George, “Of Pandas, People, and the First Amendment,” 455–56.

77. David K. DeWold et al., “Teaching the Origins Controversy: Science, or Religion, or Speech?” *Utah Law Review* (2000): 39, 93–95.

78. See George, “And Then God Made Kansas?”

included using evolution as a “unifying concept” linking cosmology, geology, physics, and biology. Evolution opponents were outraged by the standards, and the Kansas State Board of Education subsequently rejected them, delegating to one board member the task of writing a new set of standards. The newly promulgated standards: (1) referred to microevolution (adaptation) but not to macroevolution (change from one species to another); (2) no longer listed evolution as a “unifying concept”; (3) omitted many references to the earth’s age; and (4) omitted references to the big-bang theory. Kansas school board members have indicated that the purpose of the new standards was to ensure that students are taught “good science.”⁷⁹

The constitutionality of the board’s action is hard to ascertain, because, as noted above, no court has directly addressed the constitutionality of removing evolution from a state’s curriculum standards. At least one legal commentator has expressed the opinion that Kansas’s action is unconstitutional.⁸⁰ Although a fair argument could be made supporting the constitutionality of the decision, an equally fair argument could be made that removing evolution from the curriculum is unconstitutional.

Defenders of the Kansas decision could argue, for example, that the removal of evolution from the curriculum restores the governmental neutrality originally required by the Supreme Court in *Epperson*. Defenders could also identify a variety of secular purposes—for example, avoiding controversial issues or allocating precious class time to other “settled” biological principles—to justify removing evolution from the curriculum. They could also note that in *Epperson* the U.S. Supreme Court clearly indicated that it might be constitutional to remove all discussion of the origin of life—including both creationism and evolution—from the classroom. On this basis, defenders might argue, omitting evolution from the curriculum standards without prohibiting its introduction places evolution in a more favorable pedagogical position than the suggestion in *Epperson* that a school could remove from the public school classroom *all* discussion of the origins of life.

On the other side, opponents of the Kansas decision could argue that the action violates three different aspects of the Establishment Clause. First, under the first prong of the *Lemon* test, the school board’s purpose of teaching “good science” could be characterized as a sham to conceal the board’s genuine religious purpose. Second, its treatment of evolution could be viewed as an endorsement of religion or religious practices, although this contention is certainly less

plausible than the challenge under the *Lemon* test. Most importantly, however, challengers could assert that the action of the Kansas State Board of Education violates one of the fundamental principles announced in *Epperson*: that the curriculum cannot be tailored to the principles of a religious sect.

Ultimately, we can only speculate how a court would have ruled on the constitutionality of Kansas’s action, for in the end the state’s board of education did not remove evolution from the state curriculum. Yet the constitutional conflict of such an action is readily apparent. On the one hand, removing the theory of evolution from state science standards may appear to preserve the government’s neutrality between religion and nonreligion. On the other hand, the removal may be seen as an unconstitutional tailoring of the curriculum to the principles of a specific religious sect. From this perspective, the actions Kansas considered are difficult to reconcile with the two lasting principles announced by the Supreme Court in *Epperson*.

The Future of Creationism in the Classroom

Creationists have suffered countless setbacks in their attempts to introduce creationism into the science classroom. The Supreme Court has invalidated laws that prescribe balanced treatment for creationism and evolution, and other federal courts have concluded that creationism cannot be properly categorized as a scientific theory. And, although the development of the theory of intelligent design may provide creationists with a new hope of reinstating the topic into the biology curriculum, creationism’s status in public school science classrooms remains tenuous at best.

Does this imply that the presentation of creationism is wholly forbidden in public schools? No. Courts have routinely acknowledged that religious beliefs—including belief in the divine origin of life—may be presented in classrooms in a constitutionally appropriate context. In a concurring opinion in *Edwards*, for instance, Justice Powell observed that as “religion permeates our history,” it would be proper to present creationism to students in courses on comparative religions, history, ethics, or philosophy.⁸¹

Conclusion

The salient public debate surrounding the teaching of creationism and the theory of evolution in public schools has continued for almost a century. Although this contentious

79. *Id.* at 865–68.

80. *Id.* at 868–71.

81. *Edwards*, 482 U.S. at 607.

discussion has not been conducted in North Carolina's courts, the controversy has not escaped our state's public schools. As noted earlier, the North Carolina Course of Study for the science curriculum prescribes the study of biological evolution and omits the study of creationism. It does, however, include a topic on the origins of life, which may cause concern to some school administrators, school officials, and teachers.

The legal decisions considered in this article provide significant insight into the legal principles that govern the treatment of creationism and the theory of evolution in the science classroom. The Supreme Court's decisions in *Epperson* and *Edwards*, in particular, offer fundamental principles that should guide the creation and modification of a school's curriculum. Subsequent decisions in the lower federal courts supplement these fundamental principles by extending them to related recent developments. Although the constitutionality of some of the latest challenges to the treatment of creationism and evolution remains untested in the federal courts, school boards can benefit from the significant guidance provided by earlier court opinions.

At the present time—and probably for the foreseeable future—the North Carolina Standard Course of Study includes the theory of evolution in its biology curriculum, because evolution is a scientific theory. Although the course of study at times fails to delineate adequately between the scientific theory of evolution and independent theories of the origin of life, it is clear that evolution is a proper subject for the public school science classroom. Creationism, on the other hand, is not included in the course of study, because it is not a scientific theory. North Carolina has adopted the following standard for its science curriculum, which aptly embodies this conclusion:

Explanations of how the natural world changes based on myths, *personal beliefs*, *religious values*, mystical inspiration, superstition, or authority may be personally useful and socially relevant, but they are not scientific.⁸² ■

82. 1995 National Science Education Standards, North Carolina Standard Course of Study (emphasis added).

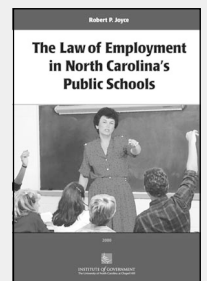
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