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## Note

### **Toto, I've a Feeling We're . . . Still in Kansas? The Constitutionality of Intelligent Design and the 2005 Kansas Science Education Standards**

**Anthony Kirwin\***

#### I. INTRODUCTION

The last eighty years of American history have been marked by a recurring debate in America's science classrooms surrounding the appropriate role of evolutionary theory and alternative explanations of the origins of life.<sup>1</sup> In 1927 the infamous "Scopes Trial,"<sup>2</sup> involving a prohibition on teaching the theory of evolution, captured national attention and brought the issue to the forefront of public awareness. Since the Scopes Trial, it has become well settled that biblical creationism cannot be taught in public school classrooms because it violates the First Amendment's establishment clause.<sup>3</sup> Despite this body of law, the controversy has taken a

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\* University of Minnesota J.D. candidate (2007). The author wishes to thank John L. Kirwin for his valuable insight and comments, Jeff Dahlen for his guidance and unusually high PSQ, Peter Kirwin and Rich Coller for their devotion to all things science, and last but not least the editors and staff of the Minnesota Journal of Law, Science & Technology.

1. See Diana M. Rosenberg, *Monkey Business and Unnatural Selection: Opening the Schoolhouse Door to Religion by Discrediting the Tenets of Darwinism*, 9 J.L. & POL'Y 611, 615 (2001) (explaining that in 2001 the controversy surrounding evolution and creationism has divided the United States for more than seventy years).

2. *Scopes v. State*, 289 S.W. 363 (Tenn. 1927).

3. See, e.g., *Edwards v. Aguillard*, 482 U.S. 578 (1987) (holding a "balanced treatment" act unconstitutional because it was passed with the purpose of advancing creationism); *Epperson v. Arkansas*, 393 U.S. 97 (1968) (holding unconstitutional a law banning the teaching of evolution because it contradicted the biblical account of creationism); *McLean v. Ark. Bd. of Educ.*, 529 F. Supp. 1255 (E.D. Ark. 1982) (holding unconstitutional a "balanced treatment" act requiring equal time for the teaching of creationism when evolution was taught).

new direction due to public sentiment regarding the teaching of alternative explanations to biological evolution<sup>4</sup> and because of the prominence and growth of the movement supporting intelligent design.<sup>5</sup> Indeed, in the fall of 2005 the controversy raged on as the Kansas Board of Education adopted science standards widely criticized for purportedly advocating intelligent design,<sup>6</sup> and a U.S. District Court in Pennsylvania issued a seminal decision in the first federal case to address the issue of mandatory inclusion of intelligent design alongside evolutionary theory in public science classrooms.<sup>7</sup>

After a series of seemingly devastating blows to the teaching of creationism in science classrooms,<sup>8</sup> proponents of alternative theories have attempted indirectly to discredit and erode the validity of evolutionary theory through a variety of methods, such as secular evolution disclaimers<sup>9</sup> and revised education standards,<sup>10</sup> that cast evolutionary theory in a controversial light and allow at least some mention of alternative theories. Though many of these initiatives have

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4. See generally Claudia Wallis et. al, *The Evolution Wars*, TIME, Aug. 15, 2005, at 28 (reporting that “the prevalence of such beliefs and the growing organization and clout of the intelligent-design movement are beginning to alter the way that most fundamental tenets of biology are presented in public schools”).

5. See *id.* The results of a national poll found that fifty-five percent of adults polled think their children should be taught creationism and/or intelligent design along with evolution. Additionally, the number of adults that said they do not believe in evolution rose ten percent since 1994. *Id.*

6. See Peter Slevin, *Kansas Education Board First to Back ‘Intelligent Design’*, WASH. POST, Nov. 9, 2005, at A1 (reporting that the Kansas Board of Education adopted revised science standards that “defied the nation’s scientific establishment”).

7. See *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707 (M.D. Pa. 2005) (holding, in a detailed and lengthy opinion, that teaching intelligent design in public school classrooms violates the establishment clause of the First Amendment).

8. See, e.g., *Edwards v. Aguillard*, 482 U.S. 578 (1987); *Epperson v. Arkansas*, 393 U.S. 97 (1968); *McLean v. Ark. Bd. of Educ.*, 529 F. Supp. 1255 (E.D. Ark. 1982).

9. See David J. Hacker, *Warning! Evolution Lies Within: Preserving Academic Freedom in the Classroom with Secular Evolution Disclaimers*, 16 WASH. U. L.J. & POL’Y 333, 333-35 (2004) (discussing the use of secular evolution disclaimers in five states that expose students to “criticisms and alternatives to evolution”).

10. See Jodi Wilgoren, *In Kansas, Darwinism Goes on Trial Once More*, N.Y. TIMES, May 6, 2005, at A18 (reporting that in addition to the Kansas science standards, lawmakers in Ohio, Georgia, and Alabama have passed or introduced bills that allow the teaching of the evolution controversy).

become moot through litigation,<sup>11</sup> intelligent design proponents continue in their attempts to affect the substance of science instruction in public schools.<sup>12</sup>

This Note will examine the constitutionality of new science standards approved by the Kansas Board of Education, which have become highly prominent in the debate surrounding alternatives to evolutionary theory.<sup>13</sup> First, this Note outlines the different explanations and theories involved in the origins debate—creationism, evolution and intelligent design—along with the history of American jurisprudence surrounding each perspective. Then, the Kansas science standards are detailed and examined to evaluate their constitutionality in light of relevant establishment clause case law. Finally, this Note concludes that the current Kansas science standards are unconstitutional because they impermissibly endorse religion and were passed with a predominately religious purpose in violation of the First Amendment’s establishment clause.

## II. THEORIES OF THE ORIGIN AND APPEARANCE OF LIFE ON EARTH

### A. CREATIONISM

Though creationism cannot be taught in public schools,<sup>14</sup> the differences and similarities between creationism and intelligent design, as well as the process by which such practices are introduced into classrooms, may well determine the constitutionality of teaching the latter in public schools.

At its most basic level, creationism is a term normally associated with the belief that the world, and thus all life on

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11. See, e.g., *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707 (M.D. Pa. 2005); *Freiler v. Tangipahoa Parish Bd. of Educ.*, 975 F. Supp. 819 (E.D. La. 1997), *aff’d*, 185 F.3d 337 (5th Cir. 1999) (holding that a secular evolution disclaimer violated the establishment clause under the effect prong of the *Lemon* test because its primary effect was to promote a certain religious view).

12. See, e.g., *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707 (M.D. Pa. 2005) (involving a secular evolution disclaimer discussing intelligent design as an alternative to evolution other than creationism).

13. KANSAS BD. OF EDUC., KANSAS SCIENCE EDUCATION STANDARDS (2005) [hereinafter KANSAS SCIENCE STANDARDS], available at <http://www.ksde.org/outcomes/sciencestd.pdf>.

14. See, e.g., *Edwards v. Aguillard*, 482 U.S. 578 (1987); *Epperson v. Arkansas*, 393 U.S. 97 (1968); *McLean v. Ark. Bd. of Educ.*, 529 F. Supp. 1255 (E.D. Ark. 1982).

earth, was created by God in accordance with the account detailed in *Genesis*, the first book of the Bible.<sup>15</sup> Because those who can be appropriately labeled “creationists” hold somewhat divergent beliefs, however, creationism at its most basic level “include[s] anyone who believes that God is responsible for making and sustaining the universe and all it contains, whether through myriad natural laws and agencies that He created and set in operation, through direct omnipotent intervention, or a combination of both.”<sup>16</sup> Essentially, all creationists believe to some degree and in some form that God created the universe and everything in it.

Though creationism includes a wide variety of perspectives, creationists can generally be grouped into three categories.<sup>17</sup> The first group does not subscribe to a literal interpretation of the creation account in *Genesis*, but rather believes that such an account metaphorically stands for the proposition that God created the universe.<sup>18</sup> Because they part ways with a literal reading of the Bible, these moderate creationists do not necessarily see a direct conflict between the theory of evolution and their belief in divine creation.<sup>19</sup> They see the theory of evolution, including the gradual process of natural selection described by Charles Darwin, as created by God.<sup>20</sup> This brand of creationism is sometimes labeled “theistic evolution.”<sup>21</sup>

The second category of creationism subscribes to more fundamental Christian beliefs and a literal interpretation of the Bible.<sup>22</sup> Generally speaking, fundamental creationism adheres to the belief that “the laws of nature, the galaxies, the stars, planets, and all life were created directly by God in six

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15. *Genesis* 1:1.

16. Jeffrey A. Addicott, *Storm Clouds on the Horizon of Darwinism: Teaching the Anthropic Principle and Intelligent Design in Public Schools*, 63 OHIO ST. L.J. 1507, 1543 (2002).

17. Theresa Wilson, *Evolution, Creation, and Naturally Selecting Intelligent Design Out of the Public Schools*, 24 U. TOL. L. REV. 203, 208 (2003).

18. *Id.*

19. *Id.*

20. *Id.*

21. *Id.*

22. Francis J. Beckwith, *Science and Religion Twenty Years After McLean v. Arkansas: Evolution, Public Education, and the New Challenge of Intelligent Design*, 26 HARV. J.L. & PUB. POL'Y 455, 460 (2003).

twenty-four hour days, and that all living things have remained unchanged since that time.”<sup>23</sup> Obviously, this view conflicts directly with the theory of evolution and leaves no room to accommodate the views, such as those advanced by Charles Darwin, that propose a system of gradual changes over long periods of time. Fundamental creationists constitute the largest and most vocal group of creationists in the United States, with a strong movement that is “extremely active.”<sup>24</sup>

The final category of creationism is a spin-off of the fundamentalist creationist group described above.<sup>25</sup> This particular brand of creationist thought, often labeled “creation science,” was founded in 1963 by a small group of like-minded scientists who formed the Creation Research Society (CRS).<sup>26</sup> Creation science asserts that true experimental science can support the theory of fundamental creation based on a literal interpretation of the Bible.<sup>27</sup> Because it purportedly has scientific foundations, creation science on its face would appear to avoid many of the problems discussed below associated with teaching fundamental or even moderate creationism in public school classrooms. The creation science movement picked up steam in the 1970s with the founding of the Institute for Creation Research,<sup>28</sup> which purports to be a scientific organization devoted to the advancement of the scientific foundations of creationism through publication, research, and

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23. See Addicott, *supra* note 16, at 1547.

24. *Id.* at 1548.

25. See generally Institute for Creation Research, Frequently Asked Questions: What Does ICR Mean by Scientific Creationism?, <http://www.icr.org/index.php?module=home&action=faq> (last visited Feb. 1, 2006) (noting that, despite important differences, scientific creationism does share some common beliefs with fundamental creationism, which adheres to a literal interpretation of the creation account in *Genesis*).

26. See Creation Research Society, About CRS, [http://www.creationresearch.org/about\\_crs.htm](http://www.creationresearch.org/about_crs.htm) (last visited Feb. 1, 2006) (explaining that the Creation Research Society is a “professional organization of trained scientists and interested laypersons who are firmly committed to scientific special creation”).

27. See Wilson, *supra* note 17, at 209 (noting that the Institute for Creation Research claims to be a scientific organization). See generally Institute for Creation Research, Education Philosophy, [http://icr.org/index.php?module=discover&action=index&page=discover\\_philosophy](http://icr.org/index.php?module=discover&action=index&page=discover_philosophy) (last visited Feb. 1, 2006) (explaining that alumni of its creation science graduate school program “are well equipped in all areas covered by secular institutions, with the supplementary advantage of learning also the rationale for the creationist interpretation of scientific data related to origins and Earth history”).

28. See Wilson, *supra* note 17, at 209.

even its own graduate-level courses teaching creation science.<sup>29</sup>

## B. THE THEORY OF EVOLUTION

In 1859, British Naturalist Charles Darwin introduced the theory of evolution into mainstream culture with the publication of *Origin of Species*.<sup>30</sup> Darwin's theory of evolution—commonly known as natural selection—centers on two interrelated factors that account for how all living things exist as they do today: “(1) the random existence of favorable genetic mutations in life forms, i.e. chance, and (2) the operation of a process called natural selection, or the survival of the fittest, i.e., necessity.”<sup>31</sup> In short, Darwin argued that life forms have the propensity to mutate and adapt to changing environmental forces. Those mutations proving beneficial to a certain species will be passed along to offspring, giving them a better chance of surviving and carrying on the mutation. Darwinian evolution “holds that the appearance of any new life form results from the natural selection of small, accidental, cumulative changes in the . . . [DNA] of pre-existing life forms.”<sup>32</sup> This “gradualism rests at the very heart of evolution . . . and has been used to account for absolutely every aspect of life one can imagine.”<sup>33</sup> Unlike creationism, the theory of evolution provides an explanation for the current appearance of all life forms on earth based solely on the observation of natural phenomena and within the bounds of natural law.<sup>34</sup>

Though still not a complete theory, there is a tremendous amount of scientific proof supporting evolution. Since Darwin first proposed the idea of natural selection, it “has undergone

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29. See Institute for Creation Research, Frequently Asked Questions: What is ICR's Purpose?, <http://www.icr.org/index.php?module=home&action=faq> (last visited Feb. 1, 2006) (explaining that the Institute for Creation Research “serve[s] as an education, research, and communications media institution specializing in the study and promotion of scientific creationism”).

30. CHARLES DARWIN, ORIGIN OF SPECIES (Random House 1979) (1859).

31. Addicott, *supra* note 16, at 1521.

32. *Id.*

33. *Id.* at 1522.

34. See NATIONAL ACAD. OF SCI., SCIENCE AND CREATIONISM: A VIEW FROM THE NATIONAL ACADEMY OF SCIENCES, SECOND EDITION 1 (1999), available at <http://www.nap.edu/catalog/6024.html> (explaining that evolution is a well-established scientific explanation, and that science involves a “great deal of careful observation that eventually produces an elaborate written description of the natural world”).

extensive modification and expansion. . . . Studies in genetics and molecular biology—fields unknown in Darwin’s time—have explained the occurrence of the hereditary variations that are essential to natural selection.”<sup>35</sup> Additionally, the changes in species from generation to generation described by Darwin “can now be detected and described with great precision.”<sup>36</sup> Though some critics—both creationists and intelligent design proponents—argue that evolution is merely a “theory” and not “fact,” the “idea remains so compelling that the theory of evolution exhibits a firm . . . ideological hold over the scientific and educational communities of western culture.”<sup>37</sup>

### 1. Evolution: Fact? Theory? Both?

In analyzing the differences between evolution and alternative perspectives, it is useful to explore the concept of a “theory” as related to a “fact” since proponents of creationism and intelligent design regularly employ this distinction in support of their respective arguments. A theory is commonly defined as “the analysis of a set of facts in their relation to one another.”<sup>38</sup> Stephen J. Gould, renowned evolutionary biologist and science commentator, described the relation as such: “[F]acts and theories are different things, not rungs in a hierarchy of increasing certainty. Facts are the world’s data. Theories are structures of ideas that explain and interpret facts. Facts do not go away when scientists debate rival theories to explain them.”<sup>39</sup> Gould went on to explain that “‘fact’ does not mean ‘absolute certainty’ . . . ‘fact’ can only mean ‘confirmed to such a degree that it would be perverse to withhold provisional assent.’”<sup>40</sup> As applied to evolution, Gould states: “[E]volution is a theory. It is also fact.”<sup>41</sup> This simple statement illustrates the misconception often associated with the fact-theory distinction. The “theory” of evolution attempts to describe a mechanism (natural selection) to explain the fact that evolution occurred. Simply because evolution is a “theory”

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35. *Id.*

36. *Id.*

37. Addicott, *supra* note 16, at 1524.

38. MIRIAM WEBSTER DICTIONARY ONLINE, <http://www.m-w.com/cgi-bin/dictionary?book=Dictionary&va=Theory> (last visited Feb. 6, 2006).

39. STEPHEN J. GOULD, HEN’S TEETH AND HORSE’S TOES 254 (Norton & Company, Inc. 1994) (1983).

40. *Id.* at 254-55.

41. *Id.* at 254.



in no way detracts from the weight of evidence suggesting its occurrence. Furthermore, evolutionary biologists, including Darwin himself, readily acknowledge that the theory of natural selection, as commonly understood, *is* a theory and that it does not have complete explanatory power.<sup>42</sup>

### C. INTELLIGENT DESIGN

Intelligent design holds that “certain features of the universe and living things are best explained by intelligent cause rather than an undirected process such as natural selection.”<sup>43</sup> At first glance this may seem like a claim with the same underlying tenants as creationism. Proponents of intelligent design, however, argue that its conclusions are based in scientific observation uninfluenced by preconceived notions about the origins of the universe.<sup>44</sup> According to intelligent design, because the natural world contains a dizzying array of complex systems and intricate biological organisms, it is reasonable to conclude that this is evidence that “an intelligent cause is the best explanation for certain features of the natural world.”<sup>45</sup> Though it ends with a very similar conclusion to creationism—an “intelligent designer,” or what most people would equate with God—the “scientific” process intelligent design proponents claim to use to reach their conclusion is the claimed difference between this viewpoint and that of creationism.

The argument often used by intelligent design proponents

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42. *See id.* at 255 (explaining that “Evolutionists make no claim for perpetual truth . . . [and that] Evolutionists have been clear about this distinction between fact and theory from the very beginning, if only because we have acknowledged how far we are from completely understanding the mechanisms (theory) by which evolution (fact) occurred”). Indeed, as Gould points out, “Darwin continually emphasized the difference between his two great and separate accomplishments: establishing the fact of evolution, and proposing a theory—natural selection—to explain the mechanism of evolution.” *Id.*

43. Intelligent Design Network, Explanation of Intelligent Design, <http://www.intelligentdesignnetwork.org> (last visited Feb. 2, 2006).

44. *See generally* Wilson, *supra* note 17, at 210 (noting that intelligent design, as an explanation of the origins of biological organisms, merely claims that “some intelligent entity” is at work rather than naming a specific deity or being).

45. JONATHAN WITT, THE ORIGIN OF INTELLIGENT DESIGN: A BRIEF HISTORY OF THE SCIENTIFIC THEORY OF INTELLIGENT DESIGN (2005), *available at* <http://www.discovery.org/scripts/viewDB/filesDB-download.php?command=download&id=526>.

begins, not with scientific evidence or theory, but rather with negative arguments critiquing the perceived shortcomings of evolutionary theory.<sup>46</sup> Intelligent design advocates claim that evolutionary theory, while widely accepted in the scientific community, does not have complete explanatory power and therefore cannot adequately explain the appearance of certain biological organisms and systems.<sup>47</sup> In fact, proponents often claim support from Charles Darwin himself. They reference a passage from the *Origin of Species* in which Darwin conceded that if it could be proven that a complex organism existed that could not have possibly been created by mutation and natural selection, then his theory of evolution would fall apart.<sup>48</sup> From this anti-evolutionary starting point, and especially in light of the alleged concession made by Darwin, intelligent design advocates then employ scientific language to support their arguments.

The major “scientific” argument for intelligent design can best be summarized by the work of Professor Michael Behe, a Lehigh University biochemist and author of the best-selling book, *Darwin’s Black Box*.<sup>49</sup> Behe, like many proponents of intelligent design, argues that evidence of “design” can be inferred from biological mechanisms that appear to embody a “purposeful arrangement of parts,”<sup>50</sup> which he attempts to illustrate, by way of analogy, through examples of human creations (created by a human “designer”) that evince similar characteristics.<sup>51</sup> Once design is recognized, additional proof of

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46. See Wilson, *supra* note 17, at 210 (explaining that “[i]ntelligent design is based on the contention that evolution processes are insufficient to account for the complexity and specificity of life”).

47. See MICHAEL J. BEHE, *DARWIN’S BLACK BOX: THE BIOCHEMICAL CHALLENGE TO EVOLUTION* 4 (1996) (explaining that Darwin’s theory of evolution, while able to explain biological change on a larger scale, may not be able to explain biology on a molecular level, which Behe asserts is the foundation of life). Behe goes on to say that “[t]he complexity of life’s foundation has paralyzed science’s attempt to account for it; molecular machines raise an as-yet impenetrable barrier to Darwin’s universal reach.” *Id.* at 5. Similarly, Behe states “[a]lthough Darwin’s mechanism—natural selection working on variation—might explain many things, however, I do not believe it explains molecular life.” *Id.*

48. See *id.* at 39.

49. *Id.*

50. See *id.* at 193.

51. Behe explains the basic concept of “design” through a series of examples including a Scrabble game, the use of flowers to spell out “LEHIGH” outside the university at which he teaches, a human-built mechanical object in a junkyard, and a snare trap located in a forest. *Id.* at 194-95. In each

intelligent design can be illustrated by complex biological systems that have the characteristic of “irreducible complexity.”<sup>52</sup> Behe defines a system that is irreducibly complex as a “single system composed of several well-matched, interacting parts that contribute to the basic function, wherein the removal of any one of the parts causes the system to effectively cease functioning.”<sup>53</sup> According to Behe, such a system cannot be produced through the mechanisms of gradual mutation and slight successive modifications as proposed by evolution “because any precursor to an irreducibly complex system that is missing a part is by definition nonfunctional.”<sup>54</sup> From this position—that gaps in evolutionary theory suggest an incomplete explanatory power and that such complex and well-refined systems show evidence of “design”—proponents of intelligent design conclude that some sort of higher power, or “intelligent designer,” must have been involved in the creation of these organisms.<sup>55</sup>

The intelligent design movement has gained support in recent years and maintains an informal center at the Discovery Institute in Seattle, Washington.<sup>56</sup> The Institute is supported by a cohesive group consisting mostly of religious Christians, including scientists, theologians, and philosophers who have devoted significant time and resources to discrediting evolution.<sup>57</sup> Additionally, much of Discovery Institute’s funding comes from conservative Christian groups.<sup>58</sup>

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instance, Behe argues that “design” is immediately recognized because “a number of components . . . are ordered to accomplish a purpose . . . that none of the components could do by itself” and that “you see that the components of the system interact with great specificity to do something.” *Id.* In each example, one would “quickly conclude that it is a product of intelligent design.” *Id.* at 195.

52. BEHE, *supra* note 47, at 39.

53. *Id.*

54. *Id.*

55. See generally Wilson, *supra* note 17, at 210 (noting that intelligent design proponents usually do not go as far as naming a specific deity or “intelligent designer” responsible for those events that cannot be explained by evolution).

56. See Wallis et. al, *supra* note 4, at 29 (explaining, while referring to intelligent design, that the Discovery Institute is the “headquarters for such thinking”).

57. *Id.*

58. See Wilson, *supra* note 17, at 237.

### 1. Intelligent Design and Education Policy

Proponents of intelligent design are well aware of the legal obstacles to teaching creationism in public school classrooms<sup>59</sup> and have developed guidelines and proposed science education standards to circumvent challenges presented by the First Amendment's establishment clause.<sup>60</sup> The central mission of the education policies proposed by intelligent design advocates is to "discourage mechanisms such as methodological naturalism to censor scientific evidence that life and its diversity may be designed."<sup>61</sup> Examples of such proposed science policies contain the following general provisions. First, intelligent design advocates propose that ideal classroom instruction should include presentation of scientific evidence without a "naturalistic assumption."<sup>62</sup> Second, students should be taught about the "historical nature" of "origins science," and that because "origins science" attempts to explain events in the distant past, traditional experimental science is not available to evolutionary biologists in reaching the conclusions of Darwinian evolution. Because experimental science cannot explain evolution, students should be taught about the limitations of the theory that might affect its credibility.<sup>63</sup> Finally, intelligent design advocates propose that students should understand the full range of "scientific views" regarding the origins of life and the controversy surrounding origins science so they can think critically about the claims of evolutionary theory.<sup>64</sup> With respect to this final element of proposed education standards, intelligent design advocates wish to expose students to "scientific criticisms of Darwinian

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59. See, e.g., Intelligent Design Network, Technical Explanation of Objective Origins Science Policy (2002) [hereinafter Technical Explanation], available at <http://www.intelligentdesignnetwork.org/SchoolPolicyExplanation.htm>.

60. See, e.g., *id.* (illustrating one example of education policy developed by intelligent design groups).

61. See *id.* (explaining in a section regarding "legal issues" that intelligent design education policies are designed to permit discussion of "evidence" of intelligent design). Interestingly, this statement follows others made earlier in the same document stating that the policy "does not require that schools teach design theory." *Id.*

62. See *id.*

63. See generally *id.* (discussing the proposition that the assumption that the appearance of life must have a natural cause is actually a limiting factor to thorough scientific inquiry).

64. See Technical Explanation, *supra* note 59.

evolution.”<sup>65</sup> The scientific criticisms commonly cited by intelligent design proponents include arguments that the process of natural selection, widely thought to explain “microevolution,” cannot adequately explain “macroevolution,”<sup>66</sup> that the mutations thought to be the primary means by which organisms evolve are in most instances harmful, and that natural selection does not adequately explain the formation of vast biological complexity during a period approximately 500 million years ago known as the “Cambrian Explosion.”<sup>67</sup> Additionally, intelligent design advocates claim to oppose science standards that unequivocally require the teaching of intelligent design, but they would allow for its teaching as a way to shed light on the controversy and perceived weaknesses of Darwinian evolution.<sup>68</sup>

### III. RELEVANT ESTABLISHMENT CLAUSE JURISPRUDENCE—FROM *SCOPES* TO *KITZMILLER*

The First Amendment to the Constitution provides that “Congress shall make no law respecting an establishment of religion.”<sup>69</sup> Though originally applicable only to the federal government, courts have interpreted the First Amendment, and most other liberties protected in the Bill of Rights, as applicable to the states through incorporation under the Fourteenth Amendment.<sup>70</sup> Though the language of the amendment allows room for interpretation, the Supreme Court has held that the establishment clause was intended to afford protection from “sponsorship, financial support, and active involvement of the sovereign in religious activity.”<sup>71</sup>

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65. See Discovery Inst., Kansas Evolution Debate Frequently Asked Questions (2005), available at <http://www.discovery.org/scripts/viewDB/index.php?command=view&id=2544> (explaining that there are “scientific criticisms of Darwinian evolution” that should be included in an ideal science curriculum when teaching evolution).

66. See *id.*

67. See *id.*

68. See, e.g., Discovery Inst., Discovery Institute’s Science Education Policy (2006), available at <http://www.discovery.org/scripts/viewDB/index.php?command=view&id=3164&program>.

69. U.S. CONST. amend. I.

70. See, e.g., *New York Times Co. v. Sullivan*, 376 U.S. 254, 276-77 (1964).

71. *Walz v. Tax Comm’n*, 397 U.S. 664, 668 (1970).

## A. THE RELEVANT TESTS

Pertinent to the discussion of intelligent design are two establishment clause tests. The *Lemon* test, developed in *Lemon v. Kurtzman*,<sup>72</sup> has been employed in most major cases involving creationism. More recently the endorsement test, articulated in *County of Allegheny v. American Civil Liberties Union*,<sup>73</sup> was used to examine the constitutionality of intelligent design.

1. The *Lemon* Test

In holding both a Rhode Island and a Pennsylvania law unconstitutional for violating the establishment clause, the Court in *Lemon v. Kurtzman* established a three-part test to determine whether a statute complies with the establishment clause: (1) the statute must have a secular legislative purpose, (2) its principal or primary effect must be one that neither advances nor inhibits religion, and (3) the statute must not foster an excessive government entanglement with religion.<sup>74</sup> The first element of the *Lemon* test, known as the “purpose” prong, does not require a “purely secular” purpose, but rather a state action that is entirely religious in its purpose is unconstitutional.<sup>75</sup> Also, the “Court has unambiguously concluded that the individual freedom of conscience protected by the First Amendment embraces the right to select any religious faith or none at all.”<sup>76</sup> Thus, a law can be held unconstitutional for generally promoting religion rather than a specific religious faith. In *Lemon*, the Court held that, in determining whether government entanglement with religion is excessive, the court “must examine the character and purposes of the institutions that are benefited, the nature of the aid that the State provides, and the resulting relationship between the government and the religious authority.”<sup>77</sup>

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72. 403 U.S. 602 (1971).

73. 492 U.S. 573 (1989).

74. See *Lemon*, 403 U.S. at 613 (citing *Walz v. Tax Comm’n*, 397 U.S. 664 (1970)).

75. Wendy F. Hanakahi, *Evolution-Creationism Debate: Evaluating the Constitutionality of Teaching Intelligent Design in Public School Classrooms*, 25 U. HAW. L. REV. 9, 17 (2002).

76. *Wallace v. Jaffree*, 472 U.S. 38, 53 (1985).

77. *Lemon*, 403 U.S. at 615.

## 2. The Endorsement Test

The endorsement test, articulated by Justice O'Connor in *County of Allegheny v. American Civil Liberties Union*,<sup>78</sup> recognizes the "prohibition against government endorsement of religion" which "preclude[s] government from conveying or attempting to convey a message that religion or a particular religious belief is *favored* or *preferred*."<sup>79</sup> To examine whether the government has endorsed religion, a court must look at the intended message and the message actually conveyed, an analysis corresponding to the purpose and effect prongs in *Lemon*.<sup>80</sup> The endorsement test consists of determining whether the message conveyed endorses religion from the position of a "reasonable, objective observer" who is familiar with the language, history, and context of the action in question.<sup>81</sup>

## B. CREATIONISM JURISPRUDENCE

### 1. *Scopes v. State*

Though most scientists in the early part of the twentieth century were aware of and had accepted Darwin's theory of evolution, the theory, and the controversy surrounding its teaching in school classrooms, was brought to public attention in the mid-1920s largely by *Scopes v. State*,<sup>82</sup> commonly known as the "Scopes Trial."<sup>83</sup> The Scopes Trial was initiated by the American Civil Liberties Union as a test case to challenge the

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78. 492 U.S. 573 (1989).

79. *Id.* at 593 (quoting *Wallace v. Jaffree*, 472 U.S. 38, 70 (1985)).

80. *See Lynch v. Donnelly*, 465 U.S. 668, 688 (1984) (O'Connor, J., concurring).

81. *See Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 714-15 (M.D. Pa. 2005) (holding specifically that the "reasonable, objective observer" would know "the policy's language, origins, and legislative history, as well as the history of the community and the broader social and historical context in which the policy arose" and would be "an informed citizen who is more knowledgeable than the average passerby," and would "consider[] publicly available evidence relevant to the purpose inquiry, but notably does not do so, strictly speaking, to ascertain what the governmental purpose actually was . . . [but] whether the policy 'in fact conveys a message of endorsement or disapproval'").

82. *Scopes v. State*, 289 S.W. 363 (Tenn. 1927).

83. H. Wayne House, *Darwinism and the Law: Can Non-Naturalistic Scientific Theories Survive Constitutional Challenge?*, 13 REGENT U. L. REV. 355, 358 (2000-01).

validity of a Tennessee law that forbade public schools to teach evolution or any theory that “denies the story of the divine creation of man as taught in the Bible and [required schools] to teach instead that man has descended from a lower order of animals.”<sup>84</sup> John Scopes, a public school teacher, was convicted and fined for teaching the theory of evolution in violation of the law.<sup>85</sup> Though the court-imposed fine was ultimately dropped because of a technicality requiring that a jury impose such a fine, the court avoided determining whether the law violated the Tennessee or U.S. Constitutions on grounds of religious establishment.<sup>86</sup> Instead, the court held that a law prohibiting the teaching of a theory did not recognize a particular religion or mode of worship, and therefore did not contravene any state or federal constitutional provisions forbidding the establishment of religion.<sup>87</sup> Despite the fact that the language of the statute and some of the testimony given at trial indicated that the law’s enactment was motivated by religion,<sup>88</sup> the court found no constitutional violation. Although the general public was aware of the issue and the seeds of controversy were sown, the next major challenge in the debate surrounding evolution did not come for more than four decades.

## 2. *Epperson v. Arkansas*

On the heels of the Scopes Trial, Arkansas passed a law prohibiting the teaching of evolution.<sup>89</sup> However, in contrast to the Tennessee law, the Arkansas law made no specific mention of religion or biblical purposes.<sup>90</sup> A science teacher from Little Rock sought to enjoin the state from dismissing her for violating the law after she used a biology textbook that included a chapter on evolution.<sup>91</sup> Though the state trial court struck down the law in *Epperson v. Arkansas*, the Arkansas Supreme Court sustained the law based on the state’s general power to create public-school curriculum.<sup>92</sup> The U.S. Supreme

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84. Scopes, 289 S.W. at 363 n.1 (quoting the relevant portion of the Tennessee law forbidding the teaching of evolution).

85. *Id.* at 363.

86. *Id.* at 366-67.

87. *Id.* at 367.

88. See House, *supra* note 83, at 365-67.

89. See *Epperson v. Arkansas*, 393 U.S. 97, 98 (1968).

90. *Id.* at 108-09.

91. *Id.* at 100.

92. *Id.* at 101.



Court ultimately struck down the Arkansas law because it conflicted with the First Amendment's establishment clause.<sup>93</sup>

In its decision, the Court noted that religious and biblical studies could be included in public school curricula if they were presented both from a "literary and historic viewpoint" and objectively as part of a secular education program.<sup>94</sup> However, the Court limited this exception, stating that there is an absolute prohibition against state practices which "aid or oppose" any religion, and the First Amendment "forbids alike the preference of a religious doctrine or the prohibition of theory which is deemed antagonistic to a particular dogma."<sup>95</sup>

Because *Epperson* was decided three years before *Lemon*, the Court did not use the *Lemon* test, described above, to determine whether the Arkansas law violated the establishment clause, although the Court employed similar factors in deciding the outcome: the "purpose and the primary effect of the enactment."<sup>96</sup> The Court held that if either the purpose or effect of the law was the "advancement or inhibition of religion" then the establishment clause is violated and the law is unconstitutional.<sup>97</sup> The Court found that the Arkansas law was undoubtedly passed to prevent the teaching of theories that contradicted the biblical account of creation.<sup>98</sup>

### 3. *McLean v. Arkansas Board of Education*

The next major case in the evolution-creationism controversy, *McLean v. Arkansas Board of Education*,<sup>99</sup> involved an Arkansas "balanced treatment" law<sup>100</sup> under which teachers were required to devote an equal amount of time to

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93. *Id.* at 103 (explaining that the "law must be stricken because of its conflict with the constitutional prohibition of state laws respecting an establishment of religion or prohibiting the free exercise thereof").

94. *Epperson*, 393 U.S. at 106.

95. *Id.* at 106-07.

96. *Id.* at 107.

97. *Id.*

98. *Id.* at 107. Though the Court neglected to discuss at length the particular factors that lead to its conclusion that the law was undoubtedly religious in purpose and design, the opinion did mention that the statute was a "product of the upsurge of 'fundamentalist' religious fervor of the twenties." *Id.* at 98.

99. 529 F. Supp. 1255 (E.D. Ark. 1982).

100. ARK. STAT. ANN. § 80-1663 (1981 Supp.) (repealed 1982).

“creation science” if they chose to teach evolution.<sup>101</sup> The U.S. District Court for the Eastern District of Arkansas ultimately held that the law violated the establishment clause<sup>102</sup> and laid out an important framework for analyzing future challenges using the *Lemon* test.<sup>103</sup>

As part of the reason for invalidating the Arkansas law in *McLean*, the Supreme Court found that the first prong of the *Lemon* test was violated based on an analysis of the law’s history and underlying purpose.<sup>104</sup> In determining the purpose of the statute, the court acknowledged that a statute’s legislative statement of purpose is owed great deference, but that the judiciary is not bound thereby and may consider the history, context, events leading to the passage of the statute, and statements made by an act’s sponsors.<sup>105</sup> Though the stated purpose of the statute did not mention religion and was couched in scientific and education-based language, several factors relating to the history and context of the statute suggested that it was of an impermissibly religious nature. First, the statute’s primary author publicly announced the “sectarian” purpose underlying the law.<sup>106</sup> Moreover, evidence suggested that the author did not believe “creation science” to be a real scientific discipline, and that he was aware of and tried to conceal the religious purpose behind the statute.<sup>107</sup> Second, the bill was passed with no legislative debate, no testimony from scientists, nor a meaningful fact-finding process.<sup>108</sup> When these facts were coupled with the statements of the bill’s sponsor, as well as the long history of anti-evolutionary sentiment in Arkansas,<sup>109</sup> it was obvious that the purpose behind the statute was religious.<sup>110</sup> Based on these factors, the statute failed the “purpose” prong of the *Lemon*

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101. *McLean*, 529 F. Supp. at 1256.

102. *See id.* at 1272 (stating that entanglement with religion was inevitable under the statute).

103. *See id.* at 1258.

104. *See, e.g., id.* at 1261.

105. *Id.* at 1263-64.

106. *McLean*, 529 F. Supp. at 1264.

107. *Id.* at 1261-62 (explaining several letters written by the author in which he stated that “neither evolution nor creation can qualify as a scientific theory,” and “it would be very wise . . . that all of us who are engaged in this legislative effort be careful not to present our position and our work in a religious framework”).

108. *Id.* at 1262-63.

109. *Id.* at 1263.

110. *Id.* at 1264.

test.<sup>111</sup>

Under the second prong of the *Lemon* test, the court held that the language of the statute provided “overwhelming” evidence that the purpose and effect of the statute were the advancement of religion.<sup>112</sup> The relevant provision of the statute mentioned the “sudden creation of the universe . . . from nothing,” the “occurrence of a worldwide flood,” the insufficiency of evolutionary theory, and the recent creation of the earth.<sup>113</sup> Though the statute did not specifically mention the Bible or a particular religion, the court held that the definition of creation science included in the statute made “unmentioned reference” to chapters of *Genesis* and “convey[ed] an inescapable religiosity.”<sup>114</sup> Additionally, the court rejected the Board of Education’s argument that the phrase “creation from nothing” as contained in the statute was secular and did

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111. McLean, 529 F. Supp. at 1264.

112. *Id.* (explaining that, even without considering other factors, the very language of the statute overwhelmingly supports the conclusion that the purpose and effect of the statute was to advance religion). The relevant section of the statute provides:

(a) "Creation-science" means the scientific evidences for creation and inferences from those scientific evidences. Creation-science includes the scientific evidences and related inferences that indicate: (1) Sudden creation of the universe, energy, and life from nothing; (2) The insufficiency of mutation and natural selection in bringing about development of all living kinds from a single organism; (3) Changes only within fixed limits of originally created kinds of plants and animals; (4) Separate ancestry for man and apes; (5) Explanation of the earth's geology by catastrophism, including the occurrence of a worldwide flood; and (6) A relatively recent inception of the earth and living kinds.

(b) "Evolution-science" means the scientific evidences for evolution and inferences from those scientific evidences. Evolution-science includes the scientific evidences and related inferences that indicate: (1) Emergence by naturalistic processes of the universe from disordered matter and emergence of life from nonlife; (2) The sufficiency of mutation and natural selection in bringing about development of present living kinds from simple earlier kinds; (3) Emergence by mutation and natural selection of present living kinds from simple earlier kinds; (4) Emergence of man from a common ancestor with apes; (5) Explanation of the earth's geology and the evolutionary sequence by uniformitarianism; and (6) An inception several billion years ago of the earth and somewhat later of life.

(c) "Public schools" mean public secondary and elementary schools.

*Id.*

113. *Id.* (citing relevant portions of § 4 of ARK. STAT. ANN. § 80-1663 (1981 Supp.) (repealed 1982)).

114. *Id.* at 1264-65.

not involve a “supernatural deity.”<sup>115</sup> Indeed, the court noted, “creation out of nothing’ is a concept unique to Western religions,” that “the conception of a creator is a conception of God,” and “out of nothing’ is the ultimate religious statement because God is the only actor.”<sup>116</sup> Thus, even though the statute contained no direct reference to religion or God, the language of the statute and its implications based on common understanding of Western religion suggested that, in fact, the primary effect of the statute was advancement of religion.

That the statute violated the “advancement of religion” prong of the *Lemon* test was further supported when creation science was examined as a scientific theory. The court set forth a five-part definition of science under which to examine the theory, focusing primarily on whether the theory required connections to natural law and whether it was testable and falsifiable.<sup>117</sup> According to the court, creation science as defined in the statute was not science because it was inherently dependent on “supernatural intervention which is not guided by natural law . . . [and] is not testable and is not falsifiable.”<sup>118</sup> The court went on to explain that if the idea of God or a supernatural creator is removed from the meaning of creation science, the “remaining parts . . . explain nothing and are meaningless assertions,” and that “[a] theory that is by its own terms dogmatic, absolutist and never subject to revision is not a scientific theory.”<sup>119</sup> The court ultimately concluded that because creation science is in fact not science at all, its only real purpose, in light of the court’s analysis regarding the first prong of the *Lemon* test, can be to advance religion.<sup>120</sup>

With regard to the third prong of the *Lemon* test, the statute was also found to involve excessive government entanglement in violation of the establishment clause.<sup>121</sup> Though the statute expressly prohibited teaching and

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115. *Id.* at 1265.

116. McLean, 529 F. Supp. at 1265.

117. *See id.* at 1267 (explaining that for a purported theory to be considered scientific, “the essential characteristics of science are: (1) It is guided by natural law; (2) It has to be explanatory by reference to natural law; (3) It is testable against the empirical world; (4) Its conclusions are tentative, i.e., are not necessarily the final word; and (5) It is falsifiable”).

118. *Id.*

119. *Id.* at 1267, 1269.

120. *Id.* at 1272.

121. McLean, 529 F. Supp. at 1272.

referencing religious documents,<sup>122</sup> the court determined there was no way to devote equal time to teaching evolution and creation science without referencing religious and similar texts. Otherwise, schools would be forced to refrain from using traditional science textbooks to teach evolution.<sup>123</sup> Additionally, a teacher could not posit the theory of “sudden creation” or the existence of a great flood without referencing the Bible.<sup>124</sup> Thus, “entanglement with religion [was] inevitable under [the statute].”<sup>125</sup>

#### 4. *Edwards v. Aguillard*

Just five years after *McLean*, the Supreme Court decided *Edwards v. Aguillard*,<sup>126</sup> a case with similar facts to *McLean* involving a Louisiana “balanced treatment” law. Using the *Lemon* test to determine whether the law violated the establishment clause, the Court held that the law was unconstitutional because evidence suggested that the statute’s purpose was not secular, thus violating the first prong of the *Lemon* test.<sup>127</sup> The Court acknowledged deference to the stated legislative purpose of the statute, which was to “protect academic freedom,”<sup>128</sup> but required that the purpose be “sincere and not a sham.”<sup>129</sup> The Court found that the bill’s author intended to narrow the curriculum and therefore could not be viewed as protecting academic “freedom.”<sup>130</sup> Additionally, teachers already possessed a certain flexibility that allowed them to present additional theories about the origins of life as long as they were established in fact and deemed to be valid scientific concepts.<sup>131</sup> The Court went on to point out that teaching several scientific theories, even those contradictory to each other, might be valid if done with a secular intent of

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122. *Id.*

123. *Id.*

124. *Id.*

125. *Id.* at 1272.

126. 482 U.S. 578 (1987).

127. *Id.* at 585-86.

128. *Id.* at 586.

129. *Id.* at 587.

130. *Id.*

131. *Id.* at 587 (noting that the court of appeals found that “no law prohibited Louisiana public school teachers from teaching any scientific theory” and that the law “provides Louisiana school teachers with no new authority”).

“enhancing the effectiveness of science instruction.”<sup>132</sup> Indeed, some commentators have characterized this analysis as more flexible than that of *McLean*, and as an opening for the teaching of theories other than evolution.<sup>133</sup>

In addition to impeding the stated legislative goal of fostering academic freedom, the history and context behind the statute also suggested the non-secular purpose of teaching certain religious doctrines.<sup>134</sup> Similar to the analysis in *McLean*, the definition of creation science was held to include a “belief in the existence of a supernatural creator.”<sup>135</sup> Of particular note was the testimony of a leading expert in creation science who stated that “‘creation scientists’ point to a high probability that life was ‘created by an intelligent mind.’”<sup>136</sup> Based on this evidence, the Court concluded that the statute’s real purpose was to provide an advantage to a religious doctrine that directly contradicted evolutionary theory and thus sought to endorse a religious viewpoint.<sup>137</sup>

##### 5. *Freiler v. Tangipahoa Parish Board of Education*

The most recent case to address the creationism-evolution controversy is *Freiler v. Tangipahoa Parish Board of Education*,<sup>138</sup> involving a school board resolution requiring that a disclaimer be read prior to teaching evolution.<sup>139</sup> The disclaimer was held unconstitutional under the “purpose” prong of the *Lemon* test.<sup>140</sup> Though adopted at least in part to encourage “critical thinking,” the court was persuaded that the disclaimer had a non-secular purpose for several reasons: it was adopted only in reference to the theory of evolution, board meeting minutes and hearings revealed religious reasons underlying its adoption, and the disclaimer did not grant any new privileges to teachers.<sup>141</sup> The court held that “if there is no

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132. Edwards, 482 U.S. at 594.

133. See House, *supra* note 83, at 420 (explaining that presentation of additional theories might be “validly done with the clear secular intent of enhancing the effectiveness of science instruction”).

134. Edwards, 482 U.S. at 591.

135. *Id.*

136. *Id.*

137. *Id.* at 592-93.

138. 975 F. Supp. 819 (E.D. La. 1997), *aff’d*, 185 F.3d 337 (5th Cir. 1999).

139. *Id.* at 820.

140. See *id.* at 829 (stating that “[a]s hard as it tries to, this Court cannot glean any secular purpose to this disclaimer”).

141. *Id.* at 828-29.

clearly secular purpose . . . the Court is left with but two conclusions: (1) the Act was enacted for religious purposes, or to convey a message of endorsement of religion; or (2) the Act had no purpose.”<sup>142</sup> Unless the court could find that the Act was passed for no purpose, the only conclusion left is that it was religious.<sup>143</sup>

### C. INTELLIGENT DESIGN JURISPRUDENCE

#### 1. *Kitzmiller v. Dover Area School District*

*Kitzmiller v. Dover Area School District*<sup>144</sup> was the first case to directly address the constitutionality of teaching intelligent design in public schools. In October 2004, the Dover, Pennsylvania Area School District Board of Directors adopted a resolution stating that students in the district would be made aware of the “gaps/problems in Darwin’s theory and of other theories of evolution including, but not limited to, intelligent design.”<sup>145</sup> Pursuant to that resolution, teachers were required to read a statement to ninth grade biology classes stating, among other things, that (1) Darwin’s theory of evolution was not “fact,” (2) there are gaps in Darwin’s theory of evolution for which there is no evidence, (3) “[i]ntelligent [d]esign is an explanation of the origin of life that differs from Darwin’s view,” and (4) the reference book *Of Pandas and People* was available for students who would like to learn more about intelligent design.<sup>146</sup> In considering the challenge to the school board’s decision to require students to hear this statement, the district court parted ways with prior cases involving the teaching of creationism and employed both the *Lemon* test and the endorsement test to ultimately hold the school board’s policy on intelligent design unconstitutional.<sup>147</sup>

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142. *Id.* at 829.

143. *Id.*

144. 400 F. Supp. 2d 707 (M.D. Pa. 2005).

145. *Id.* at 708.

146. *Id.* at 708-09.

147. *Id.* at 712-13. The Court explained that the *Lemon* test has traditionally been used to examine similar cases involving creationism, while the endorsement test, developed after *Epperson v. Arkansas*, 393 U.S. 97 (1968), was created to conceptualize the *Lemon* test. *Id.* at 713. The endorsement test has been employed by the Third Circuit in all types of establishment clause cases, “notably cases involving religion in public-school settings.” *Id.* at 712.

When applying both tests, the endorsement test is distinct from, and should be applied before, the *Lemon* test.<sup>148</sup> Additionally, though the court considered it appropriate to apply both tests, the *Kitzmiller* court alluded to the fact that a finding of religious purpose or effect under either test would be sufficient to hold a state action unconstitutional.<sup>149</sup> The *Kitzmiller* decision is of seminal importance in the origins debate because it attempts to definitively answer questions regarding the religious and scientific nature of intelligent design.

a. Application of the Endorsement Test

In *Kitzmiller*, the court examined the endorsement question from both the position of a Dover Area High School student and a reasonable, objective adult observer.<sup>150</sup> Before considering the question of perceived endorsement, the court took a slight detour to consider the historical context in which the intelligent design movement arose as a framework to determine the meaning of the school board's actions.<sup>151</sup> The court observed that opposition to teaching evolution is certainly nothing new.<sup>152</sup> Beginning with a "fundamentalist religious fervor" in the 1920s that resulted in the passage of laws prohibiting the teaching of evolution<sup>153</sup> and continuing with the introduction of "balanced treatment laws"<sup>154</sup> and the "cloaking of religious beliefs in scientific sounding language" known as creation science,<sup>155</sup> efforts to suppress the teaching of evolution have a long history with little, if any, success. The decision in

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148. See *id.* at 714 (holding that the "Third Circuit conducted the endorsement inquiry first and subsequently measured the challenged conduct against *Lemon's* 'purpose' and 'effect' standards").

149. See generally *id.* at 746 (holding that even though the school board's conduct "conveys a strong message of endorsement . . . the better practice . . . [is to] also evaluate the challenged conduct separately under the *Lemon* test").

150. *Kitzmiller*, 400 F. Supp. 2d at 715-16.

151. *Id.* at 716.

152. See *id.* (discussing the history of attempts by Christian fundamentalists to suppress the teaching of evolution).

153. See *id.*; see, e.g., *Epperson v. Arkansas*, 393 U.S. 97 (1968); *Scopes v. State*, 289 S.W. 363 (Tenn. 1927).

154. See *Kitzmiller*, 400 F. Supp. 2d at 716; see, e.g., *Edwards v. Aguillard*, 482 U.S. 578 (1987); *McLean v. Ark. Bd. of Educ.*, 529 F. Supp. 1255 (E.D. Ark. 1982).

155. See *Kitzmiller*, 400 F. Supp. 2d at 717; see, e.g., *McLean v. Ark. Bd. of Educ.*, 529 F. Supp. 1255 (E.D. Ark. 1982).



*Edwards v. Aguillard*,<sup>156</sup> prohibiting the teaching of creation science in public schools, delivered the final blow to creationism, but it also appears to be the point at which the current intelligent design movement was born.<sup>157</sup> Rather than having its basis in new scientific ideas, the *Kitzmiller* court held that intelligent design appears to be an old idea developed by religious philosophers to support the existence of God, couched in scientific language.<sup>158</sup> Statements made by intelligent design supporters and organizations show that it is an idea following a religious tradition rather than a departure from such thought that would qualify it for different treatment than that bestowed upon creationism.<sup>159</sup> Moreover, the central tenet of intelligent design, which relies inherently on a supernatural explanation for its validity, by definition qualifies it as a religious viewpoint.<sup>160</sup> Based on this evidence and analysis, the court held that a reasonable observer who was aware of the history and context of intelligent design and the efforts to suppress evolution, whether a student or adult, would know that intelligent design is simply a repackaged form of

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156. 482 U.S. 578 (1987).

157. *Kitzmiller*, 400 F. Supp. 2d at 718. The court explained that the textbook *Of Pandas and People*, offered by the Dover Area School District as a supplemental text to students who wished to learn more about intelligent design and often considered a leading reference source in the intelligent design movement, was originally authored before the decision in *Edwards* was handed down. *Id.* at 721. Before *Edwards*, the book had contained references to “creation science” with the identical definition now attributed to intelligent design. The authors appear to simply have substituted the phrase “intelligent design” for “creation science” after the *Edwards* decision once the latter became prohibited. *Id.*

158. *See id.* at 719 (explaining that the basic argument underlying intelligent design has been used by thirteenth-century theologian Thomas Aquinas and more recently by nineteenth-century theologian Reverend Paley).

159. *See id.* at 718-19 (illustrating intelligent design’s religious nature through statements of defense witnesses Michael Behe and Scott Minnich in which they admitted that the only difference between intelligent design and similar religious arguments was that intelligent design’s “official position’ does not acknowledge the designer as God”). The defense witnesses admitted that their personal belief is that the “intelligent designer” is in fact God. Additionally, plaintiff witness and theological expert John Haught testified that those familiar with “Western religious thought would immediately make the association that the tactically unnamed designer is God.” *Id.*

160. *See id.* at 720 (explaining that “[intelligent design’s] religious nature is evident because it involves a supernatural designer. . . . [and] [p]rominent [intelligent design] proponents have made abundantly clear that the designer is supernatural”).

creationism and thus an inherently religious viewpoint.<sup>161</sup>

At the threshold of determining whether an objective student would view the disclaimer as an endorsement of religion, the *Kitzmiller* court noted that compliance with the establishment clause is enforced with vigilance by the Supreme Court in elementary and secondary-school settings.<sup>162</sup> With this in mind, the court held that the language of the disclaimer and the context surrounding its adoption would lead an objective student, armed with knowledge of relevant social and legislative history, to interpret the disclaimer as an official endorsement of religion.<sup>163</sup>

The first two paragraphs of the four-paragraph disclaimer worked to discredit evolution in students' minds. The introductory language contained in the disclaimer informs students that "Pennsylvania Academic Standards require students to learn about Darwin's Theory of Evolution and eventually to take a standardized test of which evolution is a part."<sup>164</sup> Such a statement is required only as to the teaching of evolution, and no other aspect of the biology curriculum, or the curriculum for any other school course, receives such treatment.<sup>165</sup> The court held that this statement "disavows evolutionary theory by telling students that they have to learn about evolutionary theory [because the state requires it]," and not because it is actually a worthy part of a biology course.<sup>166</sup> The disclaimer's second paragraph plays on the common misconception regarding the fact-theory distinction, as explained above, by stating, "Darwin's theory is a Theory. . . . Theory is not a fact. Gaps in the Theory exist for which there is no evidence."<sup>167</sup> Again, the court noted that evolution is singled out as being the only portion of the science curriculum that is a "theory." The court determined that putting the spotlight on evolution, along with the language distorting the relation between a "fact" and a "theory," misleads students "by misrepresenting the scientific status of evolution and by telling students that they should regard it as singularly unreliable, or

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161. *See id.* at 723.

162. *Id.* at 723.

163. *Kitzmiller*, 400 F. Supp. 2d at 723.

164. *Id.* at 724.

165. *See id.*

166. *Id.*

167. *Kitzmiller*, 400 F. Supp. 2d at 725.

on shaky ground.”<sup>168</sup> By discrediting evolution as part of students’ science education, the disclaimer sets the stage for the introduction of intelligent design.

In stark contrast to the presentation of evolution in the first two paragraphs, paragraph three of the disclaimer suggests an alternative by stating that “[i]ntelligent [d]esign is an explanation of the origin of life that differs from Darwin’s view” and proceeds to notify students that the book *Of Pandas and People* will be available for students who wish to learn more about intelligent design.<sup>169</sup> The court noted several significant aspects about this paragraph that would lead a student to believe the school is endorsing religion. The disclaimer presents evolutionary theory as “Darwin’s view” and proceeds to direct students to *Of Pandas and People*, suggesting that it provides a viable scientific alternative.<sup>170</sup> This works to contrast Darwin’s now-disparaged “theory” with an alternative that has been offered “without [the same] qualification or cautionary note” as the theory of evolution.<sup>171</sup> The court noted that the disclaimer employs the same “‘contrived dualism’ that the court in *McLean* recognized to be a creationist tactic that has ‘no scientific factual basis or legitimate educational purpose.’”<sup>172</sup> This suggests religious endorsement because the disclaimer “juxtaposes the disavowal [of Darwin’s theory] with an urging to contemplate alternative religious concepts.”<sup>173</sup> The final paragraph of the disclaimer encourages students to “keep an open mind” with respect to theories.<sup>174</sup> Significantly, the court concluded that the disclaimer is similar to others found to be unconstitutional because it “encourage[es] students to keep an open mind and explore alternatives to evolution, [but] it offers no scientific alternative.”<sup>175</sup>

With regard to the history surrounding the curriculum change, the court, reasoning from the viewpoint of an objective and informed student, assumed that such a student would

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168. *Id.*

169. *Id.*

170. *Id.*

171. *Id.*

172. *Id.* at 725.

173. *Kitzmiller*, 400 F. Supp. 2d at 726.

174. *Id.*

175. *Id.*

know of relevant factors suggesting that the disclaimer was adopted with religious motivations.<sup>176</sup> First, such a student would know of the school board's "attempts to inject religious concepts into the science curriculum."<sup>177</sup> Second, a student would understand the significance of the school board's decision to target evolution, which, out of all subjects taught by public schools, has historically been the target of religious groups.<sup>178</sup> Finally, the mythical student is presumed to understand that the distortion of the fact-theory distinction is a tactic commonly used by groups seeking to discredit evolution and inject religious viewpoints into public education.<sup>179</sup>

Although the disclaimer was intended to be read to ninth grade biology students, the Dover Area School Board implemented the disclaimer publicly, qualifying the entire community as part of the "listening audience" for any messages conveyed.<sup>180</sup> Consequently, the court held that "when a governmental practice bearing on religion occurs within the view of the entire community, the reasonable observer is an objective, informed adult within the community at large . . . because they are part of the 'intended audience.'"<sup>181</sup> As a rule, when "members of the listening audience would perceive the district's conduct as endorsing religion . . . , then the conduct violates the [e]stablishment [c]ause."<sup>182</sup>

Several factors related to the adoption of the intelligent design policy were important in determining that an informed community member would view the disclaimer as an endorsement of religion. First, the community was drawn into the debate through public meetings where school board members "advocated for the intelligent design policy in

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176. *See id.* at 728.

177. *Id.*

178. *See id.* The *Kitzmiller* court acknowledged that this second factor "weighed heavily in the Supreme Court's decision to strike down the balanced-treatment law in *Edwards*, specifically that 'out of many possible science subjects taught in public schools, the legislature chose to affect the teaching of the one scientific theory that historically has been opposed by certain religious sects.'" *Id.* (quoting *Edwards v. Aguillard*, 482 U.S. 578, 593 (1987)).

179. *Kitzmiller*, 400 F. Supp. 2d at 728.

180. *See id.* at 729.

181. *See id.* (noting that if the community at large was not considered in such an endorsement analysis, the "government would be free and able to sponsor religious messages simply by declaring that those who share in the belief that it is espousing are the message's only intended recipients").

182. *Id.* at 733 (citing *Santa Fe Indep. Sch. Dist. v. Doe*, 530 U.S. 290, 308 (2000)).

expressly religious terms.”<sup>183</sup> Additionally, media reports and editorials concerning the school board’s actions reported the controversy in a religious light.<sup>184</sup> Second, in an effort to increase awareness and defend its decision, the Dover Area School Board distributed a special newsletter to every household in the school district explaining the curriculum change, discrediting evolution, and strongly advocating for intelligent design as a scientific alternative.<sup>185</sup> Finally, the perception of religious endorsement was illustrated by hundreds of letters to the editor sent to local newspapers discussing the intelligent design policy, both for and against, in religious terms.<sup>186</sup>

Because the objective adult observer is presumed to know the social and historical context surrounding the intelligent design movement and also the context in which the school board’s policy arose, the court determined the policy itself constituted religious endorsement.<sup>187</sup> Similar to the analysis used with respect to the perception of a Dover Area student, the court again concluded that the misleading use of the theory-fact distinction in the language of the disclaimer would be seen as “a loaded issue with religious undertones . . . [and] one of the latest strategies to dilute evolution,”<sup>188</sup> and, notably,

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183. *Id.* at 730 (referring to a public school board meeting where school board members spoke openly in favor of teaching creationism and disparaged the theory of evolution on religious grounds).

184. *Id.* at 733 (noting that twenty-eight out of forty-three editorials published in the *York Daily Record* regarding the intelligent design policy discussed it in religious terms).

185. *See* Kitzmiller, 400 F. Supp. 2d at 733 (explaining that the contents of the newsletter would have been seen as religious because they worked to discredit evolution while advocating intelligent design, a policy previously defended at school board meetings in religious terms). The court referenced specific instances where the newsletter discredited evolution in reaching the determination that it would be perceived as religious. Specifically, the newsletter suggested that “scientists engaged in trickery and doublespeak about the theory of evolution by stating, “The word evolution has several meanings, and those supporting Darwin’s theory of evolution use that confusion in definition to their advantage.” *Id.* at 731. Additionally, the newsletter advocated for intelligent design by claiming that “[t]he theory of intelligent design (ID) is a scientific theory that differs from Darwin’s view, and is endorsed by a growing number of credible scientists.” *Id.*

186. *See id.* at 733 (explaining that “letters to the editor and editorials are relevant and probative of the community’s collective social judgment that the challenged conduct advances religion”).

187. *Id.* at 731.

188. Kitzmiller, 400 F. Supp. 2d at 731 (citing *Selman v. Cobb Co. Sch.*

that by using this language, the school board was “aligning itself with proponents of religious theories of origin.”<sup>189</sup> Additionally, targeting evolution as a theory with “[g]aps and problems” and by singling out evolution, which historically has been opposed by religious groups, an objective adult would consider the treatment of evolution to be religious in nature.<sup>190</sup>

b. Application of the Lemon Test

Though the court concluded that the Dover intelligent design policy constituted religious endorsement, the court also evaluated the policy under the “purpose” and “effect” prongs of the *Lemon* test. At the outset, separate and apart from the endorsement analysis, the court noted that the *Lemon* test is disjunctive, and therefore a showing of an impermissibly religious purpose *or* effect would render the policy unconstitutional.<sup>191</sup>

i. Purpose Inquiry

In determining whether the school district acted with the “predominant” purpose of advancing religion, the court considered “the intelligent design policy’s language, ‘enlightened by its context and contemporaneous legislative history[,]’ including, in this case, the broader context of historical and ongoing religiously driven attempts to advance creationism while denigrating evolution.”<sup>192</sup> As in the context of creationism, purpose is in part determined by examining the chronology of events and actions leading to the passage of the intelligent design policy, including procedural anomalies and departures from the statements of the policy’s proponents.<sup>193</sup> Ultimately, the court held that the disclaimer’s language, specific legislative history, and context of its passage are evidence of a purpose to advance religion by discrediting evolution and introducing intelligent design, which by default

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Dist., 390 F. Supp. 2d 1286, 1304, 1307-08 (N.D. Ga. 2005)). Additionally, the court held that a reasonable observer would know that by using the “theory-not-fact” distinction, the school board was aligning itself with religious advocates. *Id.* at 732.

189. *Id.* (citing Selman, 390 F. Supp. 2d at 1308).

190. *Id.*

191. *Id.* at 746.

192. *Id.*

193. *Id.* at 747.

gains credibility.<sup>194</sup>

Because *Kitzmiller* is the first federal case to examine the constitutionality of intelligent design, and because the purpose of inquiry is by nature heavily fact-dependent, a discussion of relevant historical and legislative factors leading to the court's ultimate conclusion is extremely pertinent to an analysis of other similar policies, including the Kansas science standards discussed below. Several years before the passage of the intelligent design policy, Dover Area School Board members began to assert their beliefs about religion and its relation to science, including confronting biology teachers about the school district's then-current practice of teaching evolution.<sup>195</sup> In early 2004, the school board received legal and "scientific" advice from the Discovery Institute, a leading organization supporting intelligent design.<sup>196</sup> Subsequently, Discovery Institute representatives made an in-person presentation to the board about the legal ramifications of teaching intelligent design.<sup>197</sup> At school board meetings that followed, board members and other citizens openly commented about injecting creationism into the science curriculum,<sup>198</sup> and board members attempted—but failed—to block the purchase of an updated biology textbook.<sup>199</sup> Ultimately the textbook was purchased, but the school board obtained sixty copies of *Of Pandas and People* and forced its inclusion in the science curriculum.<sup>200</sup> The stage was now set for the creation and implementation of the disclaimer.

In late October 2004, the school board adopted a resolution

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194. *See id.*

195. *Kitzmiller*, 400 F. Supp. 2d at 748-50 (discussing the beginning of what the court considered the relevant sequence of events leading to the passage of the intelligent design policy, including comments of board member Bonsell about school prayer and creationism and meetings between biology teachers and school board members where the "fact-theory" issue and issues related to the origin of life were raised).

196. *See id.* at 750.

197. *See id.*

198. *See id.* at 751-52 (including comments from school board members about "teaching creationism and disparag[ing] the theory of evolution on religious grounds" and a comment from a board member's wife claiming that "evolution teaches nothing but lies").

199. *See id.* at 754.

200. *See id.* at 756 (explaining that the books were obtained through a gift from a local church, though the board members attempted to conceal the source of the donation).

amending the biology curriculum so that students would “be made aware of gaps/problems in Darwin’s theory” and would be made aware of intelligent design.<sup>201</sup> In passing the resolution, the board deviated from several normal procedural practices, including skipping the placement of the resolution on the agenda of a board planning meeting,<sup>202</sup> neglecting to solicit feedback from the Board Curriculum Committee, and failing to act on a recommendation that the resolution be considered by the Curriculum Committee.<sup>203</sup> The resolution was quickly submitted for a vote without allowing the science faculty to weigh in on the resolution-drafting process and ignoring opposition from the teachers.<sup>204</sup> Significantly, evidence showed that several board members did not have a sufficient understanding of intelligent design before voting for it and never attempted to solicit input from any science organizations or experts.<sup>205</sup>

Though Dover science teachers were given responsibility for preparing the disclaimer that would be read to students, the final version of the disclaimer contained very different language and communicated a different message than the draft originally prepared by the teachers.<sup>206</sup> The revised and final version of the disclaimer removed the language “dominant scientific theory” from the description of evolution and deleted the word “yet” from a sentence describing gaps in the theory of evolution, suggesting that Darwin’s theory would never be able to account for such evidence.<sup>207</sup> Additionally, the board refused to include language suggesting that a significant amount of evidence exists to support Darwin’s theory.<sup>208</sup> Once the text was finalized,<sup>209</sup> school administrators were compelled to read

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201. *Kitzmiller*, 400 F. Supp. 2d at 757.

202. *See id.*

203. *See id.*

204. *Id.* at 757-58.

205. *See id.* at 759 (noting that “[b]oard members who *voted for* the curriculum change testified at trial that they had utterly no grasp of [intelligent design]” and that the board never heard from “any person or organization with scientific expertise” nor did they “ever contact the NAS [National Academy of Sciences], the AAAS [American Association of the Advancement of Science], the National Science Teachers’ Association . . . or any other organization for information about [intelligent design]”).

206. *See id.* at 760.

207. *Kitzmiller*, 400 F. Supp. 2d at 760.

208. *See id.*

209. *See id.* at 761. The finalized text of the disclaimer reads:

The Pennsylvania Academic Standards require students to learn



the disclaimer to students after Dover Area biology teachers refused.<sup>210</sup>

Though the court gave a degree of deference to the school board's articulated secular purpose of "improving science education and encouraging students to exercise critical thinking skills," the board's actions suggested its purpose was religious.<sup>211</sup> Specifically, the board ignored all scientific resources and instead relied on organizations with "demonstrably religious, cultural, and legal missions," and voted for the policy advocating intelligent design without sufficient knowledge of what it entails.<sup>212</sup> Thus, the asserted purposes were "a sham and merely secondary to a religious objective."<sup>213</sup>

ii. Effect Inquiry

In conclusory fashion, the court noted that the "effect" prong of the *Lemon* test is answered in effect by the court's analysis under the endorsement test and because the court incorporated by reference those findings, it neglected to repeat them in this part of its analysis.<sup>214</sup>

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about Darwin's Theory of Evolution and eventually to take a standardized test of which evolution is a part. Because Darwin's Theory is a theory, it continues to be tested as new evidence is discovered. The Theory is not a fact. Gaps in the Theory exist for which there is no evidence. A theory is defined as a well-tested explanation that unifies a broad range of observations. Intelligent Design is an explanation of the origin of life that differs from Darwin's view. The reference book, *Of Pandas and People*, is available for students who might be interested in gaining an understanding of what Intelligent Design actually involves. With respect to any theory, students are encouraged to keep an open mind. The school leaves the discussion of the Origins of Life to individual students and their families. As a Standards-driven district, class instruction focuses upon preparing students to achieve proficiency on Standards-based assessments.

*Id.*

210. *Id.* at 761 (including the text of a memo sent by school teachers to the school board requesting their release from reading the disclaimer in class and stating that they disagreed with its language and underlying policy).

211. *Id.* at 762-63.

212. *Id.* at 763 (noting that the board did not consult science experts or organizations, but did work directly with the Discovery Institute and the Thomas Moore Law Center, two organizations known for promoting intelligent design and religion, respectively).

213. Kitzmiller, 400 F. Supp. 2d at 763.

214. *Id.*

Though the court in *Kitzmiller* did not chart a new course with regard to the direction of establishment clause jurisprudence, the court's exhaustive analysis of the history of intelligent design, including, notably, its discussion about whether intelligent design is in fact science, are of great importance in examining intelligent design in other contexts, including Kansas.

#### IV. KANSAS SCIENCE STANDARDS

##### A. KANSAS AT THE CENTER OF THE DEBATE

For approximately the last seven years, Kansas has been a recurring focal point in the debate over the theories of origin and appropriate classroom science curriculum. The controversy currently swirling in Kansas and surrounding science education standards began in the late 1990s. In August 1999, the Kansas Board of Education voted to adopt new science education standards drafted by a group of creationists and ardent anti-evolutionists from Missouri and Kansas.<sup>215</sup> The adopted standards deleted reference to the importance of evolution as a major unifying concept in science, omitted reference to the age of the earth and the Big Bang theory, and appeared to contain references to ideas normally associated with creation science.<sup>216</sup> In board of education elections in August 2000, just a year after the adoption of these standards, citizens ousted six members partially responsible for the adoption of the standards.<sup>217</sup> The newly elected board reinstated evolution into the Kansas science standards in early 2001.<sup>218</sup>

Now Kansas is again in the origins debate spotlight.<sup>219</sup>

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215. Marjorie George, *And Then God Created Kansas? The Evolution/Creationism Debate in America's Public Schools*, 149 U. PA. L. REV. 843, 866 (2001).

216. *Id.* (citing the removal of the concept of macroevolution from science standards and the inclusion of the language of "teaching with tolerance and respect" and "no evidence or analysis of evidence that contradicts a current science theory should be censored" in the newly adopted standards—language which arguably opens the door to teaching any sort of theory, including creation science).

217. *See* Rosenberg, *supra* note 1, at 622 (noting that Kansas voters chose to oust three of the six Board of Education members who voted for the standards).

218. *Id.*

219. *See* Wilgoren, *supra* note 10 (reporting that the current origins

After evolution-based science standards were reinstated in 2001, Kansans elected a predominantly conservative Board of Education that began to reevaluate the science standards, with particular emphasis on the role of teaching evolutionary theory.<sup>220</sup> The history and social context surrounding the adoption of the revised science standards contain several noteworthy events.

In June 2004, the board appointed a twenty-six member writing committee instructed to draft a new set of science standards.<sup>221</sup> The committee consisted of current and former science educators,<sup>222</sup> including William Harris, the Managing Director of the Intelligent Design Network, a prominent intelligent design organization.<sup>223</sup> Though the first review of the science standards called for few changes, eight members of the writing committee, led by Harris, submitted a minority report calling for changes consistent with intelligent design.<sup>224</sup> Before voting on the changes proposed by the minority of the writing committee, public hearings were held, at the urging of intelligent design supporters, to discuss the revisions.<sup>225</sup> The hearings lasted three days and consisted mostly of testimony from intelligent design advocates challenging the validity of evolutionary theory.<sup>226</sup> Notably, during the hearings committee member William Harris relied on intelligent design literature equating the scientific validity of intelligent design with the

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controversy in Kansas is similar to events in 1999).

220. See Diane Carroll, *Warning to Keep Revisions Issued: Kansas Board Targets Theory, Changes Encourage Evolution Criticism*, KANSAS CITY STAR, July 13, 2005, at B1.

221. *Id.*

222. See Kansas State Dep't of Educ., Science Standards Writing Committee, <http://www.ksde.org/outcomes/sciencestdcommittee.html> (last visited Feb. 28, 2006).

223. See Intelligent Design Network, People, <http://www.intelligentdesignnetwork.org/people.htm> (last visited Jan. 26, 2006) (including the biography of Intelligent Design Network Managing Director, William S. Harris, a listed member of the science standards writing committee).

224. See Carroll, *supra* note 220 (discussing the process by which the new science standards were drafted, including the report created by an eight-member minority of the science writing committee).

225. See David Kleppler, *Evolution Theory Called Impossible*, KANSAS CITY STAR, June 15, 2005, at B1.

226. See Laura Scott, *Blind to Science*, KANSAS CITY STAR, June 15, 2005, at B6.

validity of evolution in his presentation.<sup>227</sup> The three-member Board of Education panel that oversaw the hearings then recommended that the new science standards should strongly criticize evolution.<sup>228</sup> In response to the panel's recommendation, John Calvert, a leading intelligent design proponent, stated, "[T]hey validated what we've been asking for."<sup>229</sup>

Despite opposition from a large majority of the science writing committee, the Board of Education voted 6-4 to adopt the changes offered by the eight-member minority of the writing committee.<sup>230</sup> After the changes were adopted, the standards were sent back to the writing committee for review along with clear directions from the board's majority that the changes were to be left in place.<sup>231</sup> In a public letter to the board, the majority of the science writing committee criticized every change made by the board, charging that the changes employ "intelligent design-inspired language . . . [which] promotes a particular religious doctrine over mainstream religious views."<sup>232</sup> Similarly, prominent national and international scientists expressed their opposition to the proposed changes. A group of thirty-eight Nobel Prize winning scientists sent a letter expressing their disapproval of the revised standards, asserting that the board was attempting to inject intelligent design into the curriculum in a way that would harm students by blurring the line between religion and science.<sup>233</sup> Additionally, the National Academy of Sciences and

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227. See Wilgoren, *supra* note 10.

228. See David Kleppler, *Panel Calls for Lessons Criticizing Evolution*, KANSAS CITY STAR, June 10, 2005, at B1.

229. *Id.*

230. *Id.*

231. See Carroll, *supra* note 220 (explaining that the conservative members of the Board of Education instructed the science writing committee to "leave the changes alone").

232. See Diane Carroll, *Kansas Science Committee Challenges Board Changes*, KANSAS CITY STAR, Aug. 3, 2005, at B3; see also Letter from the Leadership of the Kansas Science Writing Committee to the Kansas State Board of Education, Response to the Changes to the Science Curriculum Standards (July 27, 2005) [hereinafter Writing Committee Letter], available at

<http://www.kansasscience2005.com/Response%20to%20Board%20by%20Writing%20Cmte%20August%202.pdf>.

233. See Letter from Nobel Laureates Initiative to the Kansas State Board of Education (Sept. 9, 2005), available at [http://www.kansasscience2005.com/nobel\\_letter\[1\].pdf](http://www.kansasscience2005.com/nobel_letter[1].pdf) (explaining that the Board of Education's proposed revisions impliedly endorse intelligent design

the National Science Teachers Organization echoed the sentiments of the Nobel laureates, and even denied the Board of Education permission to use their copyrighted materials because the revised standards single out evolution and change the definition of science to allow supernatural explanations.<sup>234</sup> Despite the criticisms from the local, national and international science community, the Board of Education voted to permanently adopt the changes in November 2005.<sup>235</sup>

Earlier, before the revisions were preliminarily adopted in June 2005, one conservative board member issued a newsletter, on state Board of Education letterhead, to all of her constituents to explain and bolster support for the new science standards.<sup>236</sup> She described evolution as an “age-old fairytale” with an “anti-god contempt and arrogance.”<sup>237</sup> Before asking her constituents to pray for her fellow board members who were advocating for the science standard revisions,<sup>238</sup> she also noted that she was a Christian and a creationist, and that by opposing the proposed changes to the science standards, she implied that other board members were anti-God.<sup>239</sup>

Accounts of the revised science standards and the process leading to their adoption were well-documented by both local and national media. For example, the *Kansas City Star* regularly reported about the actions of the Board of Education,<sup>240</sup> the science writing committee,<sup>241</sup> and the history of the origins debate in Kansas.<sup>242</sup> Leading national newspapers also covered both the developments related to the

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and urging the Board of Education to vote against the revised standards). The letter was endorsed by thirty-eight Nobel laureates. *Id.*

234. See Jodi Wilgoren, *Kansas Fight on Evolution Escalates*, N.Y. TIMES, Oct. 28, 2005, at A11.

235. Slevin, *supra* note 6.

236. See Kleppler, *supra* note 225.

237. See Connie Morris, *Kansas State Board of Education Newsletter*, at 1, available at <http://cjonline.com/images/061605/morrisnewsletter.pdf> (explaining that teachers should “present criticisms of Darwinism alongside the age-old fairytale of evolution”); see also Kleppler, *supra* note 225.

238. See Morris, *supra* note 237, at 3.

239. See *id.* at 1. After calling evolution “anti-God,” she goes on describe the Board of Education members who oppose her views as associated with evolution, and therefore “anti-God.” *Id.*

240. See, e.g., Kleppler, *supra* note 228.

241. See, e.g., Carroll, *supra* note 232.

242. See, e.g., Diane Carroll, *Evolution Defenders Reflect on Scopes*, KANSAS CITY STAR, July 9, 2005, at B4.

evolution debate in Kansas as well as the context of the broader origins controversy.<sup>243</sup> Such coverage nearly always included mention of the fact that critics of intelligent design consider it to be a religious viewpoint or the fact that the debate often evokes religious connotations.<sup>244</sup> Additionally, letters to the editor written by Kansans on both sides of the issue suggested that citizens were aware of the religious undertones of the controversy surrounding the science standards and the larger debate surrounding evolution.<sup>245</sup>

## B. SCIENCE STANDARDS LANGUAGE

At first glance, the adopted changes to the Kansas science

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243. See, e.g., Elisabeth Bumiller, *Bush Remarks Roil Debate over Teaching of Evolution*, N.Y. TIMES, Aug. 3, 2005, at A14 (discussing remarks made by President George W. Bush about teaching intelligent design in public schools); Jill Lawrence, *New School Year, New Battle over Evolution*, USA TODAY, Aug. 26, 2005, at 6A (discussing the then-upcoming case of *Kitzmiller v. Dover Area School District* and its role in the ongoing debate about evolution and whether intelligent design is scientific or religious); Slevin, *supra* note 6 (reporting the official adoption of the revised science standards by the Kansas Board of Education); Wilgoren, *supra* note 10.

244. See, e.g., Carroll, *supra* note 232 (reporting that the science writing committee stated “it is clear that intelligent design promotes a particular religious doctrine over mainstream religious views”); Kleppler, *supra* note 228 (reporting that “[c]ritics of the changes say they open the door for the teaching of creationism in public schools”); David Kleppler, *Evolution Politics Become Personal*, KANSAS CITY STAR, June 16, 2005, at A1 (including comments from a Kansas Board of Education member who thinks intelligent design is a religious doctrine and that it is “embedded” in the revised science standards); Slevin, *supra* note 6 (“Opposing board members accused Abrams and his colleagues of hiding behind a fiction of scientific inquiry to inject religion into science classrooms.”); Wilgoren, *supra* note 10 (explaining that “critics [of the revised science standards] contend they would open the door not just for those [intelligent design] teachings, but to creationism”).

245. See, e.g., *Letters*, KANSAS CITY STAR, Nov. 10, 2005, at B6 (including an “editor’s note” explaining that because of a high volume of mail received regarding the intelligent design-evolution debate, the entire column would be devoted to the topic); Judith Benson, Letter to the Editor, *They’re Proselytizing*, KANSAS CITY STAR, Nov. 10, 2005, at B6 (pointing out that “[u]sing the school system to further one’s own religious beliefs is shameful”); Robert Drummonds, Letter to the Editor, *Criticism is Healthy*, KANSAS CITY STAR, Nov. 10, 2005, at B6 (explaining that scientific debate is healthy and that evolution is a “theory with many flaws”); Susan Ramsdell, Letter to the Editor, *It’s Much Like 1999*, KANSAS CITY STAR, Nov. 10, 2005, at B6 (explaining that current events surrounding the revised science standards are “sadly reminiscent of the one in 1999” when “[t]hen, too, conservatives attempted to enforce their religious beliefs upon schoolchildren”); see also *Religion and Evolution*, KANSAS CITY STAR, Nov. 13, 2005, at B8 (explaining in an editorial written by newspaper staff that the goal of the Board of Education is a “faith-dominated society”).

standards appear to be minimal and undeserving of the controversy surrounding them. However, a careful review shows that most of the changes comport with language and views adopted by intelligent design proponents.<sup>246</sup>

The first group of notable changes affects the science standards' preface, which seeks to explain the mission, rationale, and vision of the Kansas science education.<sup>247</sup> These changes establish a foundation to explain the origins debate and specifically to criticize evolution in line with beliefs of intelligent design proponents.<sup>248</sup> First, the standards' mission statement was modified to state that science is intended to help students make "*informed* and reasoned" decisions, rather than simply "reasoned" decisions.<sup>249</sup> Second, the revised standards abandoned the former definition of science—"systematically seek[s] *natural* explanations"—in favor of a broader characterization: "a systematic method of continuing investigation . . . to lead to more adequate explanations of natural phenomena."<sup>250</sup> The slight change in the text is significant in that the revised standards no longer limit scientific explanations to those that are natural. Additionally, the new standards contain an added indicator informing students about "methods for testing hypotheses about the cause of a remote past event (historical hypothesis) that cannot be confirmed by experiment and/or direct observation."<sup>251</sup> Also, the new standards indicate that, in addition to evolutionary theory, other concepts such as "reverse engineering and end-directed thinking are used to understand the function of bio-systems and bio-information."<sup>252</sup> The new standards also include a paragraph titled "Patterns of Accumulated Changes" asserting that "the actual causes of many changes are currently unknown" and listing as examples of unknown changes the "origin of the universe . . . [and the] origin of life and the

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246. See Writing Committee Letter, *supra* note 232.

247. See KANSAS SCIENCE STANDARDS, *supra* note 13, at iv-xiii.

248. See Writing Committee Letter, *supra* note 232 (explaining that the language used in the revised science standards mirrors that used by intelligent design organizations because "their strategy is to create an opening so that 'alternative' theories to evolution can be introduced in the science classroom").

249. KANSAS SCIENCE STANDARDS, *supra* note 13, at iii.

250. *Id.* at ix.

251. *Id.* at 59.

252. *Id.* at 77.

genetic code.”<sup>253</sup> Importantly, the former standards, and the theory of evolution in general, did not position the area of “cumulative change” as including a discussion regarding the origin of life, a topic typically addressed by creationism and similar viewpoints.<sup>254</sup> The new standards also inform students that “the sequence of nucleotide bases within genes is not dictated by any known chemical or physical law.”<sup>255</sup> Notably, the revised standards expressly state that they do not mandate the teaching of intelligent design, but make clear that they do not “prohibit teaching about this scientific disagreement.”<sup>256</sup> While not mandating its teaching, the standards label intelligent design as “scientific” and implicitly encourage its teaching when deemed appropriate. Finally, in discussing the historical perspective of science, the new standards add language that “modern science can sometimes be abused by scientists and policymakers, leading to significant negative consequences for society and violations for human dignity.”<sup>257</sup>

The revised science standards also contain significant changes with regard to increasing students’ understanding about evolution, which, notably, is the only scientific theory that is substantially changed by the science standards.<sup>258</sup> First, the new standards assert that “biological evolution postulates an unguided natural process that has no discernable direction or goal,”<sup>259</sup> and that biological evolution is a theory that “seeks to explain,” rather than actually explaining, certain natural phenomena.<sup>260</sup> Second, the new standards challenge the validity of evolution by stating that “the view that living things . . . are modified descendants of a common ancestor . . . has been challenged in recent years,” and list supporting biological examples, including discrepancies in the fossil record

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253. *Id.* at xi. Importantly, the former standards did not include a discussion of the origin of life in the study of “cumulative change.”

254. *See generally supra* text accompanying note 16 (noting that creationism adheres to the belief that God is the origin of the universe).

255. KANSAS SCIENCE STANDARDS, *supra* note 13, at 73.

256. *Id.* at ii.

257. *Id.* at 103.

258. *See* Summary of Key Changes to Kansas Science Standards Adopted by the Kansas Board of Education on November 8, 2005, at 1-2 [hereinafter Summary of Key Changes], available at [http://www.kansasscience2005.com/Draft\\_2\\_Changes\\_added\\_by\\_board\\_as\\_of\\_8905.pdf](http://www.kansasscience2005.com/Draft_2_Changes_added_by_board_as_of_8905.pdf) (illustrating that evolution is the only scientific theory receiving significant changes).

259. KANSAS SCIENCE STANDARDS, *supra* note 13, at 75.

260. *Id.* at xi.



during the “Cambrian Explosion.”<sup>261</sup> Third, the new standards explain that genetic traits modified by random mutation, except in very rare cases, “are neutral, deleterious or fatal.”<sup>262</sup> In short, the standards explain that, in all but the most unusual cases, genetic modification—the foundation of evolutionary theory<sup>263</sup>—has negative consequences. Finally, the new standards include language suggesting that the view that microevolution can explain macroevolution is controversial.<sup>264</sup> Notably, the language used to explain the controversy surrounding macroevolution includes reference to “irreducibly complex” systems, an idea and terminology central to the “scientific” support for intelligent design.<sup>265</sup>

## V. TAKING A CLOSER LOOK AT THE KANSAS SCIENCE STANDARDS

### A. THE KANSAS SCIENCE STANDARDS ADVOCATE INTELLIGENT DESIGN

Unlike *Kitzmiller*, in which the challenged disclaimer specifically advocated intelligent design, the Kansas science standards more subtly promote intelligent design. Although

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261. *Id.* at 75. The revised science standards include the following language regarding the view that all living things descended from a common ancestor:

The view that living things in all the major kingdoms are modified descendants of a common ancestor (described in the pattern of a branching tree) has been challenged in recent years by:

i. Discrepancies in the molecular evidence (e.g. differences in relatedness inferred from sequence studies of different proteins) previously thought to support that view.

ii. A fossil record that show sudden bursts of increased complexity (the Cambrian Explosion), long periods of stasis and the absence of abundant transitional forms rather than steady gradual increases in complexity.

iii. Studies that show animals follow different rather than identical early stages of embryological development.

*Id.* at 75-76.

262. *Id.* at 76.

263. *See supra* note 31 and accompanying text.

264. KANSAS SCIENCE STANDARDS, *supra* note 13, at 76. The new standards include the language: “whether microevolution (changes within a species) can be extrapolated to explain macroevolutionary changes (such as new complex organs or body plans and new biochemical systems which appear irreducibly complex) is controversial.” *Id.* at 75.

265. *See id.* at 76.

the revised standards expressly state that they do not advocate for intelligent design or theories other than evolution,<sup>266</sup> the language and the circumstances surrounding their creation and adoption speak to the contrary.

The revised Kansas science standards employ language consistent with the educational policies of intelligent design organizations and adopt arguments commonly used by intelligent design advocates. First, by adding “informed” to the standards’ purpose statement and removing the criteria requiring that scientific explanations have a natural basis, the new standards open the door to teaching students about *any* controversy surrounding evolution and to teaching theories that do not comport with a traditional definition of science. The new standards require only that “theories” explain the same natural phenomena that scientific theories seek to explain, but do not require that these explanations have naturalistic foundations. Further, the new science standards attempt to introduce students to perceived weaknesses in evolutionary theory by claiming that evolution has no goal, and that, far from being an established theory, evolution’s central tenets are actually controversial, and in some cases even damaging to the theory. Also, as noted above, the standards contain reference to “irreducibly complex” systems, a phrase coined by a leading proponent of intelligent design and a key concept in the primary “scientific” argument purportedly supporting intelligent design. Taken together, the amended portions of the science standard faithfully echo the traditional argument of intelligent design advocates: evolutionary theory cannot adequately explain complex biological processes and investigation into alternative explanations not limited by traditional notions of naturalism is warranted. All of these factors lead inescapably to the conclusion that the revised language of the science standards is in fact a barely veiled attempt to discredit the scientific validity of evolution and to promote the exploration of alternative theories, particularly intelligent design. Arguably, since intelligent design is not mandatory, the standards do not serve to advocate its teaching. However, the text and the history of the science standards’ amendments—drafted and heralded by leading intelligent design advocates—undermine the conclusion that the intelligent design movement and its advocates did not drive the

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266. *See id.* at ii.

changes.

The context surrounding the creation and adoption of the standards further supports the conclusion that they advocate the teaching of intelligent design. As noted above, the revisions adopted by the Board of Education were written by a minority of the science writing committee led by a prominent intelligent design advocate and were in line with changes advocated by intelligent design groups. While it is possible that the amended science standards are not veiled references to intelligent design, the obvious influence of its supporters in combination with the revised text suggest that such a coincidence is extremely unlikely. A simple question posed by a student about any of the revised language may require a teacher to discuss alternative explanations, including intelligent design, or to simply not address the question. If the mission of the revised standards is to make students informed, it is difficult to see how a teacher could avoid broaching the topic.

#### B. INTELLIGENT DESIGN *IS NOT* SCIENCE

Central to the constitutional inquiry of whether intelligent design can be taught in public school science classrooms is whether, as an alternative explanation to evolution, it is in fact science. If intelligent design could be shown to be a scientific pursuit, arguments against its inclusion in educational settings would certainly lose strength. Conversely, given intelligent design's origins and connection to certain religious movements, a conclusion that it is in fact not science would lend additional credence to arguments that it is inspired by religion. The *Kitzmiller* court found itself in a unique position to determine this question conclusively. Because the court had access to voluminous records produced through discovery and heard testimony from witnesses both supporting and criticizing intelligent design, the court was able to examine evidence thoroughly in a way that had never occurred with regard to intelligent design. Before the trial, the battle surrounding the scientific validity of intelligent design had been waged primarily in the cultural arena in the form of presentations, debates, editorials, and the like. With *Kitzmiller*, however, intelligent design was quite literally *on trial*, and its supporters were faced with the task of convincing an impartial tribunal that it is in fact real science and not just religion dressed as science. After a six-week trial, the *Kitzmiller* court put forth an

exhaustive explanation detailing why intelligent design *is not* science.

Quite simply, science is limited to the search for “natural explanations to explain natural phenomena.”<sup>267</sup> This means that scientific inquiries are by definition limited to “testable, natural explanations about the natural world,” requiring scientists to “seek explanations in the world around us based on what we can observe, test, replicate and verify.”<sup>268</sup> This general rule forms the basis of the scientific method.<sup>269</sup> Though the roots of this method can be traced to the scientific revolution that occurred hundreds of years ago, highly respected, modern scientific organizations such as the National Academy of Sciences agree that science is a “particular way of knowing about the world . . . limited to empirical, observable and ultimately testable data . . . that can be substantiated by other scientists.”<sup>270</sup> Conversely, acceptance of supernatural or other explanations outside the realm of the natural world are by definition not scientific because they are not testable and cannot be disproved.<sup>271</sup> This is the case with intelligent design, which attempts to take a natural phenomenon—the appearance of a designed structure in some form—and infer the supernatural explanation of an “intelligent designer.”<sup>272</sup> Because there is no possible way to test for the presence of an intelligent designer, the acceptance of this explanation is supernatural<sup>273</sup> and requires an assumption that such a

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267. See *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 735 (M.D. Pa. 2005) (explaining that science has been limited to “natural” causes and phenomena since the scientific revolution four centuries ago). Unlike scientific thought before the scientific revolution, which may have included religious or other supernatural explanations, modern science “does not consider issues of ‘meaning’ and ‘purpose,’” and “supernatural explanations . . . [are] not part of science.” *Id.*

268. *Id.*

269. See *id.* (laying out the ground rules for scientific inquiry, often referred to as “methodological naturalism,” including the characteristics of observable, testable, and falsifiable observations).

270. *Id.* at 735-36.

271. See *id.* at 736 (noting the testimony of plaintiff’s lead expert who explained that “once you attribute a cause to an untestable supernatural force, a proposition cannot be disproven, [and] there is no reason to continue seeking natural explanations as we have our answer”).

272. See *id.* (comparing the supernatural proposition of intelligent design to the naturalistic rules of the scientific method).

273. *Kitzmiller*, 400 F. Supp. 2d at 736 (illustrating the supernatural underpinnings of intelligent design by stating “[intelligent design] takes a natural phenomenon and, instead of accepting or seeking a natural

supernatural entity actually exists.

Evidence of intelligent design's supernatural underpinnings was found in the testimony of defense experts supporting it and also through educational strategies championed by the Discovery Center. Defense experts conceded during trial that the intelligent design movement seeks to "change the ground rules of science to allow supernatural causation of the natural world,"<sup>274</sup> a concept previously determined to be inherently religious in creationism cases such as *Edwards* and *McLean*.<sup>275</sup> More importantly, testimony from these same defense experts, who were put on the stand to prove that intelligent design is scientific, admitted that to do so would *require* a broadened definition of science that permits supernatural explanations.<sup>276</sup> Further evidence of a mission to redefine science was found in what is known as the "Wedge Document," a multi-year, strategic plan created by the Discovery Institute to replace "scientific materialism" with an "understanding that nature and human beings are created by God."<sup>277</sup> The *Kitzmiller* court found that the Wedge Document showed that the intelligent design movement's goal is to "replace science as currently practiced with 'theistic and Christian science'" and to achieve "nothing less than a complete scientific revolution."<sup>278</sup> Notably, all major scientific associations that have considered the issue have determined that intelligent design is in fact not science,<sup>279</sup> and it has not generated any peer-reviewed scientific publications.<sup>280</sup>

Though the court in *Kitzmiller* concluded that the

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explanation, argues that the explanation is supernatural"). Also, the court noted that *Of Pandas and People*, the book employed by the school board as an intelligent design resource, explains the supernatural characteristics of intelligent design. *Id.*

274. *See id.*

275. *Id.*

276. *See id.*

277. *Id.* at 737.

278. *See id.*

279. *See Kitzmiller*, 400 F. Supp. 2d at 736 (explaining that organizations such as the National Academy of Sciences and the American Association for the Advancement of Science, two prominent and well-respected scientific entities, have concluded that intelligent design is not science).

280. *See id.* at 735. *But see* Discovery Inst., Peer-Reviewed & Peer-Edited Scientific Publications Supporting the Theory of Intelligent Design (Annotated) (2006), <http://www.discovery.org/scripts/viewDB/index.php?command=view&id=2640>.

reasoning just discussed is enough to determine the question of whether intelligent design is science, the court went on to consider the “scientific” arguments purported to support intelligent design and its attacks on evolution as further evidence that it is in fact not science.<sup>281</sup> First, the court held that intelligent design is based on the same “false dichotomy” employed by creationists in the 1980s.<sup>282</sup> Essentially, intelligent design supporters assert that “to the extent evolutionary theory is discredited, intelligent design is confirmed.”<sup>283</sup> By making negative arguments against evolution, intelligent design supporters attempt to bolster support for their claims by offering an “either-or” proposition—if support for one theory is lacking, it offers more support for the other. The court noted, however, that the simple fact that evolutionary science cannot currently explain every aspect of the biological evolution does not mean it will not happen in the future.<sup>284</sup> To this end, expert testimony showed that claims previously asserted by intelligent design supporters about lack of evidence explaining certain natural phenomena have since been refuted by scientific research.<sup>285</sup> Second, the concept of “irreducible complexity,” the main scientific argument of intelligent design, is not scientific and does not actually offer support for intelligent design.<sup>286</sup> Rather, it is merely a test of evolution that tends to ignore ways in which evolution has been proven to occur.<sup>287</sup> The “irreducibly complex” argument used to

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281. Kitzmiller, 400 F. Supp. 2d at 735.

282. See *id.* at 738 (comparing the tactics used by creationists that resulted in what the court in *McLean v. Arkansas Board of Education*, 529 F. Supp. 1255, 1258 (E.D. Ark. 1982) called a “contrived dualism” with those used by intelligent design supporters).

283. *Id.*

284. *Id.*

285. See Kitzmiller, 400 F. Supp. 2d at 738 (explaining that several claims made in *Of Pandas and People* assert that evolutionary theory has not or would not be able to explain certain biological phenomena).

286. See *id.* at 738 (including an admission from defense expert Minnich conceding that irreducible complexity is merely a negative argument against evolution and is not proof of design).

287. See *id.* at 739. Defense expert Behe, who first espoused the concept of irreducible complexity, admitted that it does not attempt to explain the central task of natural selection. Rather, irreducible complexity attempts to discredit evolution by claiming that if certain biological mechanisms are removed from “irreducibly complex” systems, that they will cease to function. However, natural selection attempts to explain how systems are initially created, not what happens to them if you remove parts after creation. Additionally, plaintiff experts showed the concept of irreducible complexity fails to

support intelligent design is in reality a negative argument against evolution and cannot logically be considered proof of design because it “fails to make a positive scientific case for [intelligent design].”<sup>288</sup> Finally, the court rejected the only positive argument offered by defense experts: that design can be detected through observation of the “purposeful arrangement of parts.”<sup>289</sup> This argument is based on the inference that because humans are intelligent creatures, and because they design things that have parts arranged for a purpose, we can infer “design” when we see structures containing similar characteristics in the natural world. However, as the court noted, this argument fails because the strength of the proposition depends on the similarity between the two processes, a similarity which is lacking.<sup>290</sup> Because human creations do not undergo the process of natural selection, and because we can readily identify the creator, this analogy fails to provide any support for the proposition that we can detect “design” that would warrant a conclusion that there is an “intelligent designer.”<sup>291</sup> Thus, because intelligent design depends on supernatural explanations, cannot be tested, and does not offer any positive proof supporting the explanation, the court held that intelligent design categorically cannot be considered science.<sup>292</sup>

### C. THE KANSAS SCIENCE STANDARDS VIOLATE THE ESTABLISHMENT CLAUSE

Consistent with the direction taken by the court in *Kitzmiller*, this Note will examine the Kansas science standards using both the endorsement test and the *Lemon* test,

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acknowledge a process called “exaptation,” by which a system changes functions through the process of evolution. *Id.*

288. *See id.* at 738 (explaining that “arguments against evolution are not arguments for design . . . just because scientists cannot explain today how biological systems evolved does not mean that they cannot, and will not, be able to explain them tomorrow”).

289. *Id.* at 741.

290. *Id.*

291. *See Kitzmiller*, 400 F. Supp. 2d at 742 (explaining that “for human artifacts, we know the designer’s identity, human, and the mechanisms of design, as we have experience based upon empirical evidence that humans can make such things, as well as many other attributes including the designer’s abilities, needs and desires”).

292. *Id.* at 742-46.

though, as explained, either test would provide an independent dispositive outcome.<sup>293</sup> Under both tests, the Kansas science standards constitute a violation of the establishment clause.

#### 1. The Kansas Science Standards Unconstitutionally Endorse Religion

As discussed, government is prohibited from conveying messages to audiences suggesting preference or favor toward religious beliefs.<sup>294</sup> Applying the reasoning of the *Kitzmilller* court, it becomes apparent that the science standards endorse religion when viewed from the position of a “reasonable, objective observer”<sup>295</sup> familiar with the language, history, and context particular to events in Kansas. Because the Kansas science standards involve both student and adult audiences, as was the case in *Kitzmilller*, each audience will be examined.

At the outset of this analysis, it is important to again note that a student interpreting any messages conveyed by the government is considered to be familiar with the history of the religion-evolution controversy, and to understand that intelligent design is religious and not scientific, that it descended directly from earlier attempts to inject creationism into public schools, and that, as discussed above, the science standards contain elements suggesting endorsement of intelligent design.<sup>296</sup> With that in mind, the language contained in the science standards suggests religious endorsement. First, as discussed above, the very definition of science is modified to allow for supernatural explanations of natural events, a change that is required for intelligent design to be considered science. Second, evolution is singled out as the only scientific theory needing change and then disavowed through harsh criticism of its validity and explanatory power as scientific theory. In finding that a student would interpret the Dover intelligent design policy as religious endorsement, the court in *Kitzmilller* focused in part on the fact that intelligent design was portrayed as a viable scientific alternative to evolution, which the disclaimer worked to discredit.<sup>297</sup> Though

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293. *See id.* at 746 (holding that even though the school board’s conduct “conveys a strong message of endorsement . . . the better practice . . . [is to] also evaluate the challenged conduct separately under the *Lemon* test”).

294. *See* County of Allegheny v. ACLU, 492 U.S. 573, 593 (1989).

295. *See* *Kitzmilller*, 400 F. Supp. 2d at 714-15.

296. *See id.*

297. *See id.* at 725 (explaining that evolution is presented as a suspect



the Kansas science standards do not contain a direct comparison between evolution and intelligent design, as in *Kitzmiller*, they offer more comprehensive changes affecting the definitions of science and evolution that provide equally strong support for an endorsement conclusion. As noted, the standards change the very definition of science to allow for supernatural explanations and also attempt to discredit the theory of evolution by repeatedly suggesting that it is controversial and by listing numerous examples of its alleged shortcomings. Thus, a student familiar with the religious history of the intelligent design movement and its tactics relating to education curriculum would view both the nature and the breadth of the changes to the Kansas science standards as an endorsement of religion through indirect attempts to promote alternative theories not based in nature, including intelligent design.

Similarly, when viewed in light of the history surrounding the intelligent design movement as a whole, and in the context of the evolution debate in Kansas in particular, such a student would view the process leading to the adoption of the science standards as an endorsement of religion. The fact that the Board of Education chose specifically to target evolution is particularly telling, especially when viewed in relation to the choice to enlist the help of an intelligent design organization in the drafting of the standards while ignoring the opposition of a majority of the science writing committee. Additionally, the intelligent design-inspired standards were adopted despite severe public criticism from internationally renowned scientists and prominent national science organizations. When viewed as a whole, an objective student could readily see the new science standards as an endorsement of religion.

Likewise, an informed, objective adult would also view both the language of and context surrounding the standards as an endorsement of religion. Though the implementation of the science standards through classroom instruction and standardized testing will arguably affect only students, the larger community was drawn into the process through the public nature of the standards' drafting and adoption process and the local and national publicity generated by the controversy. Admittedly, unlike the intelligent design policy

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scientific theory while intelligent design is offered as an alternative without any qualifying language that would call into question its scientific validity).

struck down in *Kitzmiller*, the Kansas science standards appear to have been drafted and adopted without the same degree of overtly religious fanfare that permeated the process in Dover, Pennsylvania.<sup>298</sup> A citizen of Kansas, however, presumably would be familiar with the 1999 attempts to remove evolution from Kansas science standards, and given the citizen's imputed knowledge of intelligent design and the intelligent design movement, the recent actions of the Board of Education targeting evolution with the aid of prominent intelligent design organizations would be viewed as an overt attempt to inject religious beliefs into classrooms. The citizen, like the student, would also readily infer religious endorsement by the Board of Education's decision to adopt the standards in direct opposition to a majority of the science writing committee and national science organizations.

Kansans were also drawn into the audience of the Board of Education's actions through the reports in local and national media, and specifically through a newsletter distributed by a board member who supported the changes made to the standards. As discussed above, the newsletter expressly denied any attempt to insert creationism or intelligent design into public schools. Immediately after that claim, however, the author went on to attack evolution vehemently as "anti-God," and convey in no uncertain terms her personal creationist beliefs. Though its author claims otherwise, the newsletter defends the revised science standards through overt religious remarks and implications. It is difficult to imagine an objective, informed citizen, especially one familiar with the history of anti-evolution efforts and the intelligent design movement, construing the science standards as endorsed by the newsletter as being non-religious. In addition, the science standards raised public awareness as evidenced by Kansans voicing their concerns through letters to the editor. Against this backdrop of public perception, and in combination with historical knowledge of the intelligent design movement, the general changes made by the Board of Education, such as the targeting and discrediting of evolution, would be perceived as religious endorsement by an objective, informed Kansan in violation of the establishment clause.

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298. See *id.* at 730-33 (explaining that the Dover policy was advocated and defended by its supporters in "expressly religious terms," including express mention of creationism, and that the Dover policy was often framed in a religious light in local media).

## 2. Applying the *Lemon* Test

### a. Analyzing Purpose

Analyzing the Kansas science standards under the first prong of the *Lemon* test, it is clear that the standards do not have a secular purpose. It should be noted that *Epperson* and *Edwards* both established that religious viewpoints can be discussed in school as long as the purpose of the presentation is historic and objective,<sup>299</sup> and that teachers possess a certain degree of flexibility with regard to presenting alternative theories in science classrooms provided those theories are grounded in objective science.<sup>300</sup> Based on these two caveats, supporters of the science standards would claim that they have strong arguments favoring constitutionality. However, closer examination of the standards shows a predominantly religious purpose that overcomes these potential exceptions.

Similar to the statutes at issue in *Epperson*, *McLean*, and *Edwards*, which expressly denied a religious purpose, the Kansas science standards contain language asserting a secular purpose of academic development,<sup>301</sup> and language expressly denying advocacy of intelligent design.<sup>302</sup> Taken at face value, this would suggest a purpose that would pass the first prong of the *Lemon* test. However, as the decisions in *Epperson*, *McLean*, *Edwards*, and most recently, *Kitzmiller*, noted, courts are not limited to such statements, and the true purpose, as is true in the case of the Kansas science standards, is best found by examining the history and context behind the passage of the law.<sup>303</sup> There are several factors evident in the history of the revised Kansas science standards that strongly suggest they were passed to encourage the teaching of intelligent design and also for religious reasons.

First, the debate surrounding proper science standards and the appropriate role of evolution is familiar to Kansans. Just

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299. See *Epperson v. Arkansas*, 393 U.S. 97, 271 (1968).

300. See *Edwards v. Aguillard*, 482 U.S. 578, 587 (1987).

301. See KANSAS SCIENCE STANDARDS, *supra* note 13, at iv.

302. See *id.* at ii.

303. See *supra* text accompanying notes 105 and 128 (explaining in each case that while the court owes a certain amount of deference to stated legislative purpose, they are not limited to determining the true purpose only from that source, and that legislative history and general context of the statute are sources the court should examine).

seven years before the adoption of the new standards, a similarly motivated Board of Education voted to adopt standards that seriously diminished the role of evolution in the state's science curriculum. Though more evolution-friendly standards were adopted soon after, there are strong similarities between the events of the late 1990s and recent actions leading to the adoption of the Kansas science standards. The court in *McLean* found relevant, in holding the "balanced treatment" law unconstitutional, the fact that the state of Arkansas had a history of opposition to evolution that was motivated by religious beliefs.<sup>304</sup> Similarly, there exists a history of anti-evolutionary sentiment evident in Kansas that was present in the late 1990s, and can be readily seen in the events surrounding the adoption of the most recent revised standards.

Second, though some of the more general statements in the revised science standards could be interpreted to apply to all scientific disciplines, the vast majority of changes and the focus of the revised standards involve only evolutionary theory. Though it may be possible that only a certain section of a given set of education standards would need revision, the history and other contextual factors discussed below suggest that the focus on evolution was not arbitrary or coincidental. The sole focus on evolution is consistent with historical efforts by religious groups. Indeed, in *Tangipahoa Parish* and *Kitzmiller*, the courts considered relevant to their holdings the fact that the only scientific theory targeted was evolution.<sup>305</sup>

Third, the process by which the new standards were written and adopted includes highly irregular events that strongly suggest a non-secular purpose. The Board of Education created a writing committee to study and propose changes to the current standards. However, the board chose to ignore the opinions of a majority of the committee and adopt

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304. *McLean v. Ark. Bd. of Educ.*, 529 F. Supp. 1255, 1263 (E.D. Ark. 1982) (explaining that one relevant factor in the court's analysis surrounding the law in question was the history of anti-evolutionary sentiment in Arkansas).

305. See generally *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 732 (M.D. Pa. 2005) (explaining that an informed, objective adult from Dover, Pennsylvania, would perceive religious endorsement in part because the "Dover School Board singles out the scientific theory of evolution"); *Freiler v. Tangipahoa Parish Bd. of Educ.*, 975 F. Supp. 819, 826-28 (E.D. La. 1997), *aff'd*, 185 F.3d 337 (5th Cir. 1999) (explaining that the school board's focus on evolution was suspicious given the fact that science teachers and students already possessed the ability to question the validity and tenants of evolutionary theory, and subsequently, the disclaimer ultimately held unconstitutional by the court was not required).

changes suggested by a minority of the committee headed by a prominent intelligent design proponent. And, after the initial changes were reviewed, the board again asked the science writing committee to review the changes, but with explicit directions to keep the changes as adopted by the conservative majority of the Board of Education. This seemingly ignores the advisory role of the science writing committee, suggesting a predisposition to adopting the minority's intelligent design-influenced language rather than allowing open and objective criticism of the proposed changes. Adding further support to this conclusion is the vehement public opposition to the changes issued by a majority of the science writing committee, Nobel laureates, and leading scientific organizations. Though the writing and approval processes did not occur in a legislative setting, it has relevant similarities to the suspect legislative process noted in *McLean* and *Kitzmiller* as contextual evidence of a non-secular purpose. Just as the law held unconstitutional in *McLean* had a noticeable lack of legitimate legislative debate,<sup>306</sup> so too do the Kansas science standards. To create an advisory science writing committee only to adopt proposed changes of a small minority of its members and then issue a warning to the committee with instructions to withhold the very advice they were charged to give is strikingly similar to the type of contextual evidence used by the court in *McLean* to strike down the balanced treatment law.<sup>307</sup>

Moreover, and as discussed above, the language of the standards adds further support to the conclusion of a non-secular purpose behind the standards. The standards contain language that follows the argumentative formula commonly employed by advocates of intelligent design, and contain terms and language coined by intelligent design proponents. Along with the history surrounding the standards, the conclusion that the standards in fact advocate intelligent design becomes clearer.

In light of the foregoing discussion, the reasoning in *Edwards* and *Tangipahoa Parish* offer additional support for finding a non-secular purpose underlying the revised science standards. As discussed previously, the Court in *Edwards* held that teachers inherently possess a degree of flexibility in

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306. *McLean*, 529 F. Supp. at 1262-64.

307. *See id.*

presenting alternative theories, as long as they are grounded in accepted science.<sup>308</sup> In *Tangipahoa Parish*, the court held that teachers have the flexibility to present alternative scientific theories that are based on fact and, because the disclaimer did not grant the teachers new authority, the statute's stated purpose was not actually furthered by the statute.<sup>309</sup> Similarly, Kansas school teachers currently have the authority to present additional theories based on fact and to offer criticism of evolutionary theory when warranted to increase students' understanding of the subject. Because the revised science standards do not expand these privileges, it is reasonable to conclude likewise that the purpose of expanding scientific knowledge is not actually achieved by the revised science standards. Additionally, as held by the court in *Tangipahoa Parish*, where there is no clearly secular purpose, the court is left to conclude that such an act had either a religious purpose or no purpose at all.<sup>310</sup> Because a reasonable conclusion can be drawn regarding the non-secular purpose of the science standards, it would be most reasonable to conclude based on the available options that the standards in fact have a religious purpose.

#### b. Analyzing Effect

As the court in *Kitzmiller* observed, Justice O'Connor first articulated the endorsement test as a way to better understand the *Lemon* test, specifically the "effect" prong.<sup>311</sup> Consequently, as explained in *Kitzmiller*, the endorsement analysis largely mirrors the effect analysis under the *Lemon* test.<sup>312</sup> Thus, following the above conclusion that the science standards do constitute an endorsement of religion, it necessarily follows that their effect is that of establishing religion under the *Lemon* test.

#### c. Analyzing Entanglement

The final prong of the *Lemon* test prohibiting "an excessive

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308. See *Edwards v. Aguillard*, 482 U.S. 578, 587 (1987).

309. See *Freiler v. Tangipahoa Parish Bd. of Educ.*, 975 F. Supp. 819, 826-27 (E.D. La. 1997), *aff'd*, 185 F.3d 337 (5th Cir. 1999).

310. *Id.* at 829.

311. See *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 712-13 (M.D. Pa. 2005).

312. See *id.* at 764.

government entanglement with religion”<sup>313</sup> provides additional support for the conclusion that the Kansas science standards are unconstitutional as written because they necessarily invoke state entanglement with religion. As discussed above, as written, the Kansas science standards instruct teachers when introducing evolutionary theory to convey the idea that “the actual causes of many [accumulated] changes are currently unknown” and then provide as examples of such unknown changes the “origin of the universe . . . [and the] origin of life and the genetic code.”<sup>314</sup> Additionally, the standards describe evolution as an unguided process with no goal and a theory that has recently been challenged, and that many of its main tenants are controversial. In themselves, these statements may seem innocuous and relatively harmless. However, in a science class, where critical inquiry and skepticism are the norm, it is naïve to think that students would not raise questions regarding the “challenges” brought against evolution and why the theory recently has been labeled “controversial.” When presented with these questions, a science teacher will almost certainly have to mention intelligent design, if not creationism. Though there may be other theories, intelligent design is currently the most prominent perspective to challenge evolutionary theory, and the newest of those claiming a foundation in actual science. Once the subject is broached, it is reasonable to think that students or the teacher will be compelled to inquire as to the nature of the “intelligent designer” and the process by which this entity was involved in the biological processes and mechanisms currently unexplainable by evolutionary theory. This puts a teacher in an impossible position if he or she follows the guidelines proposed by the revised science standards yet refuses to mention or delve into the tenets of intelligent design. Indeed, the court in *McLean* found that the balanced treatment statute impermissibly caused government entanglement with religion because teachers were placed in a position where they would have to respond to questions regarding “scientific” assertions posited by creation science such as the sudden creation of the universe and the occurrence of a great flood.<sup>315</sup> Because these

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313. *Lemon v. Kurtzman*, 403 U.S. 602, 613 (1971) (quoting *Walz v. Tax Comm’n*, 397 U.S. 664, 674 (1970)).

314. See KANSAS SCIENCE STANDARDS, *supra* note 13, at xi.

315. See *McLean v. Ark. Bd. of Educ.*, 529 F. Supp. 1255, 1272 (E.D. Ark.

are biblical ideas, a response or acknowledgement of their existence necessarily fosters entanglement. Similarly, as noted by William Dembski, a leading intelligent design proponent, “Who or what is that intelligence? Within Western culture, it’s not a big leap to get to the big G.”<sup>316</sup> Thus, even without a teacher’s explanation or guidance, an inevitable conclusion for many students, once exposed to the general concept of intelligent design, is that an “intelligent designer” is equivalent to the notion of God. As in *McLean*, this is an impermissible entanglement with religion.

## VI. CONCLUSION

At first glance, intelligent design, as an alternative to evolutionary theory, may appear to be an explanation with scientific underpinnings that could potentially overcome many of the constitutional obstacles that deny creationism a place in public school science curriculum. Indeed, its supporters have worked for years to establish that very foundation. However, based on the exhaustive analysis by the court in *Kitzmiller* and the history and context surrounding the Kansas science standards, it appears that religion lurks just beneath a veil of scientific legitimacy intelligent design advocates have attempted to build. If the Kansas science standards face a legal challenge in the future, it seems likely, for reasons detailed above, that they will be subject to the same fate as the disclaimer held to be unconstitutional in *Kitzmiller*.

A separate question not directly addressed in this Note is whether intelligent design could ever be constitutionally included in public school education curriculum. This would seem to require that the sponsors of any proposed state action have no religious purpose in proposing or enacting a standard including intelligent design, and that intelligent design, as an explanation of the origins of life, have some underlying scientific validity. Though this argument can theoretically be made, it is hard to conclude that this could ever happen. Intelligent design’s supernatural foundations and the fact that it cannot currently be tested or falsified through scientific experiment preclude it from being the focus of legitimate scientific pursuit. Without that scientific base, and given its strong connection with religious groups to date, it is hard to see

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1982).

316. Wilson, *supra* note 17, at 237.



how it could ever be offered as a legitimate part of a secular education. Some may consider intelligent design to pose interesting questions and indeed inspire thought-provoking discussions, but it is doubtful that it can ever, under existing establishment clause jurisprudence, constitutionally be part of science education in American public schools.