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## The Constitutionality of the Monkey Wrench: Exploring the Case for Intelligent Design

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# THE CONSTITUTIONALITY OF THE MONKEY WRENCH: EXPLORING THE CASE FOR INTELLIGENT DESIGN

JOHNNY REX BUCKLES\*

*Teaching intelligent design in public schools has become an extremely controversial, and highly publicized, educational prospect that is just beginning to garner judicial attention. This Article argues that a proper resolution of the constitutional problems raised by teaching intelligent design requires both a precise understanding of intelligent design and evolutionary theory, and a sophisticated grasp of theological conceptions of the origin and development of life. After explaining these important foundational concepts and surveying the most relevant Supreme Court precedent, this Article discusses two important threshold questions that arise from the origins debate. First, is intelligent design theory inherently religious? Secondly, must science refrain from referring to supernatural causation? Answering each question in the negative, this Article then sketches the analysis necessary for determining the constitutionality of a state actor's decision to permit, require, or forbid the teaching of intelligent design in public school science classes.*

## *Introduction*

Intelligent design, a complementary strand of theories advanced by a budding cadre of scientists, mathematicians, and philosophers, has catalyzed a keenly intellectual, deeply passionate, and widespread debate.<sup>1</sup> Drawing on

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\* Associate Professor of Law, University of Houston Law Center. I thank Mary Woodard, Stephen Cox, and Kang Chen for their able research assistance, and research librarians Adrienne Cobb, Peter Egler, and Christopher Dykes for procuring titles. I thank Professors Martin Belsky and William S. Brewbaker III and Casey Luskin for comments to drafts of this Article. I also thank the University of Houston for its financial support of this project. Finally, I thank my wife, Tami, for her constant support.

1. The literature advancing intelligent design has been described as “sophisticated, vast, and growing.” FRANCIS J. BECKWITH, *LAW, DARWINISM, & PUBLIC EDUCATION: THE ESTABLISHMENT CLAUSE AND THE CHALLENGE OF INTELLIGENT DESIGN* 92 (2003). For collections of essays advancing and critiquing intelligent design, see *DARWINISM, DESIGN, AND PUBLIC EDUCATION* (John Angus Campbell & Stephen C. Meyer eds., 2003); *DEBATING DESIGN: FROM DARWIN TO DNA* (William A. Dembski & Michael Ruse eds., 2004) [hereinafter *DEBATING DESIGN*]; and *INTELLIGENT DESIGN CREATIONISM AND ITS CRITICS: PHILOSOPHICAL, THEOLOGICAL, AND SCIENTIFIC PERSPECTIVES* (Robert T. Pennock ed., 2001) [hereinafter *INTELLIGENT DESIGN CREATIONISM AND ITS CRITICS*]. For a collection of essays written solely by intelligent design theorists and proponents, see *MERE CREATION: SCIENCE, FAITH & INTELLIGENT DESIGN* (William A. Dembski ed., 1998) [hereinafter *MERE CREATION*]. For a brief introduction to the theory of intelligent design, as well as its asserted empirical basis, see

physical evidence and information theory, intelligent design theorists maintain that naturalistic explanations alone cannot account fully for what is observable in nature, particularly life and its complexity.<sup>2</sup> This argument is perceived to challenge both the modern philosophical premises of scientific exploration,<sup>3</sup> and certain views of life's origins and development embraced by most natural scientists (especially evolutionary biologists). If conventional assumptions about the nature of science comprise the modern machine of the natural sciences, intelligent design aspires to be the most significant monkey wrench ever tossed into this machine.

With so much at stake, seemingly everyone has opined on intelligent design.<sup>4</sup> From the Oval Office<sup>5</sup> to the Vatican,<sup>6</sup> supporters and opponents of intelligent design appear at every turn. Further, such "turns" are many. The President's friendly face towards intelligent design was promptly followed by an official cold shoulder from his science advisor.<sup>7</sup> Science standards favoring the teaching of challenges to evolutionary theory in Kansas public schools were famously adopted, jettisoned, revised, revived, and further amended in response to several elections.<sup>8</sup> Ohio recently has witnessed a similar

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BECKWITH, *supra*, at 106-17; and David K. DeWolf, Stephen C. Meyer & Mark Edward DeForrest, *Teaching the Origins Controversy: Science, or Religion, or Speech?*, 2000 UTAH L. REV. 39, 59-66.

2. For a succinct explanation of intelligent design, see *infra* Part I.A.2.

3. The reigning philosophical assumption of science is methodological naturalism. For a discussion of methodological naturalism, see *infra* Part III.B. For a critique of philosophical naturalism in general, and methodological naturalism in particular, see the collection of essays published in *NATURALISM: A CRITICAL ANALYSIS* (William Lane Craig & J.P. Moreland eds., 2000).

4. See Lisa Anderson, *Evolution of Intelligent Design*, CHI. TRIB., Oct. 30, 2005, § 1, at 1 ("A decade ago most Americans had never heard of intelligent design, or ID. But, in the last year, the term has surfaced repeatedly in politics, media and education . . .").

5. President Bush has stated that schools should teach both intelligent design and evolution to expose students to differing perspectives. See Johanna Neuman, *Inspiration for Doubters of Darwin*, L.A. TIMES, Aug. 3, 2005, at A12.

6. Pope Benedict has called creation an "intelligent project" and criticized those who argue for a creation lacking direction and order. See *World in Brief*, WASH. POST, Nov. 10, 2005, at A23. However, the official Vatican newspaper recently published the views of an evolutionary biology professor who characterized intelligent design as unscientific. See Ian Fisher & Cornelia Dean, *In "Design" vs. Darwinism, Darwin Wins Point in Rome*, N.Y. TIMES, Jan. 19, 2006, at A12.

7. The day after the President's statement, presidential science advisor John Marburger remarked that "intelligent design is not a scientific concept." Charles C. Haynes, First Amendment Ctr., *Inside the First Amendment: Unintelligent Debate over Intelligent Design*, GANNETT NEWS SERVICE, Aug. 22, 2005, <http://www.usatoday.com/educate/college/careers/journalism/firstamendment/8-22-05.htm>.

8. For accounts of the Kansas board's changes in direction, which ultimately led to

schizophrenia in the formulation of its public school science standards.<sup>9</sup> Equally well known is the changing of the guard of Dover, Pennsylvania's local school board, which passed a controversial policy requiring teachers to notify biology students of the existence of intelligent design.<sup>10</sup> The policy prompted the litigation in *Kitzmiller v. Dover Area School District*,<sup>11</sup> the first judicial opinion in American history to consider intelligent design theory.

*Kitzmiller* illustrates that the debate raging over intelligent design has spread to the board rooms of public secondary schools, and to the communities that they serve.<sup>12</sup> As governmental bodies continue to debate the issues raised by intelligent design, additional litigation appears inevitable. Although *Kitzmiller* did not involve the actual teaching of intelligent design,<sup>13</sup> other

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standards encouraging critiques of prevailing evolutionary theory, see Kenneth Chang, *Evolution and Its Discontents*, N.Y. TIMES, Nov. 15, 2005, at F3; Nicholas Riccardi, *Vote by Kansas School Board Favors Evolution's Doubters*, L.A. TIMES, Nov. 9, 2005, at A14; Peter Slevin, *Kansas Education Board First to Back "Intelligent Design": Schools to Teach Doubts About Evolutionary Theory*, WASH. POST, Nov. 9, 2005, at A1. After the most recent change in the composition of the Kansas State Board of Education, the state's science guidelines have been amended to omit any suggestion that important concepts of the theory of evolution are controversial. See Josh Keller, *State Digest: Another Revolution on Evolution for Kansas Board, and Other News from the States*, CHRON. HIGHER EDUC., Feb. 16, 2007, <http://chronicle.com/daily/2007/02/2007021605n.htm>.

9. See Lisa Anderson, *Challengers of Evolution Lose: Ohio Board Voters to Remove "Critical Analysis" in Science Curriculum, a Blow to Creationists*, CHI. TRIB., Feb. 15, 2006, at C3.

10. See Michael Powell, *Judge Rules Against "Intelligent Design": Dover, Pa., District Can't Teach Evolution Alternative*, WASH. POST, Dec. 21, 2005, at A1.

11. 400 F. Supp. 2d 707, 708-09, 765-66 (M.D. Pa. 2005) (finding a violation of the Establishment Clause when a school board required biology teachers to read a statement that, in relevant part, (1) described "Darwin's Theory of Evolution" as one that is subject to continuing tests and characterized by evidentiary gaps, (2) informed students that "Intelligent Design is an explanation of the origin of life that differs" from Darwinian evolution, and (3) referred students to a text that purportedly teaches about intelligent design).

12. Cf. Lisa Anderson, *Darwin's Theory Evolves into Culture War: Kansas Curriculum Is Focal Point of Wider Struggle Across Nation*, CHI. TRIB., May 22, 2005, § 1, at 1 (reporting that in the first few months of 2005, "the issue of evolution has sparked at least 21 instances of controversy on the local and/or state level in at least 18 states").

13. *Kitzmiller* does not represent a true test case for teaching intelligent design in the public school science classroom. Not only did the policy at issue not call for teaching intelligent design, but also the book to which students were referred (for an explanation of intelligent design) apparently does not even accurately articulate intelligent design theory. Defense expert Michael Behe testified that he disagreed with the text's definition of intelligent design. See *Kitzmiller*, 400 F. Supp. 2d at 744 n.16. As indicated by the discussion *infra* Part I.B.2, Professor Behe is one of the most prominent intelligent design theorists. How Professor Behe understands intelligent design is much more probative of what the theory really means than what a high school textbook says it means.

cases surely will.<sup>14</sup> Consequently, a thoroughly sophisticated analysis of the constitutional issues raised by the monkey wrench of intelligent design is essential.<sup>15</sup> The need for such an analysis is all the more compelling because of significant deficiencies in the *Kitzmiller* opinion.<sup>16</sup>

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14. For example, a lawsuit challenging the teaching of intelligent design in California public schools was filed on January 11, 2006. Complaint, *Hurst v. Newman*, No. 06-00012 (E.D. Cal. filed Jan. 11, 2006), available at [http://www2.ncseweb.org/hurst/Hurst\\_v\\_Newman\\_Complaint.pdf](http://www2.ncseweb.org/hurst/Hurst_v_Newman_Complaint.pdf); see also Henry Weinstein, *1st Suit in State to Attack "Intelligent Design" Filed*, L.A. TIMES, Jan. 11, 2006, at A1. The parties settled the case six days after the complaint was filed, however, and the California school dropped the class as a result of the settlement. See Ann Simmons, *In Lebec, "Intelligent Design" Class Is History*, L.A. TIMES, Jan. 18, 2006, at B1.

15. The legal scholarship discussing the constitutionality of teaching intelligent design in the public schools is growing. See, e.g., Jeffrey F. Addicott, *Storm Clouds on the Horizon of Darwinism: Teaching the Anthropic Principle and Intelligent Design in the Public Schools*, 63 OHIO ST. L.J. 1507 (2002); Francis J. Beckwith, *Public Education, Religious Establishment, and the Challenge of Intelligent Design*, 17 NOTRE DAME J.L. ETHICS & PUB. POL'Y 461 (2003) [hereinafter Beckwith, *Public Education*]; 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 (2003) [hereinafter Beckwith, *Science and Religion*]; Kristi L. Bowman, *Seeing Government Purpose Through the Objective Observer's Eyes: The Evolution-Intelligent Design Debates*, 29 HARV. J. L. & PUB. POL'Y 417 (2006); Matthew J. Brauer, Barbara Forrest & Steven G. Gey, *Is It Science Yet?: Intelligent Design Creationism and the Constitution*, 83 WASH. U. L.Q. 1 (2005); DeWolf, Meyer & DeForrest, *supra* note 1; Kent Greenawalt, *Establishing Religious Ideas: Evolution, Creationism, and Intelligent Design*, 17 NOTRE DAME J.L. ETHICS & PUB. POL'Y 321 (2003); H. Wayne House, *Darwinism and the Law: Can Non-Naturalistic Scientific Theories Survive Constitutional Challenge?*, 13 REGENT U. L. REV. 355 (2001); Casey Luskin, *Alternative Viewpoints About Biological Origins as Taught in Public Schools*, 47 J. CHURCH & ST. 583 (2005); Colin McRoberts & Timothy Sandefur, *Piercing the Veil of Intelligent Design: Why Courts Should Beware Creationism's Secular Disguise*, 15 KAN. J.L. & PUB. POL'Y 15 (2005); Jay D. Wexler, *Darwin, Design, and Disestablishment: Teaching the Evolution Controversy in Public Schools*, 56 VAND. L. REV. 751 (2003); Theresa Wilson, *Evolution, Creation, and Naturally Selecting Intelligent Design out of the Public Schools*, 34 U. TOL. L. REV. 203 (2003); Wendy F. Hanakahi, Comment, *Evolution-Creation Debate: Evaluating the Constitutionality of Teaching Intelligent Design in Public School Classrooms*, 25 U. HAW. L. REV. 9 (2002); Stephen L. Marshall, Note, *When May a State Require Teaching Alternatives to the Theory of Evolution? Intelligent Design as a Test Case*, 90 KY. L.J. 743 (2002); T. Mark Mosely, Comment, *Intelligent Design: A Unique Perspective to the Origins Debate*, 15 REGENT U. L. REV. 327 (2003). While this literature contributes importantly to an informed understanding of the constitutional issues, the existing published analyses are far from exhaustive.

16. The most troublesome portions of *Kitzmiller* are not essential to its holding. Indeed, as discussed below, the holding for the plaintiffs in *Kitzmiller* is not surprising. See *infra* note 367. For a comprehensive, insightful critique of the judicial analysis of intelligent design and evolutionary theory in *Kitzmiller*, see DAVID K. DEWOLF, JOHN G. WEST, CASEY LUSKIN & JONATHAN WITT, *TRAIPSING INTO EVOLUTION: INTELLIGENT DESIGN AND THE KITZMILLER VS. DOVER DECISION* (2006).

The thesis of this Article is that teaching intelligent design in the public school science classroom may be constitutionally permissible in some cases, and that in some cases a decision to forbid the teaching of intelligent design may be constitutionally impermissible. This thesis rests upon the position, advanced and defended in this Article, that intelligent design is properly viewed as neither an inherently religious conception of origins nor an “alternative” to much evolutionary theory.

Insofar as some of the most important constitutional arguments surrounding intelligent design require a keen appreciation for nuance, a helpful starting point in advancing the thesis of this Article is to define the terms taking center stage in the debate. Without a precise understanding of the vocabulary that peppers the origins literature, the legal analyst has little hope of reaching a truly informed constitutional resolution of the dispute. Thus, Part I.A of this Article discusses the meaning(s) of evolution and intelligent design.

Moreover, realism dictates that one analyze the constitutional issues raised by intelligent design in the religious context in which the origins controversy arose in our country and continues to swell — a land in which the dominant religious faith is Christianity. To do so is not to imply any disrespect or indifference to those who are not of the Christian faith (or of the Jewish faith, which hallowed Genesis before Christianity ever existed). Rather, acknowledging the religious context of the origins debate simply facilitates an exploration of the real issues of constitutional concern. The debate about the constitutionality of teaching intelligent design in the public school science classroom is unlikely to advance meaningfully until both skeptics and proponents of teaching intelligent design understand to what degree the theory coincides with various Christian theological conceptions of origins. In an effort to advance the debate, Part I.B explains the major conceptions in Christian theology of how the physical world came to be.

With this necessary background in place, Part II of this Article surveys the Supreme Court precedent that guides the constitutional analysis of intelligent design. Part II.A briefly discusses the tests that the Supreme Court has employed in interpreting the Establishment Clause (and its underlying norms), and Part II.B discusses the two Supreme Court cases involving the teaching of evolution in public schools.

Next, Part III thoroughly explores two controversial questions raised by the prospect of teaching intelligent design in the public school science classroom. The first question, discussed in Part III.A, is whether intelligent design is necessarily a “religion” within the meaning of the Establishment Clause, or whether it inherently consists of “religious” ideas. Part III.B considers the second question — whether the discipline of science must refrain from

referring to supernatural causation. Although this question is plainly philosophical, it is also constitutionally relevant.<sup>17</sup>

Finally, Part IV sketches the analysis necessary to answer two crucial constitutional questions raised by the foregoing discussion. Part IV.A discusses under what circumstances the Establishment Clause permits a governmental body to authorize (or perhaps even require) the teaching of intelligent design in the public school science classroom. Next, Part IV.B explores under what circumstances a governmental body's decision to *prohibit* the teaching of intelligent design may be unconstitutional.

### *I. Scientific and Theological Conceptions of Origins*

#### *A. Two Scientific<sup>18</sup> Conceptions of Origins: Evolution and Intelligent Design*

The issues underlying the origins debate have been obfuscated (perhaps, in some cases, intentionally) by the use of "evolution" without clarification as to its precise meaning in any given context. Similarly, "intelligent design" has been used without an appreciation for what it does, and does not, convey. This section provides some much-needed clarity.

##### *1. The Meaning of Evolution*

Yale biology professor Keith Thomson has discussed three common meanings of evolution: (1) change over time; (2) the relationships of organisms by descent through common ancestry; and (3) an explanatory mechanism for the pattern and process of the foregoing meanings of evolution (such as natural selection).<sup>19</sup>

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17. See *infra* Part IV.

18. That this part of the article surveys two "scientific" conceptions of origins does not imply that the "scientific" nature of each theory is undisputed. Indeed, the question of whether intelligent design is inherently unscientific because of its supernatural implications is discussed *infra* Part III.B. The discussion in this part of the article therefore should be understood to describe two views of origins that *purport* to be scientific. Moreover, by devoting this part of the article to "scientific" theories of origins and Part I.B to "theological" concepts of origins, I am not assuming that scientific theory and theology never overlap. Rather, by designating the concepts in Part I.B as "theological," I mean only that they articulate a theory of origins that addresses the involvement (or noninvolvement) of God, explicitly or by implication, upon some basis that is not limited to evidence observable from nature.

19. See Keith Stewart Thomson, *Marginalia: The Meanings of Evolution*, 70 AM. SCIENTIST 529 (1982).

The first meaning of evolution, change over time, is not necessarily controversial. Nature has a history,<sup>20</sup> and that history (or portions of it) can often be discerned through observation. For example, paleontologists study changes of animals in the fossil record, and astronomers study the life cycle of stars.<sup>21</sup> The third meaning of evolution — evolution as a mechanism for producing morphological change — also enjoys widespread support, although prominent scientists (including those who reject intelligent design)<sup>22</sup> dispute the degree to which natural selection acting on random genetic variations and mutations can produce significant variations within a population.<sup>23</sup>

The second meaning of evolution identified by Professor Thomson requires refinement.<sup>24</sup> “Descent through common ancestry” can mean two types of evolution. The first is “limited common descent,” the notion that particular groups of organisms (species or perhaps even higher classifications, such as genera or families) have descended from a common ancestor.<sup>25</sup> The Galapagos Island finches made famous by Charles Darwin illustrate probable common descent from a single South American finch species,<sup>26</sup> and recognition of this common descent is widespread.

More controversial is the second type of descent through common ancestry — “universal common descent,” which holds that all living organisms have descended from a common ancestor or an extremely small number of ancestors.<sup>27</sup> Universal common descent is one important feature of Darwinian evolution.<sup>28</sup> Darwin’s view has been described as “monophyletic” because it

20. See Stephen C. Meyer & Michael Newton Keas, *The Meanings of Evolution*, in *DARWINISM, DESIGN, AND PUBLIC EDUCATION*, *supra* note 1, at 135, 137.

21. *See id.*

22. According to the late Harvard University Professor Stephen Jay Gould, who was not an intelligent design supporter, the neo-Darwinian synthesis “is effectively dead, despite its persistence as textbook orthodoxy.” Stephen Jay Gould, *Is a New and General Theory of Evolution Emerging?*, 6 *PALEOBIOLOGY* 119, 119-20 (1980). The “neo-Darwinian synthesis” joins Darwin’s theory of natural selection with post-Mendellian genetics. See Christopher Michael Langan, *Cheating the Millennium: The Mounting Explanatory Debts of Scientific Naturalism*, in *UNCOMMON DISSENT: INTELLECTUALS WHO FIND DARWINISM UNCONVINCING* 233, 235 (William A. Dembski ed., 2004).

23. Gould, *supra* note 22, at 128-29.

24. One can probably speak of an even greater number of meanings of evolution. See, e.g., Meyer & Keas, *supra* note 20, at 136-37 (listing six meanings of evolution discussed in biology texts).

25. *See id.* at 136-38.

26. *See id.* at 137-38.

27. *See id.* at 136, 138.

28. See, e.g., CHARLES DARWIN, *ON THE ORIGIN OF SPECIES BY MEANS OF NATURAL SELECTION* 483-84, 488-89 (London, Murray 1859), available at <http://www.esp.org/books/darwin/origin/facsimile/> (follow “Table of Contents” hyperlink; then follow “XIV.

claims that all organisms ultimately form one large family.<sup>29</sup> The view postulates almost “unbounded biological change.”<sup>30</sup> Several modern biologists — including those not associated with the intelligent design movement — reject Darwin’s monophyletic view of life. They prefer a polyphyletic view of life’s history, which understands the present diversity of organisms to have arisen from separate ancestral lines.<sup>31</sup> Adherents of this view cite evidence from paleontology, embryology, biochemistry, and molecular biology.<sup>32</sup> Although one can embrace evolution as a mechanism for change (the third major sense of evolution identified above) and be either a monophyletic or a polyphyletic evolutionist, it appears that polyphyletic evolutionists generally believe that natural selection as a mechanism for change has a more limited role than do their more purely Darwinian counterparts.<sup>33</sup>

To these biological meanings of evolution must be added the “general theory of evolution.”<sup>34</sup> Under this theory, “all the living forms in the world have arisen from a single source which itself came from an inorganic form.”<sup>35</sup> Thus, one may speak of the origins debate as addressing both the “origin of life” and the “origin of species.”<sup>36</sup>

Finally, there are at least three other meanings of evolution worthy of identification — evolutionary creationism, deistic evolution and atheistic evolution. These versions of evolutionary theory combine one or more of the above senses of evolution with a theory of the involvement (or absence of the involvement) of God. Although, as argued below, tidy and supposedly impermeable distinctions between “theological” and “scientific” conceptions of origins break down in some instances,<sup>37</sup> this article will discuss these final types of evolutionary theory with other theological conceptions of origins.

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Recapitulation and Conclusion” hyperlink).

29. See Meyer & Keas, *supra* note 20, at 138. Strictly speaking, Darwin did not insist that all life evolved from only one living organism; he allowed for five progenitors in each of the animal and plant kingdoms. See DARWIN, *supra* note 28, at 484.

30. Meyer & Keas, *supra* note 20, at 139.

31. See *id.*

32. See *id.*

33. See *id.*

34. See G.A. KERKUT, IMPLICATIONS OF EVOLUTION 157 (1960).

35. *Id.*

36. Some may prefer to separate these inquiries entirely. However, insofar as intelligent design advocates have argued that intelligent design is necessary to explain both life’s origins and its development, this article will frequently refer simply to the “origins debate.”

37. See *infra* Part III.B.

## 2. *The Meaning of Intelligent Design*

Professors William Dembski and Michael Ruse, an advocate and opponent of intelligent design, respectively, define and summarize intelligent design as follows:

[It is] the hypothesis that in order to explain life it is necessary to suppose the action of an unevolved intelligence. One simply cannot explain organisms, those living and those long gone, by reference to normal natural causes or material mechanisms, be these straightforwardly evolutionary or a consequence of evolution . . . . [I]t is not necessarily the case that a commitment to Intelligent Design implies a commitment to a personal God or indeed to any God that would be acceptable to the world's major religions. The claim is simply that there must be something more than ordinary natural causes or material mechanisms, and moreover, that something must be intelligent and capable of bringing about organisms.<sup>38</sup>

Like Darwinism, intelligent design scholars study the apparent design of the natural world. Unlike Darwinism, advocates of intelligent design “claim[] that the best explanation for at least some of the appearance of design in nature is that this design is actual.”<sup>39</sup> Intelligent design maintains that intelligent causes can and do leave “empirically detectable marks in the natural world.”<sup>40</sup> Specifically, some forms of complex information appearing in the natural world suggest the activity of intelligent agency.<sup>41</sup>

More precisely, intelligent design theorists have argued, first, that certain biological systems, such as the immune system, are irreducibly complex.<sup>42</sup> Because all of the components of the system must be present in order for it to function, the incremental changes contemplated by the Darwinian mechanism are extremely unlikely to produce the final product; “transitional” versions of the system would be non-functional, and therefore should not survive the evolutionary process.<sup>43</sup> More generally, intelligent design theorists have

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38. William A. Dembski & Michael Ruse, *General Introduction* to *DEBATING DESIGN*, *supra* note 1, at 3, 3.

39. Angus Menuge, *Who's Afraid of ID?*, in *DEBATING DESIGN*, *supra* note 1, at 32, 32.

40. *Id.*

41. William A. Dembski, *Introduction: Mere Creation*, in *MERE CREATION*, *supra* note 1, at 13, 17 (“Intelligent design properly formulated is a theory of information.”); Menuge, *supra* note 39, at 32.

42. *See, e.g.*, MICHAEL J. BEHE, *DARWIN'S BLACK BOX: THE BIOCHEMICAL CHALLENGE TO EVOLUTION* 117-39 (1996).

43. For a concise explanation of Dr. Behe's argument relying upon irreducible complexity,

argued that many cases of complex specified information in nature, of which irreducible complexity is but one example,<sup>44</sup> point to intelligent design.<sup>45</sup> The basic idea, an application of probability and statistical theory, is that intelligent agency can be detected when an improbable (i.e., complex) outcome conforms to a pattern (i.e., specification).<sup>46</sup>

Intelligent design is in many respects both modest (i.e., of limited ambition)<sup>47</sup> and diverse (with respect to the views of its proponents). It confines itself to the basic question of whether material forces alone can account for the origin and development of life; it does not engage in tangential speculations. For example, intelligent design theory does not attempt to discover the nature of the intelligent agent of design.<sup>48</sup> Thus, the question of whether the designer is anything like the God revealed in any religious text is neither explored nor assumed.<sup>49</sup> Moreover, advocates of intelligent design are not uniform in their estimation of the positive explanatory power of evolution. Some supporters of intelligent design believe that the designing agent “works in tandem with a limited form of evolution, perhaps even Darwinian

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see Michael J. Behe, *Design in the Details: The Origin of Biomolecular Machines*, in DARWINISM, DESIGN, AND PUBLIC EDUCATION, *supra* note 1, at 287. For critiques of Dr. Behe’s arguments, see, for example, David Depew, *Intelligent Design and Irreducible Complexity: A Rejoinder*, in DARWINISM, DESIGN, AND PUBLIC EDUCATION, *supra* note 1, at 441; and BRUCE H. WEBER, *Biochemical Complexity: Emergence or Design?*, in DARWINISM, DESIGN, AND PUBLIC EDUCATION, *supra* note 1, at 455.

44. See Menuge, *supra* note 39, at 47.

45. See, e.g., WILLIAM A. DEMBSKI, NO FREE LUNCH: WHY SPECIFIED COMPLEXITY CANNOT BE PURCHASED WITHOUT INTELLIGENCE (2002); WILLIAM A. DEMBSKI, THE DESIGN INFERENCE: ELIMINATING CHANCE THROUGH SMALL PROBABILITIES (1998).

46. For a relatively concise explanation of specified complexity, see William A. Dembski, *Reinstating Design Within Science*, in DARWINISM, DESIGN, AND PUBLIC EDUCATION, *supra* note 1, at 403 [hereinafter Dembski, *Reinstating Design*]; and William A. Dembski, *The Logical Underpinnings of Intelligent Design*, in DEBATING DESIGN, *supra* note 1, at 311. For a critique of Dr. Dembski’s arguments, see, for example, Branden Fitelson, Christopher Stephens & Elliott Sober, *How Not to Detect Design — Critical Notice: William A. Dembski, the Design Inference*, in INTELLIGENT DESIGN CREATIONISM AND ITS CRITICS, *supra* note 1, at 597; and Peter Godfrey-Smith, *Information and the Argument from Design*, in INTELLIGENT DESIGN CREATIONISM AND ITS CRITICS, *supra* note 1, at 575.

47. See Dembski, *supra* note 41, at 17 (“Intelligent design is theologically minimalist. It detects intelligence without speculating about the nature of the intelligence.”).

48. See Dembski & Ruse, *supra* note 38, at 3.

49. Although many advocates of intelligent design are Christian, *see id.*, some are not. Indeed, at least one prominent scientist associated with intelligent design (Michael Denton) is agnostic. See Menuge, *supra* note 39, at 35. Those theists associated with the movement are a diverse group, including the faithful of Judaism, Roman Catholicism, Eastern Orthodoxy, and the Unification Church (the followers of the Reverend Moon). See House, *supra* note 15, at 402-03.

evolution,” whereas others deny evolution any role except, perhaps, in “lower taxonomic levels.”<sup>50</sup> Indeed, one leading intelligent design theorist, biochemistry professor Michael Behe, considers the theory of common descent “fairly convincing,” and has “no particular reason to doubt it.”<sup>51</sup> Behe also acknowledges that natural selection “might explain many things.”<sup>52</sup>

### 3. *The Relationship Between Evolution and Intelligent Design*

The foregoing discussion should make clear that scientific conceptions of evolution and scientific conceptions of intelligent design are not entirely incompatible. Evolutionary theory does not necessarily refute the presence of an intelligent agent. Moreover, notwithstanding Judge Jones’s misleading suggestion to the contrary in *Kitzmiller*,<sup>53</sup> intelligent design theory does not require a rejection of any, let alone all, of the various meanings of evolution.<sup>54</sup> What distinguishes intelligent design from evolutionary theory is the former’s insistence that the origin and development of life cannot be explained *exclusively* by natural causes. Granted, some theorists who embrace intelligent design also minimize the role of natural selection in the development of species.<sup>55</sup> But to accept intelligent design is not to reject the whole, or (necessarily) even much, of evolutionary theory.<sup>56</sup> Rather, intelligent design essentially challenges the sufficiency of evolutionary theory to account *entirely* for the development (and origin) of life.

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50. See Dembski & Ruse, *supra* note 38, at 3.

51. See BEHE, *supra* note 42, at 5.

52. *Id.*

53. According to the opinion, intelligent design “posits that animals did not evolve naturally through evolutionary means but were created abruptly by a nonnatural, or supernatural, designer.” *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 736 (M.D. Pa. 2005). In support of his finding, Judge Jones cites the testimony of intelligent design theorist Michael Behe that it is “implausible that the designer is a natural entity.” *Id.* That the court cites Behe for the assertion that “animals did not evolve naturally” is terribly ironic, given that Behe has publicly embraced much evolutionary theory. Professor’s Behe’s whole argument is not that evolution served no significant role in the development of life, but that it did not serve as the exclusive role in such development. See BEHE, *supra* note 42.

54. See Dembski, *supra* note 41, at 19 (“Intelligent design is logically compatible with everything from utterly discontinuous creation . . . to the most far-ranging evolution (e.g., God seamlessly melding all organisms together into one great tree of life).”).

55. See, e.g., Stephen C. Meyer, Marcus Ross, Paul Nelson & Paul Chien, *The Cambrian Explosion: Biology’s Big Bang*, in *DARWINISM, DESIGN, AND PUBLIC EDUCATION*, *supra* note 1, at 323, 337-54 (arguing that evolutionary theories of macroevolution fail to account for the appearance of phyla in the Cambrian fossil record).

56. See WILLIAM A. DEMBSKI, *INTELLIGENT DESIGN* 252 (1999) (stating that intelligent design can accommodate evolutionary change to any extent).

*B. Theological Conceptions<sup>57</sup> of Origins*

Many religions purport to explain the origins of the universe, including biological life. Creation stories appear not only in Genesis<sup>58</sup> — a foundational canonical text in Judaism and Christianity — but also in sacred texts, hymns, and oral traditions of Islam,<sup>59</sup> Hinduism,<sup>60</sup> Taoism,<sup>61</sup> Native American religions,<sup>62</sup> and Native African religions,<sup>63</sup> among others. One or more gods figure prominently in numerous creation stories.<sup>64</sup>

In the United States, of course, the oft-perceived tension between theological and scientific explanations for the origin of life is historically rooted in certain interpretations of the book of Genesis. Indeed, many who support teaching evolutionary theory in public schools without qualification appear to attribute all or most of the skepticism toward such teaching to the “Christian fundamentalist” interpretation of Genesis, whatever that phrase means.<sup>65</sup> Unfortunately, those who are among the most informed about the

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57. A “theological” conception of origins within the meaning of this article is one that speaks to the involvement (or noninvolvement) of God, explicitly or by implication, upon some basis that is not limited to evidence observable from nature. Views associated with religions that posit God’s involvement (or the absence of the involvement of God or any god) are theological under this definition.

58. *Genesis* 1:1-2:25.

59. AL-QUR’AN 41:9-21 (Ahmed Ali trans., Princeton Univ. Press 2001).

60. See BARBARA C. SPROUL, *PRIMAL MYTHS: CREATION MYTHS AROUND THE WORLD* 179-92 (1979).

61. See *id.* at 199-205.

62. See *id.* at 232-86.

63. See *id.* at 31-76.

64. See generally SPROUL, *supra* note 60 (discussing creation myths around the world).

65. See, e.g., Jeanne Anderson, *The Revolution Against Evolution, or “Well, Darwin, We’re Not in Kansas Anymore,”* 29 J.L. & EDUC. 398, 403 (2000) (arguing that, “since evolution and the big bang theory are particularly opposed by fundamentalist Christians,” a state’s decision not to test students on such subjects confers direct benefits on a certain sect); Stephanie L. Shemin, *The Potential Constitutionality of Intelligent Design?*, 13 GEO. MASON L. REV. 621, 664 (2005) (“[E]ver since Darwin proposed his theory of natural selection, there has been a rift between scientific research and religious doctrine, notably among biologists who accept the theory of evolution and Christian fundamentalists who do not.”); Randall W. Hall, Note, *Unnatural Selection: The Fundamentalist Crusade Against Evolution and the New Strategies to Discredit Darwin*, 17 U.FLA. J.L. & PUB. POL’Y 165, 168 (2006) (stating that “the opposition to the theory of evolution emerges from the small sector of fundamentalist Christians in America who argue that the Biblical account of creation found in the book of Genesis is the only correct origin story”); *id.* at 179 (“Fundamentalists have also sought to stifle the teaching of evolution by arguing that belief in evolution constitutes religion.”); *id.* at 186 (“Fundamentalists now cloak their disgust for evolution in theories such as Intelligent Design . . . .”); Lisa D. Kirkpatrick, Note, *Forgetting the Lessons of History: The Evolution of Creationism and Current Trends to Restrict the Teaching of Evolution in Public Schools*, 49 DRAKE L. REV. 125, 142 (2000) (characterizing evolution as “the very theory that directly

body of constitutional law bearing upon the origins debate are not necessarily equally informed about the precise theological views at issue. The proper resolution of the constitutional issues raised by intelligent design is unlikely to occur without a more illuminated comprehension of the major theological conceptions of life's origins and development.

This section sketches the theological framework for understanding the origins debate. First, this part discusses Biblically based theological conceptions of origins in an attempt to summarize the exegetical debate concerning two difficulties encountered by interpreters of the Bible, and to discuss how these debates relate to broader conceptions of origins in Christian theology. Next, this part examines two theological positions on origins that are not grounded in Biblical theology. This discussion of the myriad theological positions on origins informs the legal questions raised by teaching intelligent design in the public schools.

### *1. Biblically Based Theological Conceptions of Origins*

#### *a) Interpretations of the Biblical Text*

As most legal scholars addressing the origins debate are aware, Genesis states that God created the heavens and the earth.<sup>66</sup> Also of common knowledge to many is Genesis's account that God created light, the sky, land, oceans, the stars (including the sun), the moon, plant and animal life, and human beings.<sup>67</sup> Finally, God is said to have completed His creation in six "days."<sup>68</sup> These statements may well exhaust many legal analysts' depth of knowledge of the Biblical creation texts. The precise meaning of the first two chapters of Genesis, however, has eluded scholars for centuries.

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conflicts with the Biblical version of creation and that has historically been opposed by Christian fundamentalists").

In fact, it is not clear that a distinctly Christian "fundamentalist" interpretation of Genesis exists. Fundamentalists are often charged with embracing a "literal" interpretation of Genesis. Several distinct interpretations of Genesis, however, may fairly be characterized as "literal," and they have very different implications when harmonizing science and Scripture. Moreover, the term "fundamentalist" is terribly misused in discussing the origins controversy. Cf. STEPHEN L. CARTER, *THE CULTURE OF DISBELIEF* 169 (1993) (referring to the "certainly misleading use of the term 'fundamentalist'" in the controversy surrounding creationism and science instruction in the public schools).

66. See *Genesis* 1:1, 3-10.

67. See *id.* 1:1-27, 2:7-25.

68. See *id.* 1:5, 8, 13, 19, 23, 31.

Of course, the text is clear that God is the creator.<sup>69</sup> But specifying the time and manner of the creation of the universe is a much more difficult matter. There are two particularly difficult interpretive questions.

The first question concerns the meaning of the first three verses of Genesis 1:

[1] In the beginning God created the heavens and the earth. [2] And the earth was formless and void, and darkness was over the surface of the deep; and the Spirit of God was moving over the surface of the waters. [3] Then God said, "Let there be light"; and there was light.<sup>70</sup>

There are several major interpretations of these verses, all of which attempt to explain the relationship between the clauses in verse 2 and the entirety of verse 1.<sup>71</sup> Although numerous variations of these interpretations exist, four major views can be identified.

Under one view, verse 1 refers to the first part of the first day of creation discussed in Genesis 1:3-5.<sup>72</sup> According to this view, the "creation" of verse 1 is *ex nihilo*.<sup>73</sup> This view also reads the clauses of Genesis 1:2 to refer to the state of the earth immediately following the creation of the universe *ex nihilo* but before the creative acts recorded in the remainder of Genesis 1.<sup>74</sup>

A second major view also takes the creation of verse 1 to be *ex nihilo*.<sup>75</sup> This view, however, holds that the creation of verse 1 refers to an original, perfect creation distinct from the creation account beginning with verse 3 (i.e., a creation distinct from the universe as we now know it). Under this view, the state of the earth in verse 2 — formless and void — describes a condition resulting from the fall of Satan,<sup>76</sup> which brought God's judgment of chaos

69. In the Old Testament, the Creator-God is identified as Yahweh. *See, e.g., id.* 2:4. The New Testament identifies the pre-incarnate Christ (God the Son) as the one through whom God made the universe. *See John* 1:1-3, 10, 15; *Colossians* 1:13-17; *Hebrews* 1:1-3.

70. *Genesis* 1:1-3 (New American Standard Bible).

71. For a scholarly discussion of these views, including a brief analysis of the most important Hebrew terms in the text, see ALLEN P. ROSS, *CREATION AND BLESSING: A GUIDE TO THE STUDY AND EXPOSITION OF THE BOOK OF GENESIS* 103-08, 718-23 (1988).

72. *See, e.g.,* 1 H. C. LEUPOLD, *EXPOSITION OF GENESIS* 39-42 (1942).

73. Creation *ex nihilo* is creation "from nothing."

74. *See* ROSS, *supra* note 71, at 718. In other words, this view understands Genesis 1 to describe a single creation from beginning to end.

75. According to ROSS, *supra* note 71, at 718-19, the first edition of the Scofield Reference Bible advances this view. *See generally* THE SCOFIELD REFERENCE BIBLE (Cyrus Ingerson Scofield ed., 1909). The view was first popularized by Thomas Chalmers of Scotland in 1814 and has been embraced by several others. *See* CHARLES C. RYRIE, *BASIC THEOLOGY* 209 (1999).

76. *See, e.g., Isaiah* 45; *Jeremiah* 4:23-26; *Ezekiel* 28.

upon the earth.<sup>77</sup> Verse 3 thus describes the first step of God's reconstruction, or recreation, of the earth that had been judged.<sup>78</sup>

A third view moderates between the first two interpretations. Under this reading of Genesis 1, the first verse of the chapter indeed refers to creation *ex nihilo*, but with a vast gap of time between either the first two verses or the second and third verses.<sup>79</sup> Unlike the second view, verse 2 is not read to suggest judgment. The six creative days are thought to begin with either verse 2 or verse 3.<sup>80</sup>

A fourth view (of which several variations exist) holds that Genesis 1:1 does not refer to creation *ex nihilo*.<sup>81</sup> One significant variation of this view, which partially builds upon the exposition of Genesis by the German scholar Gerhard von Rad,<sup>82</sup> understands Genesis 1:1 to summarize the detailed account of creation in the remainder of Genesis 1. Genesis 1:2 records the state of the earth immediately before God spoke the recreated universe — the universe as we know it — into existence. This state of the earth, as under the second view discussed above, resulted from God's judgment following the fall of Satan. Unlike the second view, however, this view places Satan's fall not between verses 1 and 2, but sometime prior to the creation account of Genesis 1.<sup>83</sup> Although this view accepts an initial creation of a universe by God,<sup>84</sup> it does not find any explicit record of it in Genesis 1. Genesis 1 simply describes God's reshaping of the judged (initial) universe into what we now know as our universe.<sup>85</sup>

The second major interpretive question that has proved extremely significant is the meaning of "day," and the periods of time marked by each "day," as the term is used throughout Genesis 1. Several views exist.<sup>86</sup> One view holds that each day is a twenty-four hour period, uninterrupted by

77. Strong exegetical arguments support the view that the earth's condition of being "formless and void" is a result of divine judgment. See ROSS, *supra* note 71, at 106-07, 722.

78. See *id.* at 719. For a critique of this "reconstruction" (also known as "gap" or "restitution") theory, see Mark F. Rooker, *Genesis 1:1-3: Creation or Re-Creation?: Part 1*, 149 BIBLIOTHECA SACRA 316, 317-18 (1992).

79. See Gary G. Cohen, *Hermeneutical Principles and Creation Theories*, 5 GRACE J. 17, 25 (1964).

80. See *id.*

81. See ROSS, *supra* note 71, at 719-20.

82. GERHARD VON RAD, *GENESIS: A COMMENTARY* 49-51 (John H. Marks trans., 1972).

83. See ROSS, *supra* note 71, at 720-23.

84. Texts other than Genesis support God's creation *ex nihilo*. See, e.g., *John* 1:3; *Hebrews* 11:3.

85. For a critique of this view, see Mark F. Rooker, *Genesis 1:1-3: Creation or Re-Creation?: Part 2*, 149 BIBLIOTHECA SACRA 411 (1992).

86. For a discussion of four of these views, see RYRIE, *supra* note 75, at 211-13. For a discussion of theologians who have embraced each view, see Cohen, *supra* note 79, at 25-27.

additional periods of time. Thus, this view maintains that the creation described in Genesis 1:3-31 occurred over six solar days as we currently experience them.<sup>87</sup> A second view, known as the “day-age” view, posits that each day represents a long period of time, even a geological age.<sup>88</sup> A third theory, sometimes identified as the “intermittent-day” view, is that each day of Genesis refers to a solar day, but long periods of time elapsed between successive “days.”<sup>89</sup> A fourth position, known as the “revelatory-day” view, holds that each day refers not to the time during which God created the universe and life forms, but to the time during which God revealed His creative work to Moses (the author of the Pentateuch).<sup>90</sup>

The foregoing attempts to answer these two interpretive questions are consistent with what may be characterized as “literal” hermeneutics<sup>91</sup> (or, perhaps more accurately, “literary-historical,” or “literary-grammatical-historical” hermeneutics).<sup>92</sup> A nonliteral interpretation of Genesis 1 requires a much less rigorous analysis of the terms and grammar of Genesis 1. A common nonliteral interpretation of Genesis 1 is that it is merely a creation myth or an allegory, intended not to be historically accurate, but instead to communicate religious truth.<sup>93</sup>

The purpose of summarizing these various interpretations of Genesis is not to evaluate their merits; thus, this Article will refrain from analyzing the exegetical strengths and weaknesses of each position. Rather, the purpose of

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87. See, e.g., ROSS, *supra* note 71, at 109.

88. See, e.g., GLEASON L. ARCHER, ENCYCLOPEDIA OF BIBLE DIFFICULTIES 58-63 (1982). The Hebrew term that is translated “day” in English is transliterated “yom.” Yom can refer to an extended period of time. See ROSS, *supra* note 71, at 108-09 (discussing, but not adopting, this meaning of yom).

89. This view is described, but not endorsed, by Charles Ryrie. See RYRIE, *supra* note 75, at 211.

90. See, e.g., BERNARD RAMM, THE CHRISTIAN VIEW OF SCIENCE AND SCRIPTURE 226-29 (1954). Some also describe a similar notion, the “framework hypothesis,” which argues that the days embody a literary device, rather than a chronology. See Robert C. Newman, *Progressive Creationism*, in THREE VIEWS ON CREATION AND EVOLUTION 103, 105 (J.P. Moreland & John Mark Reynolds eds., 1999) (describing, but not adopting, the framework hypothesis).

91. Simply stated, hermeneutics is “the science (principles) and art (task) by which the meaning of the biblical text is determined.” ROY B. ZUCK, BASIC BIBLE INTERPRETATION 19 (1991). Hermeneutics is prior to exegesis, the determination of the meaning of a text. See *id.* at 19-22.

92. See Cohen, *supra* note 79, at 24-27. The literary-historical method seeks to understand both the language and the culture of the world in which the Biblical author lived. See D.P. Fuller, *History of Interpretation*, in 2 THE INTERNATIONAL STANDARD BIBLE ENCYCLOPEDIA 863, 864 (Geoffrey W. Bromiley et al. eds., 1982). For a defense of the literary-historical method, see *id.* at 872-74.

93. See Cohen, *supra* note 79, at 27 (criticizing the mythological view).

surveying these competing views is to lay the groundwork for understanding the textual bases underlying the various theological conceptions of the nature of God's creative activity. This Article now turns to these various theological schools of thought.

*b) Theological Conceptions of the Nature of God's Creative Work in Genesis*

One theological position on the Genesis creation account is often called "theistic evolution,"<sup>94</sup> although the term "evolutionary creationism" more accurately captures the essence of the view.<sup>95</sup> Evolutionary creationism embraces the scientific consensus that complex organisms evolved from simple life forms through mutations and natural selection.<sup>96</sup> Further, evolutionary creationism posits that God extensively used, and even directed, the process of naturalistic evolution in creating.<sup>97</sup> As one thoughtful evolutionary creationist explains, this view embraces a "concept of a creation that has been equipped by God with all of the capabilities that are necessary to make possible the evolutionary development now envisioned by the natural sciences."<sup>98</sup>

Evolutionary creationism holds to the Biblical view of God as the creator and sustainer of the universe.<sup>99</sup> It simply interprets the Genesis account to set forth what may be described as a purely providential — as opposed to a miraculous or interventionist — picture of how God created the heavens and

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94. Dr. Ryrie is characteristic in describing the view discussed in the text accompanying this note as theistic evolution. See RYRIE, *supra* note 75, at 196-97. He obviously does not subscribe to this view. See *id.* For critiques of evolutionary creationism, see, for example, David H. Lane, *Theological Problems with Theistic Evolution*, 151 BIBLIOTHECA SACRA 155 (1994).

95. Cf. Howard J. Van Till, *The Fully Gifted Creation*, in THREE VIEWS ON CREATION AND EVOLUTION, *supra* note 90, at 159, 161, 172 (stating that he has occasionally styled his view as "evolving creation"). From the perspective of a theologian who embraces both the Biblical doctrine that God is the creator who brought everything else into being and the scientific evidence for the evolution of life on earth from simplistic life forms to complex organisms, the term "theistic evolution" improperly emphasizes the process — evolution — rather than the One who conceived, oversaw, and implemented the process — God. See *id.* Because an adherent of these two positions accepts God's role in creation as primary in two senses — chronologically and diachronically — I believe the position should be styled so as to convey that it is a form of creationism.

96. See J.P. Moreland & John Mark Reynolds, *Introduction to THREE VIEWS ON CREATION AND EVOLUTION*, *supra* note 90, at 7, 24-25.

97. See RYRIE, *supra* note 75, at 196-97.

98. Van Till, *supra* note 95, at 173.

99. See, e.g., *id.* at 170-71.

the earth.<sup>100</sup> Evolutionary creationists may embrace the day-age view of Genesis 1,<sup>101</sup> or view the passage as a creation myth.<sup>102</sup> Further, under their view, the creation is a product of God's design (as indicated in Genesis 1), but the evolutionary development of the creation did not require that God act through means other than the natural processes that He conceived.<sup>103</sup> Evolutionary creationism accepts the Biblical view that God interacts with His creation; it simply posits that, after God conceived of and "gifted" His creation with the capacity to develop, His additional acts upon His creation occurred through those natural processes that He initially created, rather than through extrinsic processes.<sup>104</sup>

Whereas evolutionary creationism may rightly be described as fully compatible with all current scientific data, the Biblically based theological conception of origins that is in the greatest tension with current scientific data (or, at least, with broadly held interpretations of such data) is "young-earth" (or "recent") creationism. Young-earth creationism holds that God directly created all life on earth (and even the entire cosmos) during the creation week of Genesis 1 and 2.<sup>105</sup> The days are typically taken to be solar days.<sup>106</sup> Coupled with the genealogies set forth in Genesis, this view deduces that the universe is of much more recent origin than what is widely believed today.<sup>107</sup> Young-earth creationists believe that the flood of Noah was not only historical, but also global.<sup>108</sup> The global flood is hypothesized to have produced the fossil record.<sup>109</sup> Young-earth creationists also believe that "[t]he curse of Genesis 3:14-19 profoundly affected every aspect of the natural economy."<sup>110</sup> Thus, all natural evil — including the death of animals — is attributable to the sin of man in the Garden of Eden. Major institutional advocates of the young-earth

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100. *Cf. id.* at 185-92 (rejecting the view that God miraculously "intervened" at various stages of creation in favor of the view that God conceptualized and magnificently "gifted" the universe with the capacity to evolve into its current state).

101. *See* RYRIE, *supra* note 75, at 196.

102. *See* David H. Lane, *Special Creation or Evolution: No Middle Ground*, 151 *BIBLIOTHECA SACRA* 11, 14 (1994).

103. *See* RYRIE, *supra* note 75, at 196.

104. *See* Van Till, *supra* note 95, at 243-44.

105. *See, e.g.,* Paul Nelson & John Mark Reynolds, *Young Earth Creationism*, in *THREE VIEWS ON CREATION AND EVOLUTION*, *supra* note 90, at 39, 42, 51-53.

106. *See, e.g., id.* at 44 (distinguishing recent and progressive creationists on the basis that the latter "tend to view the days of creation as long periods of time").

107. *See, e.g., id.* at 49-50, 73.

108. *See, e.g., id.* at 42.

109. *See* RYRIE, *supra* note 75, at 214.

110. *See* Nelson & Reynolds, *supra* note 105, at 42.

position include the Creation Research Society, the Geoscience Research Institute, and the Institute for Creation Research.<sup>111</sup>

If evolutionary creationism is at one end of the spectrum of compatibility with the current interpretation of scientific data by most scientists, and young-earth creationism is at the other end, somewhere between the two is “progressive” (or “old earth”) creationism. Progressive creationism also holds that God directly created the cosmos and life on earth, but that the earth, and indeed the entire universe, are old (even billions of years old).<sup>112</sup> Progressive creationists typically believe that God used “some combination of supernatural intervention and providential guidance” to create the universe.<sup>113</sup> They posit that God created all else that exists progressively, over long periods of time.<sup>114</sup> At least some progressive creationists appear willing to recognize the presence of some transitional species in the fossil record.<sup>115</sup> Although there are variations of progressive creationism, they all appear to adopt one of the various interpretations of “days” in Genesis that do *not* result in a creation week of six solar days for the entire universe.<sup>116</sup> Some of these views produce a rather striking correlation between the Genesis creation account and the broad understandings of Earth’s origins proposed by modern geology and astronomy.<sup>117</sup>

Creationists who argue for (1) an original creation (either described in Genesis 1:1 or elsewhere in Scripture) distinct from the universe as we now know it, and (2) a creation week of six solar days for the universe (as we now know it), are not, strictly speaking, progressive creationists.<sup>118</sup> They may appropriately be called “reconstructive creationists.” Unlike progressive creationists, reconstructive creationists do not interpret the bulk of Genesis 1 to advance a chronology of eras coinciding with the geological timetable.<sup>119</sup> This observation does not mean, however, that reconstructive creationists necessarily reject modern methods of dating the universe. Their view of an original creation, later judged by God, is consistent with a very old earth, even one created over billions of years ago. Further, their view of an original

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111. *See id.* at 42-43.

112. *See, e.g.,* Newman, *supra* note 90, at 105.

113. *See, e.g., id.* at 105-06.

114. *See, e.g., id.* at 106.

115. *See, e.g.,* John Jefferson Davis, *Response to Robert C. Newman, in* THREE VIEWS ON CREATION AND EVOLUTION, *supra* note 90, at 137, 137-40.

116. *See* Newman, *supra* note 90, at 107.

117. *See, e.g., id.* at 107-08.

118. *See id.* at 106.

119. *See id.* (describing the restoration of the earth as having occurred in “six literal days”).

creation much older than the “re-created” or “restored” planet allows for much modern interpretation of the data produced by the fossil record.<sup>120</sup>

*c) Summary: The Relationship Between Intelligent Design, Evolution, and Biblically Based Theological Conceptions of Origins*

The foregoing discussion compels the conclusion that Biblically based theological conceptions of origins are best conceptualized along a spectrum, rather than in distinct compartments. The spectrum represents the degree to which God is thought to be *directly* involved in the creative process (i.e., the degree to which God acts miraculously or by other forms of intervention, rather than providentially through nature). The degree of correspondence between a theological conception of origin and scientific conceptions of origins depends upon where the former falls along the spectrum.

At one end of the spectrum is young-earth creationism. Because of its very short creative period, and its view of a recent earth, young-earth creationism must be considered largely inconsistent with evolutionary theory; it certainly seems to leave no room for significant macroevolutionary development of life. Although young-earth creationism is consistent with the existence of an intelligent agent, it goes far beyond the views of intelligent design theorists (several of whom hold views inconsistent with young-earth creationism).

At the other end of the spectrum is evolutionary creationism. Evolutionary creationism accommodates widespread evolutionary development, and in its pure form (theoretically, at least) could even tolerate the origin of life through natural means. Evolutionary creationism could also embrace the “designer” of intelligent design, but it posits a different role for the designer than that contemplated by intelligent design theory.<sup>121</sup> To the evolutionary creationist, God acts exclusively (or almost exclusively) through processes that are plausibly explainable solely in natural terms, rather than through events of design (throughout the course of nature’s history) that are necessary to effect an outcome that nature would not have taken without some intelligent direction.<sup>122</sup> Moreover, and counterintuitively, for many evolutionary creationists, God could be much more active than the designer of intelligent

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120. See RYRIE, *supra* note 75, at 208-09.

121. See Del Ratzsch, *Design, Chance & Theistic Evolution*, in MERE CREATION, *supra* note 1, at 289, 300 (explaining that theistic evolution “can readily incorporate design that tracks back (continuously) to primordial conditions or to the ultimate structuring of natural laws and principles”).

122. See *id.* (“Thus where design theory potentially differs from theistic evolution will be precisely in the potential for explanatory appeals to design of a sort that requires intervention into cosmic history.”).

design.<sup>123</sup> Evolutionary creationism is consistent with the view that God is constantly and purposefully acting through the natural world that He has created; intelligent design requires no such constancy in the role of the designer.<sup>124</sup>

Progressive creationism and reconstructive creationism can accommodate a great deal of evolutionary development, as well as the direct activity of an intelligent agent. Progressive creationists typically believe that God created the universe and life in part through supernatural acts, which is consistent with intelligent design. Some progressive creationists also accept the probability of substantial evolutionary development of organisms. Similarly, there is nothing inherent in reconstructive creationism that requires a rejection of significant evolutionary development. In theory, the “original” creation contemplated by reconstructive creationists could have witnessed considerable evolution.

Finally, neither evolution nor intelligent design requires the adoption of any “creationist” view described herein. Evolutionary theory does not speak to God’s role in creation. Further, three of the creationist views described herein clearly do not require a rejection of evolutionary theory (at least not most of it). Only young-earth creationism appears incompatible with significant evolutionary development of organisms. Neither does intelligent design necessarily correspond to any Biblical account of creation. Intelligent design deduces intelligent agency, but not one that must fit a Christian conception of a creator. Indeed, the agent of design need not (though it could) work outside of natural laws (i.e., miraculously).<sup>125</sup>

## *2. Non-Biblically Based Theological Conceptions of Origins*

Two important theological views of origins that are not compatible with any plausible interpretation of the Biblical account of creation are deistic evolution and atheistic evolution. Deistic evolution posits the existence of God, but has little else in common with any form of creationism. Deistic evolution understands God to have created the universe so that natural processes occurring subsequent to the original creation exclusively have caused the extensive development of all life forms, unaided (or substantially unaided) through time by further divine activity.<sup>126</sup> It appears that Charles Darwin was

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123. *See id.* at 310 n.4 (“Many theistic evolutionists claim that God upholds all things at every instance and that laws describe his usual ways of dealing with the cosmos.”).

124. Neither does intelligent design refute such a role for the designer, of course.

125. *See Dembski, supra* note 41, at 17 (“[I]ntelligent design presupposes neither a creator nor miracles.”). For an explanation of why design theory involves “a hands-on directing” but not necessarily a “gap” in natural laws, see Ratzsch, *supra* note 121, at 290-302.

126. *See* Geoffrey W. Bromiley, *Evolution*, in 2 THE INTERNATIONAL STANDARD BIBLE

theologically at most a deistic evolutionist, at least when he wrote the first edition of *On the Origin of Species*.<sup>127</sup>

What may be called atheistic evolution holds that materialistic, evolutionary processes solely account for all life forms.<sup>128</sup> Whereas deistic evolution allows for a creator as first cause, atheistic evolution does not. Atheistic evolution does not merely say that natural processes were involved in the evolution of life. Rather, atheistic evolution boldly proclaims that *only* natural processes account for life's origins and development. Atheistic evolution is a theological conception of origins because it takes a position, explicitly or implicitly, on whether God is in any sense responsible for the origin and development of life, notwithstanding that the position can never be verified merely from observing nature.<sup>129</sup>

For purposes of constitutional law, the most important reason to identify and define deistic and atheistic evolution is to ensure that they are recognized as theological conceptions of origins. A high school science teacher who advocates atheistic evolution, for example, is promoting a theological position just as surely as is his counterpart across the hallway who opines that God created all life forms through evolutionary processes. Under the Constitution, the state has no more business advancing non-Biblically based theologies of life's origins and development than it has advancing Christian conceptions of the same. This point should be obvious to anyone even modestly familiar with the relevant Supreme Court precedent. The next part of this Article reviews the most important Supreme Court case law bearing upon this subject.

## *II. Relevant Supreme Court Precedent Interpreting the Establishment Clause*

Under the first clause of the First Amendment to the United States Constitution, "Congress shall make no law respecting an establishment of

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ENCYCLOPEDIA, *supra* note 92, at 212.

127. In a letter to Asa Gray dated May 22, 1860, Darwin wrote that he was "inclined to look at everything as resulting from designed laws," with all details "left to the working out of what we may call chance." VERNON BLACKMORE & ANDREW PAGE, *EVOLUTION: THE GREAT DEBATE* 118 (1989).

128. *See, e.g.*, JACQUES MONOD, *CHANCE AND NECESSITY* 112-13 (1971) (attributing all innovations of evolution to chance alone).

129. Observe that atheistic evolution does not necessarily subsume atheism, the belief that there is no God. In the sense I am using the term, it is evolution that is thought to be without God, not necessarily the whole of reality. Of course, an evolutionist who is an atheist would endorse atheistic evolution. My point is simply that, in theory, one can believe in God and yet embrace atheistic evolution, because theism does not necessarily require the belief that God is to any degree responsible for creating the material world.

religion, or prohibiting the free exercise thereof.”<sup>130</sup> This constitutional text, consisting of two related but distinct prohibitions, has been judicially expounded as the Establishment Clause and the Free Exercise Clause. Although the clauses literally apply only to federal laws, each applies to actions by state governments through their incorporation by the Fourteenth Amendment.<sup>131</sup> This part first discusses (briefly, when possible) the most important Supreme Court case law interpreting the Establishment Clause. Next, this part succinctly discusses the two Supreme Court cases that have interpreted the Establishment Clause in the context of the origins controversy. This survey provides the legal background necessary for specifically analyzing the constitutional implications of teaching intelligent design in the public school science classroom.

#### A. *The Establishment Clause Tests and Norms*

The Supreme Court does not uniformly apply any single test in determining whether a law violates the Establishment Clause.<sup>132</sup> For many years, the Court consistently applied the three-pronged test of *Lemon v. Kurtzman*,<sup>133</sup> with only one exception.<sup>134</sup> Under the first prong of the *Lemon* test, the legislature must have adopted the law with a secular purpose.<sup>135</sup> Second, the statute's principal or primary effect must be one that neither advances nor inhibits religion.<sup>136</sup> Third, the statute must not result in an excessive entanglement of government with religion.<sup>137</sup> Courts have applied the *Lemon* test to invalidate numerous state policies and practices, including those operative in public schools.<sup>138</sup>

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130. U.S. CONST. amend. I.

131. *See* *Everson v. Bd. of Educ.*, 330 U.S. 1, 14-15 (1947) (holding that the Fourteenth Amendment incorporates the Establishment Clause); *Cantwell v. Connecticut*, 310 U.S. 296, 303-04 (1940) (holding that the Fourteenth Amendment incorporates the Free Exercise Clause).

132. *See* *Van Orden v. Perry*, 545 U.S. 677, 686 (2005) (plurality opinion) (Rehnquist, C.J.) (observing that many recent decisions of the Court do not apply the *Lemon* test).

133. 403 U.S. 602, 612-13 (1971).

134. Indeed, as of the date that the Supreme Court decided its second case involving the teaching of evolution in the public schools, the *Lemon* test had been applied in all but one case. *See* *Edwards v. Aguillard*, 482 U.S. 578, 583 n.4 (1987). The one exception was *Marsh v. Chambers*, 463 U.S. 783, 795 (1983), which upheld the Nebraska legislature's practice of having a state-funded chaplain open each legislative session with prayer.

135. *Lemon*, 403 U.S. at 612.

136. *Id.*

137. *Id.* at 613.

138. *See* *Wallace v. Jaffree*, 472 U.S. 38, 55-61 (1985) (invalidating Alabama's moment of silence statute that was designed to give children an opportunity to pray at school); *Stone v. Graham*, 449 U.S. 39, 42-43 (1980) (per curiam) (invalidating a Kentucky statute that required the posting of the Ten Commandments on public school walls).

*Lemon* has drawn severe criticism,<sup>139</sup> and recent opinions of the Court illustrate its inconsistent influence. In the 2004 Supreme Court term, Chief Justice Rehnquist's plurality opinion in *Van Orden v. Perry* declined to apply the *Lemon* test.<sup>140</sup> Instead, in finding no constitutional impediment to exhibiting a monument inscribed with the Ten Commandments on the Texas State Capitol grounds (which featured seventeen monuments and twenty-one historical markers on twenty-two acres of land), Chief Justice Rehnquist (joined by Justices Scalia, Kennedy, and Thomas) focused on the nature of the monument and the history of the nation.<sup>141</sup> The plurality observed the pervasive governmental acknowledgment of the role of God and religion generally, and the Ten Commandments specifically, in our nation's heritage,<sup>142</sup> and concluded that the monument was a "passive use" of the religious text by Texas, representing (along with other monuments) several strands in the state's political and legal history.<sup>143</sup>

In the same term, however, *Lemon* commanded a majority of the Court in *McCreary County v. ACLU*.<sup>144</sup> In this case, the Court struck down two county courthouse exhibits that prominently displayed the Ten Commandments (along with other documents of historic interest that evinced our nation's religious heritage).<sup>145</sup> The Court found that the counties had acted with the unlawful purpose of advancing religion, in violation of the first prong of the *Lemon* test.<sup>146</sup> Far from ignoring *Lemon*, the Court applied it expansively, for the

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139. The late Chief Justice Rehnquist and Justice Scalia represent *Lemon*'s most vocal critics on the bench. For example, Chief Justice Rehnquist emphasized the Court's unwillingness to apply *Lemon* uniformly and *Lemon*'s faulty doctrinal basis. See, e.g., *Santa Fe Indep. Sch. Dist. v. Doe*, 530 U.S. 290, 319-20 (2000) (Rehnquist, C.J., dissenting). Justice Scalia has likened *Lemon* to "some ghoul in a late-night horror movie that repeatedly sits up in its grave and shuffles abroad, after being repeatedly killed and buried," and observed that "five of the currently sitting Justices have, in their own opinions, personally driven pencils through the creature's heart." *Lamb's Chapel v. Ctr. Moriches Union Free Sch. Dist.*, 508 U.S. 384, 398 (1993) (Scalia, J., concurring). For academic critiques of *Lemon*, see, for example, Jesse H. Choper, *The Establishment Clause and Aid to Parochial Schools—An Update*, 75 CAL. L. REV. 5 (1987); Hal Culbertson, *Religion in the Political Process: A Critique of Lemon's Purpose Test*, 1990 U. ILL. L. REV. 915; Philip B. Kurland, *The Religion Clauses and the Burger Court*, 34 CATH. U. L. REV. 1 (1984); William P. Marshall, "We Know It When We See It": *The Supreme Court and Establishment*, 59 S. CAL. L. REV. 495 (1986); Michael McConnell, *Accommodation of Religion*, 1985 SUP. CT. REV. 1.

140. *Van Orden v. Perry*, 545 U.S. 677, 686 (2005) (plurality opinion).

141. See *id.* at 686-91.

142. See *id.* at 686-90.

143. See *id.* at 691.

144. 545 U.S. 844 (2005).

145. See *id.* at 881.

146. See *id.* at 866-74.

Court interpreted its requirement of a valid secular purpose to mandate one that is “not merely secondary to a religious objective.”<sup>147</sup>

Related to the *Lemon* test is the “endorsement” test first articulated by Justice O’Connor in her concurrence in *Lynch v. Donnelly*.<sup>148</sup> This test recasts *Lemon* as follows:

The purpose prong of the *Lemon* test asks whether government’s actual purpose is to endorse or disapprove of religion. The effect prong asks whether, irrespective of government’s actual purpose, the practice under review in fact conveys a message of endorsement or disapproval. An affirmative answer to either question should render the challenged practice invalid.<sup>149</sup>

When the question involves a religious activity in which the state arguably participates, a relevant question is “whether an objective observer, acquainted with the text, legislative history, and implementation of the statute, would perceive it as a state endorsement” of the religious activity.<sup>150</sup> The endorsement test reflects the judgment that governmental endorsement of religion “sends a message to nonadherents” of the concept or practice endorsed “that they are outsiders, not full members of the political community, and an accompanying message to adherents that they are insiders, favored members of the political community.”<sup>151</sup> Correlatively, when government disapproves of religion, it “sends the opposite message.”<sup>152</sup> The endorsement test has been followed by a majority of the Court on occasion,<sup>153</sup> but never consistently.

Another test for ascertaining a violation of the Establishment Clause is that of “noncoercion.”<sup>154</sup> Under this test, a law violates the Establishment Clause if the government’s promotion of religion either forces the profession of

147. *Id.* at 864.

148. 465 U.S. 668, 690 (1984) (O’Connor, J., concurring).

149. *See id.*

150. *Wallace v. Jaffree*, 472 U.S. 38, 76 (1985) (O’Connor, J., concurring).

151. *Lynch*, 465 U.S. at 688 (O’Connor, J., concurring).

152. *Id.*

153. *See, e.g., Santa Fe Indep. Sch. Dist. v. Doe*, 530 U.S. 290, 305-10, 316 (2000) (holding unconstitutional the practice of allowing student-elected representatives to pray before high school football games); *County of Allegheny v. ACLU Greater Pittsburgh Chapter*, 492 U.S. 573 (1989) (holding unconstitutional the prominent display of a nativity scene on government property).

154. *See, e.g., County of Allegheny*, 492 U.S. at 659 (Kennedy, J., concurring in part and dissenting in part) (“Our cases disclose two limiting principles: government may not coerce anyone to support or participate in any religion or its exercise; and it may not, in the guise of avoiding hostility or callous indifference, give direct benefits to religion in such a degree that it in fact ‘establishes a [state] religion or religious faith, or tends to do so.’” (alteration in original) (quoting *Lynch*, 465 U.S. at 678)).

religion or participation in a religious ceremony. The Court has occasionally found government action coercive, even when the government's contribution to the coercion is indirect and lacking any threat of penalty.<sup>155</sup> Some Justices, however, would limit the application of the coercion test to cases involving the threat of actual legal force.<sup>156</sup>

Each of these tests may be understood as grounded in one or more norms perceived to explain the purpose of the Establishment Clause. Commonly articulated norms include neutrality, or equality, either among religions or between religion and nonreligion;<sup>157</sup> religious liberty;<sup>158</sup> separation of church and state;<sup>159</sup> and the avoidance of social divisiveness based upon religion.<sup>160</sup> Recently, the Court has emphasized the neutrality norm: "The touchstone for our analysis is the principle that the 'First Amendment mandates governmental neutrality between religion and religion, and between religion and nonreligion.'"<sup>161</sup>

Reiterating this point, the Court in *McCreary County* characterized religious neutrality as the "central Establishment Clause value."<sup>162</sup> Indeed, Justice Souter's majority opinion devotes an entire section to explaining why the neutrality norm has "provided a good sense of direction" in the Court's Establishment Clause jurisprudence.<sup>163</sup>

### B. Cases on Origins

The United States Supreme Court has twice considered controversies over the teaching of evolution in the public school science classroom.<sup>164</sup> In

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155. For example, in *Santa Fe*, the Court found coercion where, through a student election authorized by the school district, a student was selected to deliver an invocation before high school football games. The coercion took the form of social pressure "to participate in an act of religious worship." *Santa Fe Indep. Sch. Dist.*, 530 U.S. at 312.

156. See, e.g., *Elk Grove Unified Sch. Dist. v. Newdow*, 542 U.S. 1, 52 (2004) (Thomas, J., concurring) (arguing that the Framers of the Constitution understood establishment to embody actual legal coercion); *Lee v. Weisman*, 505 U.S. 577, 640 (1992) (Scalia, J., dissenting) (arguing that the coercion of historical concern was that which occurred through "force of law and threat of penalty").

157. See, e.g., *McCreary County v. ACLU*, 545 U.S. 844, 860 (2005).

158. See, e.g., *Sch. Dist. of Abington Twp. v. Schempp*, 374 U.S. 203, 223 (1963) (stating that the common purpose of the religion clauses "is to secure religious liberty").

159. See, e.g., *Van Orden v. Perry*, 545 U.S. 677, 698 (2005) (Breyer, J., concurring).

160. See *id.*

161. *McCreary County*, 545 U.S. at 860 (quoting *Epperson v. Arkansas*, 393 U.S. 97, 104 (1968)).

162. *Id.*

163. *Id.* at 875.

164. For two federal appellate court opinions decided since the Supreme Court last ruled on the teaching of origins in the public schools, see *Pelozo v. Capistrano Unified Sch. Dist.*, 37

*Epperson v. Arkansas*,<sup>165</sup> the Court held unconstitutional an Arkansas statute forbidding any teacher in a state-supported school or university to teach, or adopt a textbook advancing, the theory that mankind ascended or descended from a lower order of animals.<sup>166</sup> The Court so held, regardless of whether the statute was construed to forbid instruction about the theory of evolution, or to forbid “any or all of the infinite varieties of communication embraced within the term ‘teaching.’”<sup>167</sup> Concluding that the statute violated the Establishment Clause, the Court identified as the “overriding fact” that the state had proscribed a segment of “the body of knowledge” that was thought to “conflict with a particular religious doctrine; that is, with a particular interpretation of the Book of Genesis by a particular religious group.”<sup>168</sup>

Just as the express language of the Court’s opinion identifies the “overriding fact” of the case, so the structure and language of the opinion discloses the overriding legal norm that guided the Court’s analysis — neutrality. At the inception of the Court’s legal analysis, the opinion articulates, and even elevates, the neutrality norm in unmistakable terms:

Government in our democracy, state and national, must be neutral in matters of religious theory, doctrine, and practice. It may not be hostile to any religion or to the advocacy of non-religion; and it may not aid, foster, or promote one religion or religious theory against another or even against the militant opposite. The First Amendment mandates governmental neutrality between religion and religion, and between religion and nonreligion.<sup>169</sup>

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F.3d 517 (9th Cir. 1994) (holding that a school district could require a high school biology teacher to teach the theory of evolution), and *Webster v. New Lennox Sch. Dist.*, 917 F.2d 1004 (7th Cir. 1990) (holding that a school board could prohibit the teaching of creation science). See also G. Sidney Buchanan, *Evolution, Creation-Science, and the Meaning of Primary Religious Purpose*, 58 SMU L. REV. 303, 310-11 (2005).

165. 393 U.S. 97 (1968).

166. See *id.* at 109. See generally ARK. STAT. ANN. §§ 80-1627 to -1628 (1960). The statute was adapted from the notorious Tennessee “monkey law” at issue in *Scopes v. State*, 289 S.W. 363 (Tenn. 1927), a case of Hollywood fame. See *Epperson*, 393 U.S. at 98. Violation of the statute constituted a misdemeanor and resulted in termination of the offending teacher’s employment. See *id.* at 99.

167. *Epperson*, 393 U.S. at 103. Thus, the Court held that the state could not constitutionally forbid an instructor from teaching that the theory of evolution is true. When the Arkansas Supreme Court upheld the statute, it refused to express a view on whether the statute prohibited explanation of the theory or forbade teaching that the theory is true. See *id.* at 102. The United States Supreme Court concluded that the statute was unconstitutional “on either interpretation of its language.” See *id.* at 103.

168. *Id.* at 103.

169. *Id.* at 103-04 (citing *Torcaso v. Watkins*, 367 U.S. 488, 495 (1961); *Fowler v. Rhode Island*, 345 U.S. 67, 70 (1953); *Zorach v. Clauson*, 343 U.S. 306, 313-14 (1952); *McCollum v.*

Having grounded its opinion firmly on the neutrality norm, the Court insisted on the inability of government to suppress dissent from orthodoxy. It quoted *Watson v. Jones*<sup>170</sup> for the proposition that “[t]he law knows no heresy, and is committed to the support of no dogma, the establishment of no sect.”<sup>171</sup> Similarly, the Court reiterated that the First Amendment prohibits “laws that cast a pall of orthodoxy over the classroom.”<sup>172</sup> Again, said the Court, the First Amendment does not authorize the state “to require that teaching and learning must be tailored to the principles or prohibitions of any religious sect or dogma.”<sup>173</sup> This constitutional prohibition against state-enforced orthodoxy derives directly from the neutrality norm, as the following excerpt makes clear:

While study of religions and of the Bible from a literary and historic viewpoint, presented objectively as part of a secular program of education, need not collide with the First Amendment's prohibition, the State may not adopt programs or practices in its public schools or colleges which “aid or oppose” any religion. This prohibition is absolute. It forbids alike the preference of a religious doctrine or the prohibition of theory which is deemed antagonistic to a particular dogma. As Mr. Justice Clark stated in *Joseph Burstyn, Inc. v. Wilson*, “the state has no legitimate interest in protecting any or all religions from views distasteful to them . . . .” The test was stated as follows in *Abington School District v. Schempp*: “[W]hat are the purpose and the primary effect of the enactment? If either is the advancement or inhibition of religion then the enactment exceeds the scope of legislative power as circumscribed by the Constitution.”<sup>174</sup>

The Court had no difficulty concluding that the Arkansas statute violated the constitutionally grounded neutrality norm. The Court found that the state enacted the legislation with a religious motive; it forbade discussion of the theory of evolution because of its inconsistency with certain Biblically based viewpoints.<sup>175</sup> According to the Court, no evidence suggested that the law

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Bd. of Educ., 333 U.S. 203, 210-11 (1948); *Everson v. Bd. of Educ.*, 330 U.S. 1, 18 (1947)).

170. 80 U.S. 679 (1872).

171. *Epperson*, 393 U.S. at 104 (quoting *Watson*, 80 U.S. at 728).

172. *Id.* at 105 (quoting *Keyishian v. Bd. of Regents*, 385 U.S. 589, 603 (1967)).

173. *Id.* at 106.

174. *Epperson*, 393 U.S. at 106-07 (alteration in original) (citations omitted) (quoting *Sch. Dist. of Abington Twp. v. Schempp*, 374 U.S. 203, 222 (1963); *Joseph Burstyn, Inc. v. Wilson*, 343 U.S. 495, 505 (1952)).

175. *See id.* at 107-09.

could be justified “by considerations of state policy other than the religious views of some of its citizens.”<sup>176</sup> Thus, the law “cannot be defended as an act of religious neutrality.”<sup>177</sup>

In the second case on origins considered by the Supreme Court, *Edwards v. Aguillard*,<sup>178</sup> the Court struck down a Louisiana statute that required balanced instruction in public elementary and secondary schools on the theory of evolution and creation science.<sup>179</sup> The law required no instruction in origins unless either theory was taught, in which case both theories must be taught.<sup>180</sup> In holding that the law violated the Establishment Clause, the Court relied upon the *Lemon* test,<sup>181</sup> specifically upon its first prong.<sup>182</sup> Construing *Lemon*’s first prong to ask whether the actual purpose of the government is to endorse or disapprove of religion,<sup>183</sup> the Court found both the absence of a secular purpose,<sup>184</sup> and the presence of a primarily religious purpose.<sup>185</sup>

Although the stated secular purpose of the legislation was promoting academic freedom, the Court rejected that rationale because the law’s sponsor hoped to narrow the science curriculum, the law conferred no new authority upon teachers to teach numerous scientific theories of origins, and the law provided special resources for teaching creation science.<sup>186</sup> Moreover, if the secular purpose was to enhance science instruction, the law would have encouraged presentation of all scientific theories about the origins of humankind.<sup>187</sup>

The Court also found a primarily religious purpose for the law. The Court discerned in the case at bar the “same historic and contemporaneous antagonisms between the teachings of certain religious denominations and the teaching of evolution” that drove previous controversies over the teaching of evolution in public schools.<sup>188</sup> According to the Court, “[t]he preeminent purpose of the Louisiana Legislature was clearly to advance the religious

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176. *Id.* at 107.

177. *Id.* at 109.

178. 482 U.S. 578 (1987).

179. *See id.* at 596-97.

180. Balanced Treatment for Creation-Science and Evolution-Science Act, LA. REV. STAT. ANN. §§ 17:286.1-:286.7 (1982); *see Edwards*, 482 U.S. at 581.

181. *See Edwards*, 482 U.S. at 582-83.

182. *See id.* at 585-97.

183. *See id.* at 585 (citing *Lynch v. Donnelly*, 465 U.S. 668, 690 (1984) (O’Connor, J., concurring)).

184. *See id.* at 586-89.

185. *See id.* at 589-94.

186. *See id.* at 587-88.

187. *See id.* at 588.

188. *Id.* at 591.

viewpoint that a supernatural being created humankind.”<sup>189</sup> The Court noted the “religious motives” that legislators revealed in speaking for the legislation,<sup>190</sup> and found a purpose to advance religion:

Furthermore, it is not happenstance that the legislature required the teaching of a theory that coincided with this religious view [i.e., divine creation]. The legislative history documents that the Act’s primary purpose was to change the science curriculum of public schools in order to provide persuasive advantage to a particular religious doctrine that rejects the factual basis of evolution in its entirety. The sponsor of the Creationism Act . . . explained during the legislative hearings that his disdain for the theory of evolution resulted from the support that evolution supplied to views contrary to his own religious beliefs. According to [him], the theory of evolution was consonant with the “cardinal principle[s] of religious humanism, secular humanism, theological liberalism, atheism *[sic]*.” The state senator repeatedly stated that scientific evidence supporting his religious views should be included in the public school curriculum to redress the fact that the theory of evolution incidentally coincided with what he characterized as religious beliefs antithetical to his own. The legislation therefore sought to alter the science curriculum to reflect endorsement of a religious view that is antagonistic to the theory of evolution.<sup>191</sup>

Because the primary purpose of the Louisiana statute was to advance a particular religious belief, the law “endorse[d] religion in violation of the First Amendment.”<sup>192</sup>

### C. Summary

Under existing Supreme Court precedent, the constitutionality of teaching intelligent design in the public school science classroom depends in part on whether a decision to teach it (or forbid its teaching) is driven primarily by a religious purpose. Also relevant is whether any such decision will have the primary effect of advancing or inhibiting religion. The precise test that the Court would use to decide a case involving the teaching of intelligent design is not perfectly clear. Nevertheless, it is probable that the neutrality norm would guide the Court’s analysis. Whether the teaching of intelligent design

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189. *Id.*

190. *Id.* at 591 n.13.

191. *Id.* at 592-93 (citation omitted).

192. *Id.* at 593.

could ever survive scrutiny under these principles is the topic to which this Article now turns.

### *III. Why All the Fuss: Controversial Threshold Questions*

Ultimately, this Article argues that the constitutionality of teaching, or forbidding the teaching of, intelligent design in the public school science classroom depends on case-specific factors. Before discussing these factors, it is essential to address two threshold questions that have generated academic controversy. The threshold questions must be answered in the negative before a consideration of the specific facts of any case is even necessary. The first question is whether evolution or intelligent design inherently constitutes a religion or consists of religious ideas. The second question is whether science is inherently and absolutely nontheological (at least in its methodological assumptions). This Part explores each question in turn.

#### *A. Does Evolution or Intelligent Design Inherently Constitute a “Religion” or Inherently Consist of “Religious” Ideas?*

##### *1. The Meaning of Religion*

Opponents of teaching evolution by natural selection in the public schools have charged (albeit, unsuccessfully thus far in the courts) that evolution is a religion.<sup>193</sup> Similarly, opponents of teaching intelligent design in the public school science classroom have argued that intelligent design is a religion.<sup>194</sup> A person unfamiliar with the judicial history interpreting the First Amendment would likely assume that the definition of “religion” under the Constitution is plainly articulated by now. It is not. The Court, however, has provided some modest guidance on the meaning of religion.<sup>195</sup>

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193. See *infra* note 229 and accompanying text.

194. See *infra* notes 245-257 and accompanying text.

195. A vast body of literature discusses the meaning of religion — both descriptively and normatively — under the religion clauses. See, e.g., A. Stephen Boyan, Jr., *Defining Religion in Operational and Institutional Terms*, 116 U. PA. L. REV. 479 (1968); James M. Donovan, *God Is as God Does: Law, Anthropology, and the Definition of “Religion,”* 6 SETON HALL CONST. L.J. 23 (1995); Dmitry N. Feofanov, *Defining Religion: An Immodest Proposal*, 23 HOFSTRA L. REV. 309 (1994); Kent Greenawalt, *Religion as a Concept in Constitutional Law*, 72 CAL. L. REV. 753 (1984); Val D. Ricks, *To God God’s, to Caesar Caesar’s, and to Both the Defining of Religion*, 26 CREIGHTON L. REV. 1053 (1993); C. John Sommerville, *Defining Religion and the Present Supreme Court*, 6 U. FLA. J.L. & PUB. POL’Y 167 (1994); Lee J. Strang, *The Meaning of “Religion” in the First Amendment*, 40 DUQ. L. REV. 181 (2002); Eduardo Peñalver, Note, *The Concept of Religion*, 107 YALE L.J. 791 (1997); Note, *Toward a Constitutional Definition of Religion*, 91 HARV. L. REV. 1056 (1978). The cases cited in this Article are discussed at length in this literature. For a discussion of the attempts to provide

In *Davis v. Beason*,<sup>196</sup> the Supreme Court's earliest broad articulation of the meaning of "religion,"<sup>197</sup> the Court interpreted the term to refer to "one's views of his relations to his Creator, and to the obligations they impose" as a result of reverence and as a matter of obedience.<sup>198</sup> According to the Court, religion was "often confounded" with a form of worship, but is distinguishable from it.<sup>199</sup> The religion clauses were intended

to allow everyone . . . to entertain such notions respecting his relations to his Maker and the duties they impose as may be approved by his judgment and conscience, and to exhibit his sentiments in such form of worship as he may think proper, not injurious to the equal rights of others, and to prohibit legislation for the support of any religious tenets, or the modes of worship of any sect.<sup>200</sup>

Thus, under *Davis v. Beason*, "religion" has a relational perspective, a devotional and moral orientation, a theistic aim, and often a doctrinal grounding.

Since *Davis v. Beason*, the Supreme Court has broadened its conception of religion, but not with clear boundaries. In *Torcaso v. Watkins*,<sup>201</sup> in which the Court invalidated a provision of the Maryland Constitution that conditioned service in public office on the profession of a belief in God,<sup>202</sup> the Court observed that various religions in the United States (including Buddhism, Taoism, Ethical Culture, and Secular Humanism) do not hold to a belief in God.<sup>203</sup> The *Torcaso* opinion obviously precludes any reading of *Davis v. Beason* that the constitutional meaning of the term "religion" necessarily requires a belief in God. Plainly, under *Torcaso*, belief in God is not inherent to religion. A related principle must also not be overlooked. *Torcaso* never holds that "religion" is inherent to a belief in God. Although this issue is

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some clarity to the meaning of "religion" in the lower courts (and for an argument that intelligent design is not a "religion"), see DeWolf, Meyer & DeForrest, *supra* note 1, at 79-87.

196. 133 U.S. 333 (1890) (holding that antipolygamy laws do not establish a religion), *overruled on other grounds* by *Romer v. Evans*, 517 U.S. 620, 634 (1996).

197. The Court had previously considered the scope of the constitutional protection of freedom of "religion." See, e.g., *Reynolds v. United States*, 98 U.S. 145, 161-68 (1879). Although the *Reynolds* Court distinguished between religious belief and conduct, *see id.* at 164, 166, it declined to opine plainly upon the scope of "religious" belief or conduct.

198. *See Davis*, 133 U.S. at 342.

199. *Id.*

200. *Id.*

201. 367 U.S. 488 (1961).

202. *Id.* at 495-96. See generally MD. CONST., DECLARATION OF RIGHTS art. 37.

203. *Torcaso*, 367 U.S. at 495 n.11.

discussed in detail below,<sup>204</sup> for present purposes it is sufficient to observe that the state constitutional provision at issue in *Torcaso* itself required profession of belief in God *explicitly as a religious test*.<sup>205</sup> The question of whether one can maintain a belief in God that is not, strictly speaking, an element of one's "religion," was not before the Court.

The remaining indicia of religion advanced in *Davis v. Beason* (i.e., those indicia other than theistic aim) have resurfaced in some form in later Supreme Court opinions. In *Seeger v. United States*,<sup>206</sup> the Court construed a federal statute exempting from military service persons who object to such service on account of their religious training and belief. The federal law defined "religious training and belief" as that "in a relation to a Supreme Being involving duties superior to those arising from any human relation," but excluding beliefs that are primarily "political, sociological, or philosophical" and those attributable to "a merely personal moral code."<sup>207</sup> The Court construed the statute to differentiate the statutorily designated "Supreme Being" from God, so that the statute afforded protection to all who held a belief "that is sincere and meaningful" and that "occupies a place in the life of its possessor parallel to that filled by the orthodox belief in God of one who clearly qualifies for the exemption."<sup>208</sup> The Court adopted this test because it "avoid[ed] imputing to Congress an intent to classify different religious beliefs," and comported with the "congressional policy of equal treatment for those whose opposition to service is grounded in their religious tenets."<sup>209</sup> Further, the Court deemed its construction as "embrac[ing] the ever-broadening understanding of the modern religious community."<sup>210</sup>

The Court revisited the statute at issue in *Seeger* in *Welsh v. United States*.<sup>211</sup> In *Welsh*, the conscientious objector grounded his opposition to combat in deeply held moral beliefs which were not associated with allegiance to God or affiliation with any organized religious faith.<sup>212</sup> The Court held that

204. See *infra* Part III.A.3.

205. See *Torcaso*, 367 U.S. at 489 (citing MD. CONST., DECLARATION OF RIGHTS art. 37).

206. 380 U.S. 163 (1965).

207. *Id.* at 164-65 (citing Universal Military Training and Service Act § 6(j), 50 U.S.C. app. § 456(j) (1958) (amended 1967 & 1971)).

208. *Id.* at 165-66.

209. *Id.* at 176.

210. *Id.* at 180-83. This "ever-broadening understanding" apparently refers to modern efforts to conceptualize God as other than the personal, eternal, omniscient, omnipotent, omnipresent Being who created all else that is. This rationale of *Seeger* should be interpreted to mean not that Congress intended any particular modern conception of God, but that Congress intended to exempt even those whose views of God are not traditional.

211. 398 U.S. 333 (1970).

212. *Id.* at 338.

the objector was entitled to exemption under the statute.<sup>213</sup> The Court opined that under *Seeger*, the determination of whether a registrant holds religious beliefs in opposition to warfare rests on whether such beliefs “play the role of a religion and function as a religion in the registrant’s life.”<sup>214</sup> Opposition to war must “stem from the registrant’s moral, ethical, or religious beliefs about what is right and wrong,” and the registrant must cling to such beliefs “with the strength of traditional religious convictions.”<sup>215</sup> The Court observed that most “great religions” posit the existence of God (or some “Supreme Reality”) who “communicates to man in some way a consciousness of what is right and should be done, and what is wrong and therefore should be shunned.”<sup>216</sup> According to the Court, if a person sincerely embraces purely moral convictions that compel his conscience to refrain from combat, such beliefs play a role analogous to a belief in God in traditional religions.<sup>217</sup> Such an objector is entitled to exemption under the statute “[b]ecause his beliefs function as a religion in his life.”<sup>218</sup>

The majority opinions in *Seeger* and *Welsh* do not purport to define “religion” for purposes of constitutional law. Nonetheless, the concepts of religion expressed in those opinions are relevant to determining the meaning of religion under the First Amendment.<sup>219</sup> First, as observed in Justice Douglas’s concurring opinion in *Seeger*,<sup>220</sup> Justice Harlan’s opinion concurring in the result in *Welsh*,<sup>221</sup> and Justice White’s dissent in *Welsh*,<sup>222</sup> the construction of the statute at issue had obvious constitutional implications. For Justices Douglas and Harlan, the statute would have violated the

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213. *Id.* at 343-44.

214. *Id.* at 339.

215. *Id.* at 340.

216. *Id.*

217. *See id.*

218. *Id.*

219. For a brief discussion of how two federal appellate courts have articulated the meaning of “religion,” see *infra* note 278.

220. *See* *United States v. Seeger*, 380 U.S. 163, 188-93 (1965) (Douglas, J., concurring) (arguing that a construction of the statute that limited the concept of a Supreme Being to an orthodox conception of God would render the statute unconstitutional as a violation of the Free Exercise clause).

221. Justice Harlan concluded that the statute was properly construed to exempt from military service only those whose objection to war arose from theistic beliefs, and that the statute so construed violated the Establishment Clause. *See Welsh*, 398 U.S. at 344 (Harlan, J., concurring).

222. Justice White (joined by Chief Justice Burger and Justice Stewart) concluded that the Court’s opinion was an unjustifiable construction of the statute, and that the objector was not exempt from service regardless of whether the exemption (as properly construed) was constitutional. *See id.* at 367 (White, J., dissenting).

Establishment Clause if it were properly construed to exempt only those whose objections to military service were grounded in a belief in God. Insofar as the definition of “religious” and “Supreme Being” under the statute had constitutional implications, it is sensible to look to these opinions for guidance as to the meaning of “religion” under the First Amendment. Second, the Court in *Seeger* and *Welsh* was willing to interpret “religious” belief very broadly. A broad definition of “religion”, for First Amendment purposes, appeals to many, insofar as a broad definition maximizes protection of the free exercise of religion, and minimizes the risk that government will impose religious orthodoxy on nonadherents.

Of special interest is that *Seeger* and *Welsh* reinforce much of the Court’s constitutional understanding of the meaning of religion expressed in *Davis v. Beason*, as limited by *Torcaso v. Watkins*. According to the combined guidance of the latter two cases, “religion” has a relational perspective, a devotional and moral orientation, and often a doctrinal grounding.<sup>223</sup> These concepts resonate with the language of *Seeger* and *Welsh*, which associates religion with tenets;<sup>224</sup> guidance on what is right and wrong;<sup>225</sup> relationship to a power, being, or faith (such as subordination or dependency);<sup>226</sup> and impact on behavior.<sup>227</sup>

As others have perennially noted,<sup>228</sup> the precise definition of “religion” under the First Amendment is unknown. However, the case law surveyed above provides some direction in the quest for ascertaining the broad contours of the concept of religion for purposes of constitutional law. With these broad contours discerned, the analyst is equipped to explore the question of whether intelligent design or evolution is properly considered a religion.

## 2. *Evolution and Religion*

Some have argued that evolution is itself a religion, or at least advances or subsumes inherently religious concepts.<sup>229</sup> The assertion is misleading. A

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223. See *supra* text accompanying notes 196-204.

224. See *Seeger*, 380 U.S. at 176.

225. See *Welsh*, 398 U.S. at 339-40.

226. See *Seeger*, 380 U.S. at 176.

227. See *Welsh*, 398 U.S. at 339-40.

228. See, e.g., Greenawalt, *supra* note 195, at 759 (“Achieving a decent fit with what the Supreme Court has said about defining religion in the last few decades is not particularly difficult, because the Court has said very little.”); Peñalver, *supra* note 195, at 801 (“In sum, the state of the search for a constitutional definition of religion in the courts could be charitably described as unsettled.”).

229. See, e.g., McLean v. Ark. Bd. of Educ., 529 F. Supp. 1255, 1273 (E.D. Ark. 1982) (stating that the author of the model act upon which an Arkansas “Balanced Treatment” act was based considers both creationism and evolution as religions); INST. FOR CREATION RESEARCH,

more accurate statement is that evolution is not necessarily a religious concept, although it can be a religious belief.

That evolutionary theory most assuredly *can* be a religious belief is amply documented.<sup>230</sup> For example, Siddhartha Gautama, the Buddha, argued that what appeared to be creation by beings who emerged from the “World of Radiance” was really nothing more than the emergence of other beings from such other world, which occurred “when this world [began] to evolve.”<sup>231</sup> Even more striking is the evolution myth of Jainism. Jainism holds that the universe is uncreated by any god, and instead is maintained and changes by natural principles.<sup>232</sup> The Jain myth is defended in the following excerpts from the *Mahapurana*,<sup>233</sup> which advances arguments typical of atheistic evolutionists:

Some foolish men declare that Creator made the world.

The doctrine that the world was created is ill-advised, and should be rejected.

....

No single being had the skill to make this world —

For how can an immaterial god create that which is material?

How could God have made the world without any raw material?

If you say he made this first, and then the world, you are faced with an endless regression.

....

If out of love for living things and need of them he made the world,

Why did he not make creation wholly blissful, free from misfortune?

....

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SCIENTIFIC CREATIONISM 196, 200 (Henry M. Morris ed., 1974); Addicott, *supra* note 15, at 1565 (“[T]he argument can surely be made that the theory of evolution also qualifies as a religion since Darwinian activists brazenly tout the theory of evolution as the central principle of either evolutionism or Secular Humanism.”); John W. Whitehead & John Conlan, *The Establishment of the Religion of Secular Humanism and Its First Amendment Implications*, 10 TEX. TECH L. REV. 1, 47-54 (1978).

230. For additional examples of religions that embrace evolutionary concepts, see Whitehead & Conlan, *supra* note 229, at 48 n.233.

231. SPROUL, *supra* note 60, at 194-95 (citing SOURCES OF INDIAN TRADITION 127-28 (W. Theodore de Bary ed., 1966)).

232. *See id.* at 192.

233. The *Mahapurana*, or “*The Great Legend*,” was written by Jain teacher Jinasena in the ninth century. *See id.*

Know that the world is uncreated, as time itself is, without  
beginning and end,  
And is based on principles, life and the rest.<sup>234</sup>

Evolutionary concepts are not restricted to ancient Eastern religions. As others have observed, a modern religion that relies heavily on evolutionary theory is secular humanism.<sup>235</sup> Humanist Manifesto I declares the creed that the universe is self-existing and uncreated,<sup>236</sup> and that man is a “part of nature” that has “emerged as the result of a continuous process.”<sup>237</sup> Similarly, a profession of Humanist Manifesto II is that “science affirms that the human species is an emergence from natural evolutionary forces.”<sup>238</sup> Sir Julian Huxley, a prominent humanist, regarded evolutionary theory as the most central tenet of Secular Humanism.<sup>239</sup>

Plainly, evolution can be a religious belief, and one that is central to the doctrinal coherence of more than one religion. Moreover, the Supreme Court has properly recognized as “religions” several faiths that do not embrace a Creator-God, but do embrace evolutionary theory.<sup>240</sup> Nonetheless, it does not follow that evolutionary theory is inherently religious.<sup>241</sup> As discussed above, “evolution” has several meanings, and most of them are not inherently “religious” within the meaning of Supreme Court precedent. Consider the definition of evolution which means “change over time.”<sup>242</sup> Nobody can credibly argue that this meaning of evolution is “religious.” Even certain meanings of evolution that are more controversial — such as evolution by universal common descent<sup>243</sup> — are not inherently “religious.” They do not necessarily advance a relational perspective. How one relates to one’s fellow

234. *Id.* at 192-93 (citing SOURCES OF INDIAN TRADITION, *supra* note 231, at 76-78).

235. *See, e.g.*, Whitehead & Conlan, *supra* note 229, at 39, 44, 46 n.225, 47-54. I credit Whitehead and Conlan’s work for their citation to all of the works of Secular Humanism to which this paper refers.

236. HUMANIST MANIFESTO I, § 1 (1933), *reprinted in* HUMANIST MANIFESTOS I AND II, at 8 (Paul Kurtz ed., 1973).

237. *Id.* § 2.

238. HUMANIST MANIFESTO II, *Religion*, § 2 (1973), *reprinted in* HUMANIST MANIFESTOS I AND II, *supra* note 236, at 17.

239. Julian Huxley, *Evolutionary Humanism*, HUMANIST, Sept./Oct. 1962, at 201, 206.

240. *See, e.g.*, *Torcaso v. Watkins*, 367 U.S. 488, 495 n.11 (1961) (“Among religions in this country which do not teach what would generally be considered a belief in the existence of God are Buddhism, Taoism, Ethical Culture, Secular Humanism and others.”).

241. Indeed, many of the ancient Greek philosophers embraced evolutionary concepts. For a brief discussion of their views, see David Barton, *A Death-Struggle Between Two Civilizations*, 13 REGENT U. L. REV. 297, 303-04 (2001).

242. *See supra* note 19 and accompanying text.

243. *See supra* note 27 and accompanying text.

man (or to God) is not necessarily informed by universal common descent. Neither does a belief in universal common descent necessarily have devotional or moral implications; there is no reason to believe that an evolutionary creationist who is a Christian would worship and obey God differently from a young-earth creationist, for example. Moreover, although universal common descent may well form a doctrinal grounding in various religions, one can discern a wide spectrum of faiths that are comfortable with this concept — from evolutionary creationism in Christianity to godless evolution in Jainism and Secular Humanism.

Further, that some proponents of evolution by natural selection share a conviction with certain religions (and may themselves be members of one such religious faith) does not render the theory inherently “religious.” A premise or conclusion held in two distinct disciplines does not result in one discipline’s being subsumed within the other.<sup>244</sup> For example, both a criminal psychologist and a catholic priest may conclude that a named juvenile offender can be rehabilitated (albeit, for different reasons) without rendering criminal psychology religion, or religion criminal psychology. Further, the criminal psychiatrist does not inherently embrace a “religious” idea when she opines in court that a convicted juvenile should be rehabilitated, rather than punished to the fullest extent of the law. Similarly, both a pathologist and a rabbi may agree that a person should not eat raw bacon, but that common sentiment does not justify the conclusion that the pathologist keeps kosher. Neither does it mean that pathology promotes, or even embraces, the teachings of Judaism. Likewise, to assert that all forms of evolutionary theory are necessarily “religious” is illogical.

### *3. Intelligent Design and Religion*

Opponents of intelligent design, like opponents of evolution, have argued that the view that they oppose subsumes religious belief. The rationales of the critics vary. Some commentators lump all theories that assume a creative role for God as “creationism” and then assert that “creationism” necessitates belief in Christianity.<sup>245</sup> For those who assert this claim, to teach intelligent design is necessarily to teach religion, because (in their view) believing in intelligent design is tantamount to believing in a religious faith — Christianity. This assertion is plainly false. Intelligent design neither refers to the Genesis

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244. *Cf.* *Wallace v. Jaffree*, 472 U.S. 38, 70 (1985) (O’Connor, J., concurring) (observing the nonsense of finding a violation of the Establishment Clause when the state criminalizes murder merely because the Bible forbids murder).

245. *See, e.g.*, Deborah A. Reule, Note, *The New Face of Creationism: The Establishment Clause and the Latest Efforts to Suppress Evolution in Public Schools*, 54 *VAND. L. REV.* 2555, 2556-61 (2001).

account (or discussions in other portions of the Bible of God's creative work) nor — unlike scientific creationism — does it attempt to harmonize scientific data with any particular theological interpretation of Genesis (or other Biblical texts).<sup>246</sup> Neither does intelligent design even begin to address the vast scope of what Christian scripture says about the nature and purposes of God (e.g., His inexplicable love for mankind,<sup>247</sup> His grace,<sup>248</sup> His holiness,<sup>249</sup> His omniscience,<sup>250</sup> His omnipresence,<sup>251</sup> His omnipotence,<sup>252</sup> His plan of redemption,<sup>253</sup> His wrath,<sup>254</sup> and His triune nature<sup>255</sup>).

The more interesting question is whether intelligent design, although not distinctively Christian, nonetheless is a “religion,” or inherently consists of one or more “religious” ideas. Some have argued that all theories (including, arguably, intelligent design) that “presuppose a supreme being” are “inherently religious.”<sup>256</sup> Although a handful of jurists in the country have so opined,<sup>257</sup> this argument is dubious as applied to intelligent design theory. One problem with the argument is that intelligent design theory does not explicitly argue that the designer is supernatural, let alone divine.<sup>258</sup> Moreover, even if one

246. Further, I am confident that most Jewish students of Hebrew Scripture would beg to differ with the notion that believing the Genesis account of creation necessarily renders one a Christian!

247. See, e.g., *Jeremiah* 31:3; *John* 3:16; *Romans* 5:8, 8:38-39; *Ephesians* 2:4; *1 John* 4:7-11.

248. See, e.g., *Psalms* 86:15-16; *John* 1:14-17; *Romans* 3:23-24; *Ephesians* 2:4-9; *Titus* 2:11, 3:4-7.

249. See, e.g., *Leviticus* 11:44-45; *Isaiah* 6:1-3; *1 Peter* 1:15-16; *Revelation* 4:8.

250. See, e.g., *1 Samuel* 16:7; *1 Chronicles* 28:9; *Job* 28:24; *Psalms* 44:21, 69:5, 139:15-16; *Isaiah* 44:6-8, 45:21, 46:9-10; *Jeremiah* 1:5; *Matthew* 24:36; *Acts* 1:24; *Hebrews* 4:12-13.

251. See, e.g., *Psalms* 139:1-12; *Jeremiah* 23:23-24; *Matthew* 28:20.

252. See, e.g., *Job* 42:1-2; *Isaiah* 40:18-26, 41:1-4, 43:10-13, 44:24-28, 50:2-3; *Jeremiah* 32:27; *Daniel* 4:34-37; *Mark* 10:25-27; *Ephesians* 1:11.

253. See, e.g., *Isaiah* 52:13-53:12; *Mark* 10:45; *Romans* 3:21-26; *Galatians* 3:1-14; *1 Peter* 1:18-21, 3:18.

254. See, e.g., *Isaiah* 63:1-6; *Revelation* 19:11-21.

255. See, e.g., *John* 1:1-3, 1:18, 10:30, 14:9-11, 14:16-18, 14:23, 15:26; *Colossians* 1:15-17; *Titus* 2:13, 3:4-6; *Hebrews* 1:1-12.

256. E.g., Diana M. Rosenberg, Note, *Monkey Business and Unnatural Selection: Opening the Schoolhouse Door to Religion by Discrediting the Tenets of Darwinism*, 9 J.L. & POL'Y 611 (2001); see also Wexler, *supra* note 15, at 814-25; David R. Bauer, Note, *Resolving the Controversy over “Teaching the Controversy”: The Constitutionality of Teaching Intelligent Design in Public Schools*, 75 *FORDHAM L. REV.* 1019, 1052-54 (2006).

257. See, e.g., *Edwards v. Aguillard*, 482 U.S. 578, 598-99 (1987) (Powell, J., concurring); *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 716-23 (M.D. Pa. 2005); *McLean v. Ark. Bd. of Educ.*, 529 F. Supp. 1255, 1265-66 (E.D. Ark. 1982); *Malnak v. Yogi*, 440 F. Supp. 1284, 1322 (D.N.J. 1977), *aff'd*, 592 F.2d 197 (3d Cir. 1979) (per curiam).

258. See *infra* note 319 and accompanying text.

believes that the logic of intelligent design compels the conclusion that the designer is supernatural,<sup>259</sup> it does not follow that intelligent design is inherently religious. The discussion of why evolution is not inherently religious applies equally with respect to intelligent design.

First, as discussed above, that a premise or conclusion is held in two distinct disciplines does not mean that one discipline is subsumed within the other.<sup>260</sup> If belief in the existence of an ultimate, intelligent, nonmaterial entity is not confined to religion, the notion that intelligent design embraces an inherently religious concept is highly suspect.<sup>261</sup>

History confirms that belief in the existence of some ultimate, intelligent entity — which may even be identified as God — is not confined to religion.<sup>262</sup> For example, the renowned Greek philosopher Aristotle saw an ascending order in nature (from the imperfect to the perfect) driven by a purpose or goal.<sup>263</sup> He assumed “intelligent Design as the primary cause of things, by the perfection and regularity which he observed in Nature.”<sup>264</sup> Viewing nature as a principle of motion and rest, Aristotle postulated four causes in nature.<sup>265</sup> One of these causes was the Prime Mover (or Unmoved Mover) — Aristotle’s concept of God.<sup>266</sup>

Aristotle reasoned that his Unmoved Mover, which he identified as God,<sup>267</sup> is eternal, because (1) movement is eternal, and (2) there is no movement

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259. *See id.* (explaining how one could argue that the logic of intelligent design inevitably points to a supernatural designer).

260. *See supra* note 244 and accompanying text.

261. *Cf.* Addicott, *supra* note 15, at 1586 (“[T]he same reasoning that prompts refusal to equate the theory of evolution with a religious belief . . . can easily be applied in refusing to link the study of intelligent design with a religious belief. Both ideas have metaphysical or religious implications, but both are based on a scientific framework, not faith.”).

262. *Cf.* Beckwith, *Public Education*, *supra* note 15, at 487 (“[S]ome philosophers have argued that belief in God may not even be a sufficient condition for a belief to be religious if ‘God’ is employed as an explanatory postulate rather than worshiped as an object of devotion.”).

263. *See* HENRY FAIRFIELD OSBORN, *FROM THE GREEKS TO DARWIN: THE DEVELOPMENT OF THE EVOLUTION IDEA THROUGH TWENTY-FOUR CENTURIES* 78-88 (2d ed. 1929). In evaluating intelligent design theory, others have noted Aristotle’s conception of God. *See, e.g.*, Beckwith, *Science and Religion*, *supra* note 15, at 460.

264. *See* OSBORN, *supra* note 263, at 79.

265. *See id.* at 80-81. The four causes may be described as material (i.e., a natural object’s substance), formal (i.e., its shape or form), efficient (i.e., the instrumental means of production), and final (i.e., the purpose for the natural object). *See* ARISTOTLE, *II PHYSICS* 3.194b24-.195a3, *reprinted in* 1 *THE COMPLETE WORKS OF ARISTOTLE: THE REVISED OXFORD TRANSLATION* 332-33 (Jonathan Barnes ed., 1984) [hereinafter *THE COMPLETE WORKS OF ARISTOTLE*].

266. *See* OSBORN, *supra* note 263, at 80.

267. *See* ARISTOTLE, *XII METAPHYSICS* 7.1072b1-b30, *reprinted in* 2 *THE COMPLETE WORKS OF ARISTOTLE*, *supra* note 265, at 1694-95.

without a mover.<sup>268</sup> There must be a mover because matter “will surely not move itself.”<sup>269</sup> This Mover is a first principle that is indivisible and without magnitude, which produces movement by being loved.<sup>270</sup> God is in some way the entity of thought thinking itself,<sup>271</sup> the ultimate good. Aristotle explains the implications of his concept of God as follows: “[T]he actuality of thought is life, and God is that actuality; and God’s essential actuality is life most good and eternal. We say therefore that God is a living being, eternal, most good, so that life and duration continuous and eternal belong to God; for this *is* God.”<sup>272</sup>

Aristotle’s views, unlike many other views of Greek philosophers, are difficult to characterize as “religious.” He “provides no significant text on the subject of religion,”<sup>273</sup> and “one would look in vain for texts in which he prescribes homage or piety.”<sup>274</sup> His views are better described as metaphysical.<sup>275</sup> Hence, Aristotle illustrates that to extrapolate design from nature, and to view nature as pointing to a nonmaterial, ultimate intelligence, is not to advance an inherently religious proposition.

Of course, that Aristotle’s god “is truly not the God of Israel” (at least not necessarily) should be obvious.<sup>276</sup> Although Aristotle’s god is eternal and

268. *See id.* 6.1071b3-b12, *reprinted in* 2 THE COMPLETE WORKS OF ARISTOTLE, *supra* note 265, at 1692-93; ARISTOTLE, VIII PHYSICS 6.258b10-.260a19, *reprinted in* 1 THE COMPLETE WORKS OF ARISTOTLE, *supra* note 265, at 432-34.

269. ARISTOTLE, XII METAPHYSICS 6.1071b30, *reprinted in* 2 THE COMPLETE WORKS OF ARISTOTLE, *supra* note 265, at 1693.

270. *See id.* 7.1072b1-.1073a13, *reprinted in* 2 THE COMPLETE WORKS OF ARISTOTLE, *supra* note 265, at 1694-95.

271. *See id.* 9.1074b15-.1075a10, *reprinted in* 2 THE COMPLETE WORKS OF ARISTOTLE, *supra* note 265, at 1698-99.

272. *Id.* at 7.1072b27-b31, *reprinted in* 2 THE COMPLETE WORKS OF ARISTOTLE, *supra* note 265, at 1695.

273. JUDE P. DOUGHERTY, *THE LOGIC OF RELIGION* 20 (2003).

274. *Id.*

275. “The question of God’s existence belongs to the sphere of metaphysics.” *Id.* at 5. The term “metaphysics” was first used in reference to the works of Aristotle. William Turner, *Metaphysics*, in 10 THE CATHOLIC ENCYCLOPEDIA pt. I (2003), <http://www.newadvent.org/cathen/10226a.htm>. Precisely what “metaphysics” means is subject to debate. *See id.* pt. II (discussing several definitions of metaphysics). Metaphysics can be conceived of as science, as well as philosophy. *See id.* Its object of inquiry is “the most general and fundamental principles underlying all reality and all knowledge.” *Id.* The important point is that metaphysical thought — including the process of reasoning to an Ultimate Principle that is responsible for design in the universe — is not confined to religious thought. *Cf.* DeWolf, Meyer & DeForrest, *supra* note 1, at 87 (“This potential for metaphysical extrapolation . . . does not make design theory a religious doctrine.”).

276. *See* LEO STRAUSS, *PHILOSOPHY AND LAW* 108 (Fred Baumann trans., Jewish Publ’n Soc’y, 1st English ed. 1987) (1935).

nonmaterial, it is not one who creates matter *ex nihilo*. By possible contrast, the designing agent arguably implied by intelligent design theory may be a creative being with characteristics possessed by the God of the Bible or the Qur'an (for example). On the other hand, numerous attributes of God revealed in sacred texts are not attributed to the agent of design under intelligent design theory — nor could they be. If (like Aristotle) one finds the presence of purposeful design in nature compelling, but (unlike Aristotle) one cannot conceive how such design could exist apart from a designing being who creates, one may logically infer the probability of a creative designer. Such logic, however, does not further compel one to embrace the position that the intelligent agent of design is the God described in any world religion.<sup>277</sup>

Moreover, the better view is that intelligent design is not inherently religious under the Supreme Court cases interpreting the meaning of religion under the First Amendment.<sup>278</sup> Intelligent design is not innately religious for the same reasons that many senses of the term “evolution” are not necessarily religious. Intelligent design offers no relational perspective; it says nothing about whether or how the designer relates to the designed objects, and nothing about how that which is designed interrelates.<sup>279</sup> Intelligent design has no devotional or moral orientation; it does not so much as call for a scintilla of respect for the designer, nor does it state that the designer (or any part of the designed order) is a moral being. Finally, contrary to the arguments of some commentators,<sup>280</sup> the correspondence between the fact of an intelligent designer and the doctrinal grounding of many major world religions in a creator does not establish that intelligent design is religious. Although the presence of a creator is very important in Christianity, Judaism, and Islam (for example), the same can be said of the importance of evolutionary theory in several nontheistic religions.<sup>281</sup> Moreover, intelligent design does not purport to attribute design to a single designer, so it is just as consistent with

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277. See DEWOLF, WEST, LUSKIN & WITT, *supra* note 16, at 65 (“Given that such pagan philosophers as Plato were advocates of design, it is hard to see that religion itself is necessarily implied by ID, much less some particular religion.”).

278. For a similar analysis that relies on the Third and Ninth Circuits’ three-part test of what constitutes a “religion,” see DeWolf, Meyer & DeForrest, *supra* note 1, at 80-87. According to the Third and Ninth Circuits, a religion (1) addresses fundamental, ultimate questions regarding matters that are deep and imponderable; (2) is a comprehensive belief system, not an isolated belief; and (3) can often be recognized by external, formal indicia (such as formal services, ceremony, clergy, organizational form, and observance of special days, among others). See *Alvarado v. City of San Jose*, 94 F.3d 1223, 1229 (9th Cir. 1996); *Africa v. Pennsylvania*, 662 F.2d 1025, 1032 (3d Cir. 1981).

279. See *supra* notes 47-49 and accompanying text.

280. See, e.g., Wexler, *supra* note 15, at 817-18.

281. See Beckwith, *Public Education*, *supra* note 15, at 489.

polytheistic religions as it is with monotheistic faiths. Thus, as is the case with religions embracing evolutionary theory, a wide spectrum of religious beliefs are consistent with intelligent design — from young-earth creationism to Hinduism, and even Native American religions. Moreover, intelligent design posits no higher purpose in design. In many faiths, creation is important precisely because of its role in the purpose of a creator. The absence of doctrinal content in intelligent design (relative to that which characterizes recognized religious faiths) is further grounds for concluding that it is not inherently religious.<sup>282</sup>

Some have argued that the Supreme Court has rejected this logical and historically plausible position that belief in an intelligent designer is not inherently religious.<sup>283</sup> After all, the argument goes, the Court in *Edwards v. Aguillard* stated that the purpose of Louisiana’s Creationism Act was to modify the science curriculum “to conform with a particular religious viewpoint,”<sup>284</sup> and that the primary purpose of the state legislature was “clearly to advance the religious viewpoint that a supernatural being created humankind.”<sup>285</sup> The question, then, is whether the Supreme Court found that belief in a Supreme Being is inherently a “religious viewpoint.”

Those who answer this question affirmatively find their best support in the following excerpt from *Edwards*:

The term “creation science” was defined as embracing this particular religious doctrine [i.e., that a supernatural being created humankind] by those responsible for the passage of the Creationism Act. . . . [The] leading expert on creation science . . . testified at the legislative hearings that the theory of creation science included belief in the existence of a supernatural creator. . . . The legislative history therefore reveals that the term “creation science,” as contemplated by the legislature that adopted this Act, embodies the religious belief that a supernatural creator was responsible for the creation of humankind.<sup>286</sup>

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282. For a similar analysis of why intelligent design is not religious, see *id.* at 494-96.

283. See, e.g., *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 736 (M.D. Pa. 2005); Brauer, Forrest & Gey, *supra* note 15, at 18; cf. Buchanan, *supra* note 164, at 309-10 (arguing that the Court in *Edwards v. Aguillard* recognized that “an effort to establish God’s existence as a scientific fact is a futile endeavor and serves only to advance a religious belief in the guise of scientific verbiage”).

284. *Edwards v. Aguillard*, 482 U.S. 578, 593 (1987).

285. *Id.* at 592.

286. *Id.* at 591-92 (citations omitted).

Although a possible (and certainly, the most simplistic) interpretation of this language is that belief in a Supreme Being is inherently religious, this interpretation is not the most sensible reading of the opinion, taken as a whole. The key to understanding this excerpt is the phrase modifying “creation science” in the last sentence of the excerpt — “as contemplated by the legislature that adopted this Act.”<sup>287</sup> This “creation science,” which the Court described as embodying a religious belief,<sup>288</sup> arose in a legislative context highly sympathetic to a view of life’s origins that parallel several details of one interpretation of Genesis (young-earth creationism). This legislative context was plainly of serious concern to the Court. In concluding that summary judgment had been granted properly in the proceedings below, the Court stated that the motion for summary judgment rested not only on the language of the state statute at issue, but also (in relevant part) on “the legislative history and historical context” of the law, the “specific sequence of events” preceding the law’s enactment, and a report of the state’s education department that had been based upon a survey of school superintendents.<sup>289</sup> As observed previously, the Court found that the legislative history of the Creationism Act revealed the “religious motives” of several legislators supporting the bill.<sup>290</sup> Further, the Court assigned weight to the meaning of “creation science” as understood by respondents to a 1981 survey conducted by the state’s Department of Education.<sup>291</sup> The school superintendents responsible for implementing the balanced treatment act were asked in this survey to interpret “creation science.”<sup>292</sup> Approximately 75% understood “creation science” to be a religious doctrine, and most of them thought it referred to “the literal interpretation of the Book of Genesis.”<sup>293</sup>

This link between creation science and one specific interpretation of Genesis did not escape the attention of Justice Powell, who in a concurring opinion noted that a previous draft of the bill that eventually became the Creationism Act defined “creation-science” essentially as scientific evidence for the young-earth interpretation of Genesis.<sup>294</sup> Although the bill was later

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287. *Id.* at 592.

288. *See id.* at 593 (stating that the Creationism Act was designed “to promote the theory of creation science which embodies a particular religious tenet”).

289. *See id.* at 595.

290. *See id.* at 591-92 & n.13.

291. *See id.* at 595, 596 n.18.

292. *Id.* at 596 n.18.

293. *Id.*

294. *See id.* at 600-01 (Powell, J., concurring). The previous draft of the bill defined creation science to include the following:

the scientific evidences and related inferences that indicate (a) sudden creation of

amended to delete a list of specific scientific evidences for the young-earth view of Genesis, the legislator who proposed the amendment stated that it was not intended to defeat the purpose of the bill in any way; rather, he apparently did not want to suggest an “all inclusive list” of scientific evidences.<sup>295</sup> Justice Powell concluded that the major elements of creation science “parallel[ed] the Genesis story of creation,” and that this was a religious belief that explained the existence of the Creationism Act.<sup>296</sup>

In view of the legislative context of the Creationism Act, which obviously influenced the *Edwards* Court, the better view of the opinion is the following: the Court concluded that the statute at issue required the teaching of the *religious view* that a Supreme Being created the universe, not simply a *scientific view* that a Supreme Being created the universe.<sup>297</sup> In other words, the Court surmised that the real purpose of the legislature was to promote a religious view of creation, and that it would use science as but a tool to do so. The Court appears to have believed that scientific evidence advanced by creation science in the classroom was offered ultimately to confirm the religious belief that the state legislature was attempting to promote.

Thus, properly understood, *Edwards* does not, as a matter of law, hold that belief in an intelligent creator or designer is an inherently religious view. Rather, the opinion supports the following propositions:

- (1) Belief in a Supreme Being who created the universe most certainly can be a religious belief;
- (2) The Louisiana legislature that enacted the Creationism Act held to the belief that a Supreme Being created the universe;
- (3) The Louisiana legislature’s belief was, under the facts of the case, a religious belief; and
- (4) The Louisiana legislature sought, through the Creationism Act, to promote their religious belief in a Supreme Being who created the universe.

This understanding of *Edwards* not only is highly plausible in light of the offending act’s legislative context, but also comports well with the Court’s statement that instructing children in numerous scientific theories of the origin

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the universe, energy, and life from nothing; (b) the insufficiency of mutation and natural selection in bringing about development of all living kinds from a single organism; (c) changes only within fixed limits or originally created kinds of plants and animals; (d) separate ancestry for man and apes; (e) explanation of the earth’s geology by catastrophism, including the occurrence of a worldwide flood; and (f) a relatively recent inception of the earth and living kinds.

*Id.*

295. *See id.* at 601.

296. *Id.* at 603-04.

297. For a similar (but briefer) analysis of *Edwards* on this point, see Addicott, *supra* note 15, at 1583-84.

of man “might be validly done with the clear secular intent of enhancing the effectiveness of science instruction.”<sup>298</sup> If a scientific theory of the origin of man happens to coincide in some respect with a religious theory of human origin, *Edwards* does not forbid it, at least when the secular purpose for teaching it is clear. In such circumstances, the science should not be rendered “religious” through a juristic metamorphosis that banishes it to the sanctuary, synagogue, or mosque.

*B. Is Science Inherently Nontheological?*

The origins controversy has spurred vigorous debate about the nature of science. Addressing the issue broadly, some philosophers of science have attempted to establish demarcation criteria for distinguishing science from other disciplines. Although at least two district courts have adopted one or more of such demarcation criteria,<sup>299</sup> many philosophers of science generally appear skeptical that science can be so neatly circumscribed.<sup>300</sup>

This Article does not explore the debate over demarcation criteria in detail. Rather, this paper focuses on what is probably the most important scientific/philosophical<sup>301</sup> question raised by demarcation criteria in the origins controversy: must science refrain from referring to supernatural causation in order to remain scientific? Even more pointedly, is science inherently

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298. See *Edwards*, 482 U.S. at 594.

299. See, e.g., *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 735-38 (M.D. Pa. 2005) (stating that the scientific method “limits inquiry to testable, natural explanations about the natural world” and “requires scientists to seek explanations in the world around us based upon what we can observe, test, replicate, and verify”; characterizing “rigorous attachment to ‘natural’ explanations [as] an essential attribute to science by definition and by convention”); *McLean v. Ark. Bd. of Educ.*, 529 F. Supp. 1255, 1267 (E.D. Ark. 1982) (stating that the “essential characteristics of science” are that it (1) is guided by natural law, (2) is explained by reference to natural law, (3) is testable empirically, (4) offers tentative conclusions, and (5) is falsifiable). The former opinion identifies Professor Robert Pennock, and the latter, Michael Ruse, as experts who advanced one or more of such demarcation criteria. The views of Professors Pennock and Ruse are discussed *infra* Part III.B.1.

300. Dr. John Angus Campbell scathingly characterizes the demarcation criteria advanced by Professor Michael Ruse (and adopted by the district court in *McLean*) as “a laughingstock among his professional peers and an ethical and conceptual embarrassment to his profession.” John Angus Campbell, *Intelligent Design, Darwinism, and the Philosophy of Public Education*, in *DARWINISM, DESIGN, AND PUBLIC EDUCATION*, *supra* note 1, at 3, 29. For a representative overview of the objection (by philosophers of science) to such demarcation criteria, see DeWolf, Meyer & DeForrest, *supra* note 1, at 68-74. Cf. Moreland & Reynolds, *supra* note 96, at 20 (“Historians and philosophers of science are almost universally agreed that theistic science is science and cannot be ruled out as such by demarcation criteria.”).

301. The question at hand is primarily philosophical, not scientific. See Beckwith, *Public Education*, *supra* note 15, at 469.

nontheological? Strictly speaking, the two questions are not identical. A supernatural phenomenon may not correspond to any human conception of God or His activity. Insofar as many people understand God as some type of supernatural entity, however, this discussion will speak of the “supernatural” as a potentially theological concept.

The question is not only philosophically intriguing; it also is constitutionally relevant, for two reasons. First, even if intelligent design is not *inherently* religious, the probability that religious motivations may have impelled a decision to teach intelligent design in the classroom appears greater if intelligent design does not qualify as “science.” Secondly, and more generally, if science need not refrain from referring to probable supernatural causation, a governmental decision to prohibit scientists (and science teachers) from referring to probable supernatural causation raises concerns under the Establishment Clause.<sup>302</sup>

In analyzing whether science must shun references to supernatural causation, this part of the Article briefly discusses what many philosophers of science believe to be a fundamental commitment of scientific inquiry — methodological naturalism — and why it is necessary. Next this Article posits two competing versions of methodological naturalism. Finally, this Article explains why intelligent design is consistent with one version of methodological naturalism.

### *1. Science, Supernatural Causation, and Methodological Naturalism*

Many prominent scientists and philosophers of science — as well as the judge in *Kitzmiller*<sup>303</sup> — believe that science must strictly foreclose supernatural explanations (and divine explanations, in particular). Professor Michael Ruse is representative. When doing science, Ruse explains, “one denies God a role in the creation.”<sup>304</sup> In fairness, Ruse means only that scientific inquiry, as such, posits no role for God as it searches for an explanation for observed phenomena. He continues, “This is not to say that God did not have a role in the creation.”<sup>305</sup> Whatever the merits of thoughts about God, they simply have no place in science. “[T]heology can and must be ruled out as irrelevant” to science, claims Ruse.<sup>306</sup>

To understand why Ruse maintains this position, it is helpful to acknowledge that many philosophers of science, and probably most research

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302. *See infra* text accompanying notes 392-400.

303. *Kitzmiller*, 400 F. Supp. 2d at 735-38.

304. Michael Ruse, *Methodological Naturalism Under Attack*, in *INTELLIGENT DESIGN CREATIONISM AND ITS CRITICS*, *supra* note 1, at 363, 365.

305. *Id.*

306. *Id.* at 366.

scientists, are committed to methodological naturalism. A prominent and highly capable spokesperson for this view is Professor Robert Pennock, an expert witness in *Kitzmiller*, who explains that methodological naturalism is an assumption, or methodological rule, for investigating the natural world.<sup>307</sup> Unlike ontological naturalism, which claims that the material world is all that exists, methodological naturalism simply assumes that a natural explanation exists for observed phenomena, and then proceeds by seeking to discover that natural explanation.<sup>308</sup> According to Pennock, methodological naturalism does not go so far as to “make a commitment directly to a picture of what exists in the world.”<sup>309</sup> Thus, to state that science “assumes” a natural explanation for natural phenomena means only that, for purposes of investigation and inquiry, science seeks a natural explanation. To illustrate, one may seek to explain why chemotherapy may stop the progression of cancer by assuming that a naturalistic explanation exists, without taking a position on whether God Himself heals cancer patients (directly or indirectly).

Observe that methodological naturalism, as articulated by Pennock, Ruse, and others like them, purports to be facially neutral concerning the divine. Their description of methodological naturalism suggests that science does *not* assert that *only* a natural explanation exists, that a supernatural explanation for a natural phenomenon may not complement a scientific explanation, or that a rival supernatural explanation for a phenomenon is inferior to the “scientific” explanation. Thus, methodological naturalism does not foreclose the possibility that the very object of scientific inquiry (say, the structure of the human eye) may be studied and explained (perhaps even in a superior fashion) in some other discipline, such as religion. Science is simply blind, deaf, and mute towards the existence (or nonexistence) of God and His activity.

Logically, one might surmise from this description of methodological naturalism that it assumes only that a natural explanation for an observed natural phenomenon *may* exist, not that a natural explanation *must* exist. However, the leading philosophers of science who champion methodological naturalism endorse only the latter assumption. For example, Ruse states explicitly that a methodological naturalist “assumes that the world runs according to unbroken law” and that people “can understand the world in terms of this law.”<sup>310</sup> Similarly, Pennock writes, “Lawful regularity is at the

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307. See Robert T. Pennock, *Naturalism, Evidence, and Creationism: The Case of Phillip Johnson*, in INTELLIGENT DESIGN CREATIONISM AND ITS CRITICS, *supra* note 1, at 77, 83-90.

308. See *id.*

309. *Id.* at 84.

310. Ruse, *supra* note 304, at 365.

very heart of the naturalistic world view and to say that some power is supernatural is, by definition, to say that it can violate natural laws.”<sup>311</sup>

In other words, Ruse and Pennock assert that the scientific method assumes that every natural phenomenon has a solely naturalistic explanation. If the evidence, no matter how vast, fails to support a naturalistic explanation for a phenomenon, the scientist may not infer a nonnaturalistic explanation. Rather, the scientist must continue to assume that a naturalistic explanation exists and gather additional evidence under the assumption that a plausible naturalistic explanation will surface.

## 2. *Distinguishing Two Types of Methodological Naturalism*

In order to assess whether the courts should accept this articulation of the scientific method without qualification, it is helpful to return to the question of what “methodological naturalism” necessarily means. As observed above, it is theoretically possible that science could commit itself merely to the assumption that a natural explanation for an observed natural phenomenon *may* exist, not that a natural explanation *must* exist. This Article will refer to the former as *nonexclusionary methodological naturalism*, and to the latter as *exclusionary methodological naturalism*. A scientific method based upon nonexclusionary methodological naturalism would substantively consider natural explanations for all natural phenomena, but would not ignore the possibility that evidence, discovered through research, may point to a nonnatural explanation.<sup>312</sup> In contrast, a scientific method based upon exclusionary methodological naturalism would not only consider natural explanations for natural phenomena, but also would simply disregard the possibility that scientific discoveries may point to a nonnatural explanation. Both scientific methods would embrace the same experiments and consider the same evidence. But whereas researchers following nonexclusionary methodological naturalism would be free to conclude that the evidence is not explained well in purely naturalistic terms, the exclusionary methodological naturalist would not enjoy that freedom. Ruse, Pennock, and those who share their views endorse only exclusionary methodological naturalism.<sup>313</sup>

What is especially noteworthy in the current debate about the nature of science is that the arguments advanced in favor of exclusionary methodological naturalism do not invalidate nonexclusionary methodological

311. Pennock, *supra* note 307, at 88.

312. Nonexclusionary methodological naturalism is thus consistent with Dr. Stephen C. Meyer’s appeal for a scientific method employing “metaphysically neutral criteria.” See Stephen C. Meyer, *DNA and the Origin of Life*, in *DARWINISM, DESIGN, AND PUBLIC EDUCATION*, *supra* note 1, at 223, 272.

313. See *supra* text accompanying notes 310-11.

naturalism. One argument in favor of exclusionary methodological naturalism is that it promotes further scientific inquiry.<sup>314</sup> By insisting on the existence of a naturalistic explanation, science keeps looking until (it is hoped) a natural explanation for a phenomenon under investigation is discovered. Promoting further scientific inquiry is indeed vitally important. However, science based on nonexclusionary methodological naturalism is no less likely to continue investigatory research than is science based on exclusionary methodological naturalism. Because the assumption of nonexclusionary methodological naturalism is that a natural explanation may indeed surface, there is no reason to cease research. Unlike the exclusionary methodological naturalist, however, the nonexclusionary methodological naturalist is free to publish her tentative conclusions that the existing evidence points to a nonnatural explanation.

A second argument advanced in favor of exclusionary methodological naturalism is that it, unlike other methods, produces conclusions that are falsifiable.<sup>315</sup> However, the same is true of nonexclusionary methodological naturalism. Because nonexclusionary methodological naturalism by definition is always open to the possibility that a natural explanation for a phenomenon exists, its inferences that a nonnatural explanation best explains a phenomenon at any moment is subject to refutation should additional research suggest a contrary inference.

Additionally, some argue that controlled experiments subject to replication would be impossible *sans* the assumption of exclusionary methodological naturalism.<sup>316</sup> Such experiments, it is argued, require one to assume that “supernatural entities do not intervene to negate lawful regularities.”<sup>317</sup> Again, the argument suffers from overstatement. Controlled experimentation can take place as long as one assumes that supernatural entities *may not* — rather than *do not* — “intervene to negate lawful regularities.” With the assumption that natural phenomena have the potential to explain whatever is under investigation, one is free to reach an inductive inference expressed in naturalistic terms whenever the evidence so indicates. Nonexclusionary methodological naturalism thus satisfies the predicate for conducting controlled experiments.

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314. Pennock, *supra* note 307, at 89-90; Ruse, *supra* note 304, at 377-78.

315. See Pennock, *supra* note 307, at 89. For a critique of employing falsifiability as the defining feature of science, see David Crump, *The Trouble with Daubert-Kumho: Reconsidering the Supreme Court's Philosophy of Science*, 68 MO. L. REV. 1, 19-28 (2003).

316. See, e.g., Pennock, *supra* note 307, at 88-89.

317. *Id.* at 84.

### 3. *Intelligent Design and Methodological Naturalism*

The next question, of course, is whether intelligent design is consistent with either version of methodological naturalism. Intelligent design is essentially an inference that certain natural phenomena cannot be explained by purely natural, blind processes.<sup>318</sup> Strictly speaking, intelligent design theory does not expressly state that the intelligent designer is supernatural; the designer theoretically could be an unknown natural entity.<sup>319</sup> Nevertheless, if, as intelligent design theorists maintain, specified complexity points to an intelligent designer, and if that designer is natural, how could this designer come to be apart from an even superior intelligence? Under the theory of intelligent design, it is difficult to conceive how any such natural designer, which surely itself is characterized by specified complexity, could exist apart from another designer. Ultimately, therefore, the theory of intelligent design seems to point either to an infinite regression of “natural” intelligent designers (a logically troublesome concept), or to a single designer who transcends the natural realm. Although the issue is not entirely free from doubt, the better view is that intelligent design theory strongly implies, and perhaps even logically requires under its own terms, at least one supernatural intelligent agent.

The remainder of this Article assumes, without deciding, what some intelligent design theorists are unwilling to concede — that the logic of intelligent design necessarily points to a supernatural intelligence. This Article does not assume that the designer is necessarily “God,” but only that the designer is not a product of purely natural processes — at least not those known to current science. Under the assumption that the intelligent designer is not a product of purely natural processes, intelligent design, by definition, would be inconsistent with exclusionary methodological naturalism.

However, even under the assumption that intelligent design ultimately requires a supernatural intelligent agent, the better view is that intelligent design is consistent with nonexclusionary methodological naturalism.<sup>320</sup> To

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318. *See supra* Part I.A.2.

319. *See, e.g.*, WILLIAM A. DEMBSKI, *THE DESIGN REVOLUTION* 189 (2004) (stating that “the contrast between natural and supernatural causes is the wrong contrast”); DEWOLF, WEST, LUSKIN & WITT, *supra* note 16, at 30-34 (explaining that intelligent design theory does not rely upon supernatural causation); *id.* at 35 (stating that “the theory of intelligent design does not investigate whether the designing intelligent agent was natural or supernatural”).

320. My argument that intelligent design theory is consistent with nonexclusionary methodological naturalism and that, as such, it is not necessarily unscientific merely because it posits the existence of the supernatural resonates to some degree with how Professor Kent Greenawalt has argued intelligent design may be taught in the public schools. *See* Greenawalt, *supra* note 15, at 380-81.

see why this conclusion is correct, recall that nonexclusionary methodological naturalism is committed only to the assumption that a natural explanation *may* explain a given natural phenomenon. As scientific inquiry proceeds, along the way the evidence may suggest that a nonnatural explanation better accounts for a natural phenomenon than a purely naturalistic explanation. It is at this point that intelligent design theorists are free to make their case. Intelligent design can be understood as the articulation of the inference of a nonnatural explanation for scientific evidence gathered through the scientific process guided by nonexclusionary methodological naturalism.<sup>321</sup> In other words, intelligent design can be understood as one “inferential phase” in the long process of scientific inquiry.<sup>322</sup> Because the scientific inquiry is committed to nonexclusionary methodological naturalism, intelligent design is not necessarily the final phase of the process. New evidence may later surface to negate the inference that a natural cause alone cannot plausibly explain the researched phenomenon.

So understood, even under the contested assumption that intelligent design requires a supernatural intelligence, intelligent design appears to be a legitimate part of scientific inquiry. It would cease to be “scientific” only if it refuses to subject itself to the rigors of critical inquiry posed by competing theories, or if it maintains positions that are clearly inconsistent with scientific data. Indeed, intelligent design may illustrate why science based on nonexclusionary methodological naturalism is superior to science based on exclusionary methodological naturalism. Because science based on exclusionary methodological naturalism is content to assume that a natural explanation for every element in the natural world *must* exist, a scientific theory resulting from this method may find acceptance with little widespread critical assessment, notwithstanding its implausibility, as long as it is the best natural theory that one can conceive at the moment.<sup>323</sup> In contrast, because nonexclusionary methodological naturalism allows for nonnatural inferences, more-or-less implausible naturalistic theories that are merely the “best available” at any moment face a greater challenge than they do under the assumption of exclusionary methodological naturalism. They essentially face

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321. In stating that intelligent design “can be understood” in this manner, I am not asserting that it “must be” so understood. As observed previously, see *supra* note 319, some intelligent design theorists deny that the theory requires a supernatural intelligent agent.

322. See Stephen C. Meyer, *The Explanatory Power of Design: DNA and the Origin of Information*, in *MERE CREATION*, *supra* note 1, at 113, 138 (stating that “the design inference constitutes a provisional, empirically-based conclusion and not a proof (science can provide nothing more)”).

323. Cf. Meyer, *supra* note 312, at 271-72 (arguing that theories which are accepted “in artificially constrained competitions” cannot claim to be the best available).

a new rival — such as intelligent design in the origins debate — that encourages a sense of urgency in discovering more plausible naturalistic explanations. Thus, science based upon nonexclusionary methodological naturalism may actually accelerate the discovery of better naturalistic explanations for observed phenomena.<sup>324</sup>

#### *IV. Two Constitutional Questions*

This Part sketches the analysis necessary to answer two crucial constitutional questions raised by the foregoing discussion. The analysis is preliminary, and thus lays the foundation for future development. The two questions are easily stated. First, under what circumstances does the Establishment Clause permit a governmental body (such as a public school board) to *authorize* (or perhaps even require) the teaching of intelligent design in the public school science classroom? Second, under what circumstances is a governmental body's decision to *prohibit* the teaching of intelligent design unconstitutional?

The analysis in this Part will proceed primarily under both the *Lemon* test,<sup>325</sup> with a focus on the first two prongs, and Justice O'Connor's endorsement test.<sup>326</sup> The tests will be applied with special attention to how the neutrality norm should inform the analysis.<sup>327</sup> This Article invokes the neutrality norm for two reasons.<sup>328</sup> First, a majority of the Court relied heavily upon the

324. I am certainly open to further philosophical reflection on this subject. I hardly claim to have mastered the field of the philosophy of science as a predicate for the suggestions in the text. I merely wish to articulate the concept of nonexclusionary methodological naturalism, and suggest why it is a sensible, and perhaps even superior, alternative to exclusionary methodological naturalism. Further, I express no opinion on whether some version of methodological naturalism is essential to the scientific method.

325. *See Lemon v. Kurtzman*, 403 U.S. 602, 612-13 (1971).

326. *See Wallace v. Jaffree*, 472 U.S. 38, 73, 76 (1985) (O'Connor, J., concurring). The analysis in the text does not consider the coercion test, which was discussed earlier. *See supra* text accompanying notes 154-56. That test has been applied only when the government has sought to compel profession of a religious belief or participation in a religious ceremony. *See, e.g., Santa Fe Indep. Sch. Dist. v. Doe*, 530 U.S. 290, 312 (2000). Although one can imagine a situation in which a governmental agent's actions in teaching origins are coercive, the decisive factor in such circumstances would probably not be a school board's decision not to offer instruction in intelligent design.

327. *See supra* text accompanying notes 161-63 for a discussion of the neutrality norm.

328. I am not necessarily implying that the neutrality norm should be the singular governing norm in all cases raising the Establishment Clause, or even in all cases involving the teaching of origins. But based upon existing Supreme Court jurisprudence, the neutrality norm is very important, and must be considered carefully in evaluating the constitutional issues surrounding instruction in intelligent design.

neutrality norm.<sup>329</sup> Second, in *Epperson v. Arkansas*, the first Supreme Court case to consider the teaching of evolution in the public schools, the Court emphasized that the religion clauses require governmental neutrality among religions, and between religion and nonreligion.<sup>330</sup>

*A. When Does the Constitution Permit Governmental Administrators to Authorize or Require the Teaching of Intelligent Design?*

Assume a science teacher desires to teach intelligent design in the classroom, and her colleagues discourage her from doing so. The teacher seeks explicit approval of the public school board for teaching intelligent design. May the board permit it? Alternatively, the board requires all science teachers to teach intelligent design as part of the biology curriculum. May the board do so?

Under the right circumstances, the answer to each question is “yes.” First, for the reasons discussed above, intelligent design theory is not per se religious.<sup>331</sup> Of course, this conclusion does not end the inquiry. Determining whether a decision to teach (or require the teaching of) intelligent design fails the *Lemon* test, or constitutes governmental endorsement of religion, requires a court to account for the presence (or absence) of numerous facts surrounding the decision.

*Lemon* requires, in relevant part, (1) the board to have adopted the policy with a secular purpose, and (2) the primary effect of the board’s action to have neither advanced nor inhibited religion.<sup>332</sup> Justice O’Connor’s endorsement test requires that an objective observer, acquainted with all relevant facts (the text of the policy, the history of the board’s decision, and the implementation of the policy), would not perceive the policy as a state endorsement of religion.<sup>333</sup> Regarding both the first prong of *Lemon* and (per Justice O’Connor’s endorsement test) the likely perception of an objective observer of the board’s policy, a valid secular purpose *could* be the enrichment of the science curriculum. Whether intelligent design advances science is a controversial question — one upon which this Article does not unequivocally opine. But given the credentials of intelligent design advocates<sup>334</sup> and the

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329. See *McCreary County v. ACLU*, 545 U.S. 844, 860 (2005).

330. See *Epperson v. Arkansas*, 393 U.S. 97, 103-04 (1968).

331. See *supra* Part III.A.3.

332. See *Lemon v. Kurtzman*, 403 U.S. 602, 612 (1971).

333. See *Wallace v. Jaffree*, 472 U.S. 38, 76 (1985) (O’Connor, J., concurring).

334. For a list of some of the leading theorists associated with intelligent design (and their promoters), see Beckwith, *Public Education*, *supra* note 15, at 462-63; and Beckwith, *Science and Religion*, *supra* note 15, at 470-77.

quality of their scholarship,<sup>335</sup> it is not unthinkable that a board could conclude that teaching intelligent design will better the science curriculum.<sup>336</sup> Such a conclusion gives rise to a legitimate secular purpose under *Lemon*, and one that would probably be recognizable as such to an objective observer under the endorsement test.

Other secular purposes are also plausible, including creating a curriculum that is more theologically neutral — one that is not hostile to those religious faiths that have something in common with intelligent design.<sup>337</sup> This point must be explored in some detail. In the debate about origins, hostility towards theistic beliefs (especially, but not limited to, those associated with some forms of special creationism) is not uncommon.<sup>338</sup> Some leading proponents of naturalistic evolution are openly hostile towards belief in a Supreme Being.<sup>339</sup>

335. Judge Jones' assertion in *Kitzmiller* that intelligent design has not generated peer-reviewed publications, see *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 735, 745 (M.D. Pa. 2005), is clearly erroneous. See DEWOLF, WEST, LUSKIN & WITT, *supra* note 16, at 52-53 (discussing peer-reviewed publications supporting intelligent design theory).

336. Cf. Greenawalt, *supra* note 15, at 383-84 (arguing that “based on science,” one could say that “intelligent design is one possible component of a full theory of how complex life developed”).

337. See *Freiler v. Tangipahoa Parish Bd. of Educ.*, 185 F.3d 337, 344-46 (5th Cir. 1999) (holding that a valid secular purpose under *Lemon* includes a school board's desire to disclaim any orthodoxy of belief that children might infer from an evolution-only biology curriculum, and its desire to reduce offense that could be caused by teaching evolution). The *Freiler* Court also held, however, that the school board's required disclaimer violated the “effect” prong of *Lemon* because its primary effect was “to protect and maintain a particular religious viewpoint, namely belief in the Biblical version of creation.” *Id.* at 346. Central to the court's holding is that the disclaimer required by the school board not only (1) disavowed any endorsement of evolution and (2) urged students to consider “alternative” theories of life's origins, but also (3) reminded students that they had the right to maintain their parents' beliefs and (4) specifically referred only to one alternative theory — the “Biblical version of Creation.” See *id.* The court found that the disclaimer thereby encouraged students “to read and meditate upon religion” generally, and “the ‘Biblical version of Creation’” in particular. *Id.* Teaching intelligent design can further the valid secular purposes in *Freiler* without running afoul of the effect prong of *Lemon*, insofar as intelligent design is not inherently religious. See BECKWITH, *supra* note 1, at 63-69.

338. See DEWOLF, WEST, LUSKIN & WITT, *supra* note 16, at 60-62 (citing statements of evolutionary biologists who interpret Darwinian theory to be hostile to theistic beliefs).

339. For example, Richard Dawkins, an outspoken evolutionist, in response to the question of why some people find “the theistic answer” satisfying at some level, stated as follows: “Wouldn't it be lovely to believe in an imaginary friend who listens to your thoughts, listens to your prayers, comforts you, consoles you, gives you life after death, can give you advice? Of course it's satisfying, if you can believe it. But who wants to believe a lie?” *The Problem with God: Interview with Richard Dawkins*, Interview by Laura Sheahen with Richard Dawkins, Charles Simonyi Professor of the Pub. Understanding of Sci., Oxford Univ., in Amherst, N.Y. (Nov. 11, 2005), [http://www.beliefnet.com/story/178/story\\_17889.html](http://www.beliefnet.com/story/178/story_17889.html). Similarly, in response

Others publicly argue that the theory of evolution renders the existence of God all but impossible, or at least irrelevant.<sup>340</sup> Still other opponents of intelligent design make no claim about the existence of God, but disparage the design movement.<sup>341</sup> For example, one law student author, forced to concede that intelligent design does not refer to the Bible, other religious literature, or even God, and that it makes no claims regarding morality or an afterlife, ironically concludes that these features of the theory merely reflect “tactics” that “make it difficult for the Court to classify Intelligent Design as a religion.”<sup>342</sup>

Even those opponents of intelligent design who less blatantly deride the theory tend to link it to other movements and conflate it with other theories, all the while attempting to undermine its credibility.<sup>343</sup> For example, one

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to the question of how he would feel were his daughter to become religious, Dawkins first recognized her right to choose for herself, and then quipped that “I think she’s much too intelligent to do that.” *Id.*

340. *See, e.g.*, DOUGLAS J. FUTUYMA, *EVOLUTIONARY BIOLOGY* 5 (3d ed. 1998) (“Darwin made theological or spiritual explanations of the life processes superfluous.”); DOUGLAS J. FUTUYMA, *SCIENCE ON TRIAL: THE CASE FOR EVOLUTION* 12-13 (1983) (stating that “the message of evolution” seems to be that man “was not designed, has no purpose, and is the product of mere material mechanism”).

341. *See* Beckwith, *Public Education*, *supra* note 15, at 509-14.

342. Reule, *supra* note 245, at 2603. More generally, some have devoted countless hours of research to document that many vocal supporters of intelligent design have theistic beliefs and religious motivations for arguing the case for intelligent design. *See, e.g.*, Brauer, Forrest & Gey, *supra* note 15, at 27-38. This research influenced the court in *Kitzmiller*. *See* *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 719 (M.D. Pa. 2005). This research is based in part on extensive factual development (which I commend) and deserves a great deal more critical interaction than I offer in this paper. For now, I briefly note the following: (1) I agree that many leading proponents of intelligent design are religiously motivated; (2) I agree that many proponents of intelligent design explicitly state what they believe to be the religious implications of their theory to religious audiences; and (3) I agree that some of the leadership in the intelligent design movement seek to garner support from a broad spectrum of special creationists. However, (4) the religious motivations of someone who articulates a scientific theory does not control the question of whether the theory is inherently religious; (5) opining upon the religious implications of a scientific theory does not render the theory religious; (6) seeking support from religiously-minded people and organizations for a scientific theory does not render the theory religious; and (7) intelligent design theory is not inherently religious (and, more specifically, is not inherently Christian). This paper addresses the final point in some detail, but a complete development of the remaining points (and several others) must await another day.

343. *Cf.* Addicott, *supra* note 15, at 1549 (observing the strategy of lumping all creationists into “the Fundamentalist camp” of young-earth advocates in order to create “straw-men”); Campbell, *supra* note 300, at 16 (“Rather than seeing an educational opportunity of the first order in the questions raised by contemporary critics of Darwinism and ID advocates, leaders of the scientific establishment have portrayed all dissent as yet another head of the hydra of ‘fundamentalism.’”). Indeed, in his *Kitzmiller* opinion, Judge Jones frames his discussion of

author describes intelligent design as “the third wave of creationism” — the first being the ban of evolution instruction from the classroom, and the second being the requirement of teaching creation science alongside evolution.<sup>344</sup> According to this author, intelligent design satisfied the desire of creationists “to find another method of teaching that did not so closely resemble the biblical origins of their movement.”<sup>345</sup> The author then proceeds to analyze the teaching of intelligent design in the context of the controversial (and subsequently reversed, then reformed and resuscitated) adoption of revised science education standards by the Kansas State Board of Education, which standards were crafted in such a way as to permit the teaching of nonnaturalistic theories of life’s origins in the state’s public schools.<sup>346</sup> The author reports the deletion of references to the Big Bang theory (as well as macroevolution) under the revised standards as among “the most significant victories for advocates of the intelligent design theory.”<sup>347</sup> In fact, intelligent design is consistent with the Big Bang theory. Moreover, contrary to the author’s apparent viewpoint, the Big Bang is widely thought to have theistic implications,<sup>348</sup> which probably account for the early atheistic opposition to the theory.<sup>349</sup> The author also postulates a dichotomy between “Darwin’s secular theory of biological evolution,” and “the Judeo-Christian theory that a supreme being created the universe.”<sup>350</sup> However, evolutionary creationism, which embraces biological evolution (even universal common descent), also

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intelligent design in the context of fundamentalism. *See Kitzmiller*, 400 F. Supp. 2d at 711, 716-17. Given the diverse religious backgrounds of many prominent intelligent design theorists, and the theory’s dissimilarity with religious objections to evolution often advanced by some fundamentalists, characterizing intelligent design theory as a version or outgrowth of fundamentalism is unjustified, if not absurd.

344. *See Rosenberg, supra* note 256, at 620.

345. *Id.*

346. For a detailed discussion of the original form of the revisions, see Coleen M. McGrath, *Redefining Science to Accommodate Religious Beliefs: The Constitutionality of the 1999 Kansas Science Education Standards*, 45 N.Y.L. SCH. L. REV. 297, 309-20 (2000). Among other controversial features, the nonbinding standards did not encourage students to understand the key components of large-scale evolution in the life sciences, and the standards defined “science” as a human activity seeking “logical” (rather than “natural”) explanations for observations of the world. In addition, the Board eliminated coverage of the origins of life and the universe on certain statewide standardized tests. *See id.* at 316-19. These standards were subsequently replaced after they received negative state and national attention. *See id.* at 326-29. Revised standards encouraging a more critical analysis of evolutionary theory were eventually adopted. *See Chang, supra* note 8.

347. Rosenberg, *supra* note 256, at 622-23.

348. HUGH ROSS, *THE CREATOR AND THE COSMOS* 19-20 (1993).

349. *See id.* at 81-85.

350. Rosenberg, *supra* note 256, at 624; *see also id.* at 658 (“Darwin’s theory directly contradicts the biblical story of creation.”).

embraces the creation of the universe by a Supreme Being,<sup>351</sup> and belief in a Supreme Being is not unique to Judaism and Christianity.<sup>352</sup> In addition, the author contrasts the scientific estimation of the age of the earth (4.6 billion years) with “the Bible’s view that the earth is only about six thousand years old.”<sup>353</sup> This contrast further distorts the issues. What the Bible teaches regarding the age of the earth is disputed (even among theologically conservative Christians, many of whom believe in an old earth),<sup>354</sup> and intelligent design theory does not argue for a young earth. Indeed, leading intelligent design theorists have openly embraced an old earth.<sup>355</sup> The author has erroneously conflated intelligent design with one tenet commonly held among advocates of a certain type of special creationism — young-earth creationism.

It is possible that ignorance of the many interpretations of Genesis, and a lack of complete understanding of what intelligent design does and does not advance, combine to explain such confections and misdescriptions. It is also possible that some opponents of intelligent design deliberately mischaracterize the movement, or at least obfuscate the issues, because of a latent hostility to all things that hint of the divine — even to scientifically based conclusions concerning the existence of an intelligent designer who may just be the God revealed in the Bible. If a school board concludes that the rather common attacks on intelligent design (and religious views at least partly consistent with intelligent design) create a climate that is hostile to certain religious faiths, the desire to remove such hostility from the public schools by teaching about intelligent design is a valid secular purpose under *Lemon*, and one that ought not be perceived by an objective observer to endorse religion under the endorsement test.<sup>356</sup>

It is also probable that, under some common circumstances, the board’s decision to authorize the teaching of intelligent design would have a primary effect that neither advances nor inhibits religion (within the meaning of the second prong of *Lemon*). On the one hand, intelligent design does not require

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351. See *supra* notes 94-104 and accompanying text.

352. See *supra* text accompanying notes 58-64.

353. Rosenberg, *supra* note 256, at 626.

354. This issue relates to the interpretive debate over the meaning of the word “day” in Genesis, which has already been discussed. See *supra* text accompanying notes 86-90.

355. See, e.g., BEHE, *supra* note 42, at 5; David Berlinski, *The Deniable Darwin*, in DARWINISM, DESIGN, AND PUBLIC EDUCATION, *supra* note 1, at 157, 158 (referring to the Cambrian era as “a brief 600 million years ago”).

356. See *supra* note 333 and accompanying text. This argument holds only if intelligent design is a valid scientific inference. If it is not, it has no place in the public school science classroom. A school should not attempt to combat religious hostility in the science classroom by offering nonscientific arguments that are friendly to religion.

a belief in any religious faith. On the other, whereas evolution (*qua* exclusive agency of biological change) is inconsistent with certain religious claims, intelligent design is not inconsistent with those claims. Perhaps more importantly, as long as intelligent design is taught in conjunction with evolutionary theory, it is likely that the curriculum which offers both theories is more neutral as between religion and nonreligion than a curriculum that teaches only evolutionary theory.<sup>357</sup>

The kind of argument typically advanced against teaching intelligent design in the public school science classroom is unpersuasive. Consider the following line of reasoning advanced by an opponent of intelligent design:

Creationists believe that there are only two positions regarding the origins of life and of the earth: the Genesis story of creation or evolution. If the creationists on the [state school board], an arm of the government, discredit the theory of evolution in the science classroom, then by logical syllogism, they automatically credit the theory of creationism, the story told in the Bible. One cannot imagine a clearer example of a governmental endorsement of religion.<sup>358</sup>

The author has hardly offered a clear example of endorsement. First, as discussed above,<sup>359</sup> there are certainly more than “two positions” on origins conceived by those who may be called “creationists.” The gamut ranges from young-earth creationists, who apparently reject any form of large scale evolution, to evolutionary creationists, who embrace natural selection and most, if not all, of the notion of universal common descent. The example does not illuminate which view has been endorsed. Second, as discussed above,<sup>360</sup> many religions hold to a creator. Which one has been endorsed? Intelligent design itself endorses no particular religion’s understanding of the creator. Third, if the author’s implicit position ultimately is that some religious concept of theism (monotheism, polytheism, or perhaps even pantheism) is necessarily endorsed by intelligent design, even that conclusion is highly dubious. As discussed above, some purely philosophical schools hold to an Ultimate Cause,<sup>361</sup> and it is far from clear that intelligent design theory can be attributed to religious notions of a God or gods to any greater degree than to philosophical notions of God.

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357. *See infra* notes 383-400.

358. Rosenberg, *supra* note 256, at 674 (footnotes omitted).

359. *See supra* Part I.B.1.

360. *See supra* text accompanying notes 58-64.

361. *See supra* text accompanying notes 262-277.

The opinion of Judge Jones in *Kitzmiller* suffers from a similar weakness. In analyzing the endorsement test, he writes that an objective adult observer in the Dover area “would also be presumed to know that ID and teaching about supposed gaps and problems in evolutionary theory are creationist religious strategies that evolved from earlier forms of creationism.”<sup>362</sup> If teaching about “supposed gaps and problems” in orthodox evolutionary theory is merely a creationist religious strategy, we can now relegate notable nontheistic icons of evolutionary theory, such as Harvard’s Stephen J. Gould, to the camp of “creationists.”<sup>363</sup> Professor Gould would have protested,<sup>364</sup> and the notion is just silly. Judge Jones’s summary statement suggests that he himself subscribes to a false duality (i.e., that to critique accepted understandings of evolution is to reject it outright and embrace only some form of special creationism) similar to that which the *McLean* court attributed to “creation science.”<sup>365</sup>

Certainly, one can readily imagine situations in which a decision to teach intelligent design is unconstitutional under existing precedent,<sup>366</sup> and this Article does not imply anything to the contrary. For example, assume a school board debates in a public meeting whether to require teachers to present young-earth creationism to students in the same unit of study that they are taught the neo-Darwinian synthesis. Several school board members express their beliefs that the Bible supports young-earth creationism, the Bible is true,

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362. *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 731 (M.D. Pa. 2005). *Supposed* gaps and problems? Every accomplished evolutionary scientist is well aware that there are difficulties, or at least unknowns, in the theory of evolution. See, e.g., E.N.K. CLARKSON, *INVERTEBRATE PALAEOLOGY AND EVOLUTION* 45 (4th ed. 1998) (stating that the emergence of higher taxa “remains the least understood of palaeontological phenomena”; opining that additional knowledge of the genome should offer “more of an insight into this most critical yet most elusive of all aspects of evolution”). The debate centers on whether those difficulties and unknowns can be explained only by reference to natural processes, and whether they are of great concern, not whether they are simply “supposed.” Comments like those offered by Judge Jones do not bode well for the rigor or persuasiveness of his opinion.

363. As noted previously, Dr. Gould was critical of certain aspects of orthodox neo-Darwinian thought. See *supra* note 22. Gould’s theory, advanced originally in a paper coauthored with Niles Eldridge, is known as punctuated equilibrium. See KENNETH R. MILLER, *FINDING DARWIN’S GOD* 82-88 (1999) (discussing that the fossil record negates the gradualistic Darwinian account of the development of species, and instead points to long periods of gradual development which are “punctuated” with brief periods of rapid expansion of new species).

364. MILLER, *supra* note 363, at 170 (describing an interview in which Gould said that it is comforting “if you can delude yourself into thinking that there’s all some warm and fuzzy meaning to [life], . . . [b]ut I do think it’s just a story we tell ourselves”).

365. See generally *McLean v. Ark. Bd. of Educ.*, 529 F. Supp. 1255, 1266 (E.D. Ark. 1982).

366. Cf. *Luskin*, *supra* note 15, at 597 (observing that “intent matters for those teaching intelligent design”).

and any version of evolution should be refuted with evidence for a young earth. Legal counsel at the board meeting then tells the school board that requiring this “balanced treatment” has been held unconstitutional. Because the Court has not yet addressed the teaching of intelligent design, however, legal counsel opines that the school could adopt a resolution authorizing and encouraging teachers to present the theory of intelligent design to their students. The school board so resolves. Assuming these facts, under existing Supreme Court precedent applying either the *Lemon* test or the endorsement test, a court should find the action of the school board unconstitutional.<sup>367</sup>

In summary, the question of whether intelligent design can be taught in the public school science classroom necessarily depends on the facts of each case. Consistent with this observation, and contrary to the conclusion of the district court in *Kitzmiller*,<sup>368</sup> a court must not strike down a decision to teach intelligent design merely because it, like many religious faiths, posits an intelligent designer. The state does not offend the Establishment Clause merely by enacting a law that favors or disfavors conduct, or rests upon some notion that is forbidden, discouraged, encouraged, or embraced by one or more religious faiths. That the United States criminalizes murder, theft, and perjury — all of which are prohibited by the Ten Commandments — does not mean that the state has codified Judaism, Christianity, or both. This much the Supreme Court has acknowledged,<sup>369</sup> and the point is especially apropos in the origins debate.

*B. When Does the Constitution Prohibit Government Administrators from Forbidding the Teaching of Intelligent Design?*

Assume a science teacher desires to teach intelligent design in the classroom, but a school board attempts to forbid the teacher from doing so. The better view is that in some cases, the school board would be constitutionally justified in prohibiting instruction in intelligent design. For example, if the school board’s decision rests exclusively upon a reasoned, informed determination that intelligent design is simply a poor scientific

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367. Thus, if Judge Jones’s findings of fact in *Kitzmiller* (regarding the events surrounding the school board’s decision to require the reading in school of the prepared statement) are correct, he had adequate grounds for concluding that the school board’s actions violated the Establishment Clause under existing Supreme Court case law. See *Kitzmiller*, 400 F. Supp. 2d at 746-63. There was evidence that a religious purpose (rather than the goal of enhancing science education) drove the board’s official actions, see *id.*, and under the Court’s current approach for determining purpose, it is reasonable to find a violation of the first prong of *Lemon*.

368. See *id.* at 716-23.

369. See, e.g., *Wallace v. Jaffree*, 472 U.S. 38, 70 (1985) (O’Connor, J., concurring).

theory, and if the school board is careful to avoid sending any message of approval or disapproval of any theological concept of origins, the board's decision would likely pose no constitutional problems. Nevertheless, in some cases the board's decision may be constitutionally suspect. This part of the Article discusses circumstances in which the Establishment Clause probably does, or at least arguably may, prevent a school board from forbidding the teaching of intelligent design.

If the board's stated reason for its action is that intelligent design must not be taught because of its religious implications, the board's action may run afoul of the First Amendment. The discussion above establishes that intelligent design theory is not inherently religious; it merely coincides with many different religious and philosophical beliefs.<sup>370</sup> To forbid the teaching of intelligent design on account of such coincidence, while simultaneously permitting or mandating the teaching of evolution (*qua* exclusive agency of biological change) notwithstanding its coincidence with religious beliefs, is hardly consistent with the neutrality norm.<sup>371</sup> The board's action also may be suspect under the leading Establishment Clause tests.

First, the board's decision may reflect a deliberate bias against monotheistic religious beliefs, or at least those that hold to some form of a special creation, giving rise to a violation of the first prong of *Lemon*. Statements of disdain for those who hold to certain forms of special creation are not at all uncommon.<sup>372</sup> Although intelligent design certainly does not even touch upon many of the tenets of various forms of special creationism, it nonetheless has one element in common with all forms — an agent of design. If the board's decision represents an effort to prevent schoolchildren from hearing scientific evidence that even remotely implies the plausibility of some religious view that members of the board disfavor, the board's action violates the first prong of *Lemon*.<sup>373</sup> Moreover, if an objective observer would perceive the board's

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370. See *supra* Part III.A.3.

371. See Beckwith, *Public Education*, *supra* note 15, at 489-90 (arguing that forbidding instruction in intelligent design while permitting or requiring the teaching of evolution may violate religious neutrality). Even some opponents of teaching intelligent design in the science classroom acknowledge that banning it entirely (while requiring the teaching of evolutionary theory) may alienate a significant portion of the population. See, e.g., Wexler, *supra* note 15, at 849.

372. To illustrate, Richard Dawkins has claimed that "if you meet somebody who claims not to believe in evolution, that person is ignorant, stupid, or insane (or wicked, but I'd rather not consider that)." See House, *supra* note 15, at 387 n.120.

373. Cf. Arienne Ellerbe, Comment, *We Didn't Start the Fire: The Origins Science Battle Rages On More Than 75 Years After Scopes*, 64 LA. L. REV. 589, 606 (2004) (arguing that refusing to allow presentation of alternative theories of origins may "indicate a hostility and intolerance toward religion instead of maintaining a spirit of neutrality").

decision as the disapproval of religion, the decision violates the endorsement test.<sup>374</sup> This conclusion holds even if the stated reason of the board is secular (for example, that the scientific case for intelligent design is weak). A court must examine all of the facts to determine whether hostility towards religious belief is the real explanation for the government's decision. Both religion clauses forbid "covert suppression of particular religious beliefs."<sup>375</sup> A school board's secular public justification for a decision to forbid the teaching of intelligent design may well constitute a thinly veiled attempt to suppress religiously grounded beliefs about human origins.

Second, even if the board's purpose is legitimately secular (e.g., to concentrate instruction on topics that the board considers more important than intelligent design), the board's decision in some circumstances may still present constitutional difficulties. The second prong of *Lemon* asks, in relevant part, whether the primary effect of the board's action is to inhibit religion.<sup>376</sup> It could be. The explanation lies in the core of how Charles Darwin understood his theory theologically, and how subsequent generations perceive his theory to have theological content.

Consider the following words of Darwin: "There seems to be no more design in the variability of organic beings and in the action of natural selection, than in the course which the wind blows: Everything in nature is the result of fixed laws."<sup>377</sup> Similarly, Darwin disclosed that, although he "had no intention to write atheistically," he nonetheless did not plainly see "evidence of design and beneficence on all sides of us."<sup>378</sup> Rather, he observed "much misery in the world."<sup>379</sup>

The perceptive eye cannot ignore that Darwin is doing something that science, based upon exclusionary methodological naturalism, prohibits: he is offering theological speculation. Darwin is not simply arguing that "fixed laws" explain nature. He is arguing that natural processes (such as natural selection) reflect no design. This position is, of course, consistent with Darwin's deistic position. But for present purposes, what matters is that Darwin is taking a theological stance. It is one thing to assert that natural processes *can* explain all biological life; it is another thing to assert that God

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374. Of course, that a scientific theory (such as evolution by means of natural selection) tends to conflict with a religious viewpoint (such as young-earth creationism) does not alone render the theory unconstitutional. See Greenawalt, *supra* note 15, at 385.

375. *Church of the Lukumi Babalu Aye v. City of Hialeah*, 508 U.S. 520, 534 (1993) (quoting *Bowen v. Roy*, 476 U.S. 693, 703 (1986) (Burger, C.J.)).

376. See *Lemon v. Kurtzman*, 403 U.S. 602, 612 (1971).

377. CHARLES DARWIN, *THE AUTOBIOGRAPHY OF CHARLES DARWIN 1809-1882*, at 87 (Nora Barlow ed., W.W. Norton & Co. 1958) (1887).

378. BLACKMORE & PAGE, *supra* note 127, at 118.

379. *Id.*

does not design through those processes. The latter view cannot be established through mere observation of evidence. Moreover, to assert that natural processes lack design is to refute a common theological conception of a God who works through or upon His creation. In other words, Darwin is not simply denying that God necessarily acts by means of special creation; he is denying that God actively “designs” through evolution.

Darwin’s theological views are interesting for two reasons. First, theological speculation is inconsistent with science based on exclusionary methodological naturalism, at least according to its leading proponents. Professor Ruse, for example, states that the methodological naturalist “avoid[s] all theological or other religious references.”<sup>380</sup> Again he writes, “[S]cience has no place for talk of God.”<sup>381</sup> Further, “if one goes to a scientist one does not expect any advice on or reference to theological matters.”<sup>382</sup> Under these standards, Darwin’s views of evolution are not (at least not consistently) scientific.

Second, Darwin’s theology poses a problem for contemporary science education in the public schools, for Darwin has deeply affected how evolutionists understand evolution.<sup>383</sup> Certainly, as argued above, evolution — even evolution *qua* universal common descent — is not inherently religious.<sup>384</sup> Neither does the theory standing alone require that one take a position on how much, if at all, God has used evolution. But evolution is not taught in a vacuum. It is taught in an educational tradition that properly credits Darwin with having made the greatest contributions to evolutionary theory. Like it or not, how Darwin understood evolution — including his theology — influences how many understand evolution and its implications,<sup>385</sup> and how it is presented in high school textbooks.<sup>386</sup> It is no surprise that many outspoken evolutionists openly embrace atheistic evolution<sup>387</sup> — as do many research biologists.<sup>388</sup>

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380. Ruse, *supra* note 304, at 365.

381. *Id.*

382. *Id.*

383. *Cf.* MILLER, *supra* note 363, at 167 (opining that the reason less than half of Americans believe that humans evolved from earlier species is the majority’s “well-founded belief that the concept of evolution is used routinely, in the intellectual sense, to justify and advance a philosophical worldview that they regard as hostile and even alien to their lives and values”).

384. *See supra* Part III.A.2.

385. *See, e.g.*, Ernst Mayr, *Darwin’s Influence on Modern Thought*, SCI. AM., July 2000, at 78, 81 (“Darwinism rejects all supernatural phenomena and causations. The theory of evolution by natural selection explains the adaptedness and diversity of the world solely materialistically.”).

386. For examples of subtle (and not so subtle) theological descriptions of evolution in textbooks, see Meyer & Keas, *supra* note 20, at 142.

387. *See, e.g.*, RICHARD DAWKINS, RIVER OUT OF EDEN 132-33 (1995) (arguing that the

Nor is it surprising that some claim to be atheists precisely because they fully embrace evolution.<sup>389</sup> They are simply following the Darwinian tradition of denying that God designs through evolution, and taking his deistic understanding to the next level — an atheistic understanding.

In view of the influence of Darwin on evolutionary thought, it would not be surprising for public school students (whose opinions are significantly shaped by their parents and the media) to assume the possibility that a curriculum advancing evolution (*qua* exclusive agency of biological change) subsumes Darwin's theological position. A school board's decision to prohibit instruction in intelligent design could suggest that this theoretical possibility is a practical reality, particularly when instructors are not careful in teaching students that Darwin's theological views are not essential elements of the scientific theory of evolution. The effect may well be (1) to dissuade students from forming their own religious opinions independently, or even (2) to cause students to alter their existing religious views. In either case, the state has inhibited religion, and may have failed the *Lemon* test. Moreover, under Justice O'Connor's endorsement test, a reasonable observer could perceive state endorsement of a theological position (deistic or atheistic evolution) on these facts.<sup>390</sup>

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"universe that we observe has precisely the properties we should expect" for one governed by a strictly materialistic evolutionary process), *quoted in* MILLER, *supra* note 363, at 171.

388. A recent survey described at a meeting of the Association for the Sociology of Religion reports that, among 1,646 scholars at twenty-one leading research universities who represent experts in three natural sciences and four social sciences, the most "irreligious" field was biology. See David Glenn, *Religious Belief Is Found to Be Less Lacking Among Social Scientists*, CHRON. HIGHER EDUC., Aug. 15, 2005, <http://chronicle.com/daily/2005/08/2005081504n.htm>. Over 63% of biologists identified themselves as agnostics or atheists. *Id.* This high percentage compares with 55.4% for the combined fields of physics, chemistry, and biology. See *id.*

389. Consider the words of biologist David Hull, writing in what is widely viewed as a respectable *scientific* journal:

Whatever the God implied by evolutionary theory and the data of natural history may be like, He is not the Protestant God of waste not, want not. He is also not a loving God who cares about His productions. He is not even the awful God portrayed in the book of Job. The God of the Galapagos is careless, wasteful, indifferent, almost diabolical. He is certainly not the sort of God to whom anyone would be inclined to pray.

David Hull, *The God of the Galapagos*, 352 NATURE 486 (1991) (reviewing PHILLIP E. JOHNSON, DARWIN ON TRIAL (1991)), *quoted in* MILLER, *supra* note 363, at 185.

390. The Establishment Clause prohibits the state from dictating curriculum on religious grounds. A governmental body that expressly prohibits the teaching of intelligent design because it violates the theological position of Darwin should be found to have violated the First Amendment (specifically, the purpose prong of *Lemon*).

An additional problem exists. As discussed previously, some philosophers of science argue that intelligent design is not “scientific” because it violates exclusionary methodological naturalism.<sup>391</sup> Let us now set aside the problem that Darwin’s version of evolution also violates science based upon exclusionary methodological naturalism in that Darwinism takes a position on God’s involvement in nature. Let us imagine that all high school teachers, and all textbooks, could successfully and consistently discuss the limits of scientific methodology. If the exclusionary version of methodological naturalism were carefully articulated, broadly communicated, and consistently employed by scientists who are committed to it, perhaps the origins controversy would be less volatile than it is today. Biologists who believe in evolution by natural selection (and in universal common descent) would advance the theory as the best theory produced by exclusionary methodological naturalism. However, by virtue of the self-imposed limitations of exclusionary methodological naturalism, evolutionary biologists would have some difficulty saying, “this theory is the most probable theory of origins,” let alone “this theory is the only serious explanation of origins,” or “this is what we know to be true.” Such statements are in tension with the claim of exclusionary methodological naturalism that it is deaf and mute towards theories that are not limited to purely naturalistic explanations.

But even such careful qualification of the limits of exclusionary methodological naturalism may not avoid all constitutional problems. The theory of evolution (*qua* exclusive agency of biological change) purportedly follows from the assumption that God serves no active role in nature.<sup>392</sup> One may rightly question whether the state, through science education or any other program, generally has any business making any limiting assumptions about God or propounding theories that purport to be based solely on such limiting assumptions. This point is especially pressing when the assumption, like exclusionary methodological naturalism, is inconsistent with many religious conceptions of origins.

Confining to mere methodology the assumption that God is unnecessary to explain any natural phenomenon does not necessarily avoid constitutional concerns. At a minimum, the assumption means that the observation of natural phenomena can never necessarily suggest a supernatural explanation. In other words, exclusionary methodological naturalism as articulated by its leading proponents implies that the scientific study of creation can never discern the presence of a creator. This *assumption* (upon which science is said to rest) is

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391. *See supra* text accompanying notes 303-11.

392. This observation does *not* mean that the theory of evolution requires a belief that God serves no active role in nature. My point is simply that advocates of exclusionary methodological naturalism believe that evolutionary theory follows from that assumption.

largely inconsistent with the Biblical teaching (as understood by many) that the creation points to a Creator.<sup>393</sup> Robert Newman speaks for many when he writes as follows:

Theology studies God's *special* revelation in Scripture, while science studies God's *general* revelation in nature. If biblical Christianity is true (as I believe), then the God who cannot lie has revealed himself both in nature and in Scripture. Thus, both science and theology should provide input to an accurate view of reality, and we may expect them to overlap in many areas.<sup>394</sup>

The relevant point is not that the Biblical teaching on general revelation is true (although I believe it is). Rather, the point is that exclusionary methodological naturalism — a philosophical position — contradicts (or at least is in great tension with) a common Biblical understanding of general revelation.<sup>395</sup> As argued above, there may very well be no good secular reason for science to embrace exclusionary methodological naturalism, as opposed to nonexclusionary methodological naturalism. If so, a government that endorses exclusionary methodological naturalism needlessly endorses a philosophy that largely, if not entirely, defies a religious viewpoint. This is hardly consistent with the neutrality norm.<sup>396</sup>

As the Court in *McCreary County* stated, religious neutrality is the “central Establishment Clause value.”<sup>397</sup> Government should not embrace an assumption that violates this value when acceptable alternatives that are more neutral are available. Nonexclusionary methodological naturalism is indeed more neutral. Insofar as nonexclusionary methodological naturalism assumes only that a natural explanation may exist for natural phenomena, it tolerates an inference that a nonnatural explanation may also explain such phenomena, perhaps even better (at any given point in time). Thus, nonexclusionary methodological naturalism is not hostile to theological perspectives, but at the same time offers theological viewpoints no preference.

This discussion suggests that presenting the theory of evolution as “merely” the product of exclusionary methodological naturalism may not avoid an Establishment Clause violation (although articulating the methodological

393. See, e.g., *Psalm* 19:1-6; *Romans* 1:19-20.

394. Newman, *supra* note 90, at 117.

395. For a thoughtful discussion of the scope and limits of natural theology, see ALLISTER E. MCGRATH, *CHRISTIAN THEOLOGY: AN INTRODUCTION* 208-19 (3d ed. 2001).

396. Cf. Beckwith, *Public Education*, *supra* note 15, at 502-03 (arguing that teaching only one theory of origins may violate neutrality, in part because it “presupposes a controversial epistemology (methodological naturalism)”).

397. *McCreary County v. ACLU*, 545 U.S. 844, 860 (2005).

assumption behind the theory is probably better than veiling such an assumption). The assumption of exclusionary methodological naturalism is itself problematic. The solution is to adopt a different methodological assumption — nonexclusionary methodological naturalism. Plainly, evolution through natural selection, as well as universal common descent, can be presented as features of evolutionary theory produced through nonexclusionary methodological naturalism. But such theories could *not* be presented as the only theories produced by the scientific method. The door would be left open for an inference of nonnatural explanations. If the state “shuts the door” on all such theories merely because they appear to have supernatural implications, the state may have violated the Establishment Clause.

The constitutional concern is especially heightened in the context of public secondary education. As the Court observed in *Edwards v. Aguillard*, families “condition their trust” in public education “on the understanding that the classroom will not purposely be used to advance religious views that may conflict with the private beliefs of the student and his or her family.”<sup>398</sup> Students are “impressionable.”<sup>399</sup> The “coercive power” of the government is great because of compulsory attendance laws, the tendency of students to emulate teachers, and the susceptibility of children to peer pressure.<sup>400</sup> Such factors reinforce the conclusion that government ought not present science as a discipline that makes sense only if one assumes the noninvolvement of supernatural forces (including God) in nature.

In summary, a decision to prohibit the teaching of intelligent design merely because it is minimally consistent with certain religious conceptions of biological origins and development would violate the first prong of *Lemon*. Further, a decision to prohibit the teaching of intelligent design may be unconstitutional in some local contexts even if the decision is not grounded in an unconstitutional purpose. First, given the theological content ascribed to the theory of evolution on account of Darwin’s deistic understanding of the theory, requiring the teaching of evolution while prohibiting the teaching of intelligent design in some circumstances may violate the effect prong of *Lemon*, and may cause a reasonable observer to perceive governmental disapproval of religious conceptions of origins which are inconsistent with evolution *qua* exclusive agency of biological change. Secondly, presenting the theory of evolution as merely the product of exclusionary methodological naturalism is itself constitutionally suspect, insofar as exclusionary methodological naturalism is a philosophical position that is not scientifically

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398. *Edwards v. Aguillard*, 482 U.S. 578, 584 (1987).

399. *Id.*

400. *Id.*

compelled, but is in tension with certain theological assumptions about the nature of creation.

### *Conclusion*

The question of whether intelligent design can be taught in public school science classrooms (or banished from them) without violating the Establishment Clause is much more complicated than many would have us believe. This Article has argued that intelligent design survives an analysis of two critical threshold questions. First, a strong case exists that intelligent design theory is not inherently religious. Secondly, intelligent design probably does not fail to qualify as “scientific” merely because it may be understood to require (or at least strongly imply) supernatural agency. The former conclusion is supported by Supreme Court precedent, an informed view of theology and philosophy, and logic. The latter conclusion is supported (though less plainly) by an appropriate philosophy of science and a preference for not limiting science so as to offend the constitutional norm of religious neutrality.

Thus, under the right circumstances, that intelligent design can be taught in public school science courses is conceivable. Moreover, in some circumstances, a governmental actor’s refusal to teach (or to allow the teaching of) intelligent design may violate the Establishment Clause. However, these conclusions do not mean that intelligent design must be taught in the public schools uniformly across the nation, or even that it should be so taught. Whether intelligent design theory should be taught necessarily depends not only upon whether it qualifies as science, but also upon whether it is good science. This Article addresses only one aspect of the first contingency (i.e., whether science necessarily must avoid supernatural references), and expresses no view on the second. Consequently, this Article neither resolves, nor attempts to resolve, the debate stirring over intelligent design.

Nonetheless, this Article does contribute importantly to the constitutional debate over teaching intelligent design in the public schools. At a minimum, the analysis supports the following propositions. First, courts must not dismiss intelligent design as merely the latest version of Biblical creationism masquerading in scientific terminology. On the other hand, courts must continue to scrutinize curricular offerings that purport to teach intelligent design in public schools; a danger exists that governmental actors will mislabel Biblical creationism as “intelligent design” with hopes of circumventing Supreme Court precedent. Secondly, intelligent design should force courts to ponder deeply the constitutional implications of teaching a theory characterized by a concept that is simultaneously scientific and potentially

theological. Finally, educators who have a thorough understanding of intelligent design theory and who in good faith desire to enrich the public school science curriculum by teaching it should not hesitate to do so. Teaching the theory is sure to prompt litigation, but our country should welcome such litigation. Intelligent design merits a fair day in court. May an informed community of educators hasten that day.