

# The Right to Learn: Intellectual Honesty and the First Amendment

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## Introduction

For nearly a century, the First Amendment's Establishment Clause has been the lone guardian of scientific integrity in primary and secondary school science classes. Over that time, the Supreme Court has used the Establishment Clause to invalidate state laws that promote the teaching of creationism and its pseudo-intellectual progeny in secondary school science classes. Indeed, the Establishment Clause has counseled that an independent constitutional good that comes from separating religion from the state in public schools. The courts have been particularly skillful in sniffing out religious proselytizing disguised as science in order to protect students from state-sponsored religion. Current Establishment Clause jurisprudence advises courts to detect religious motivation, religious purpose, and endorsements of religion. Creationism should be left out of science class because it is religious doctrine. Yet, absent from the analysis is the natural argument that pseudo-science, such as creationism, is unsuited for science classrooms not because it is religious doctrine, but because it is simply not science. This Article begins from the assumed non-controversial position that pseudo-science should not be taught as scientifically true in science classrooms. Shouldn't we protect students from pseudo-science in science classrooms whether it is religiously motivated or not? Should

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parents and students be less outraged, for example, if the local high school taught alchemy in science class? Or taught that the earth was flat? This Article argues that all teaching of pseudo-science in compulsory primary and secondary science classes is pernicious and deserves similar constitutional scrutiny under the First Amendment, and that scrutiny is not merely reserved for pseudo-science that has some nexus to religion. This Article also argues that the Free Speech Clause of the First Amendment guarantees to students in compulsory science classes an intellectually honest rendering of the scientific facts, free from propaganda, proselytizing and politics. In other words, there exists within the First Amendment a general “Right to Learn.”

Take as a first hypothetical residents of a small town in which local livelihoods depend heavily upon the coal mining industry and other fossil fuels, are outraged by the fact that local science teachers are teaching that man-made global warming is a fact. A petition is circulated and signatures are submitted to the school board to stop the current policy and to reverse it by teaching that man-made global warming is unproven and widely disputed. The school board, made up of local parents, adopts the change in curriculum.<sup>1</sup> Secondary science students are from then on taught that man-made global warming is not fact. One tenth-grade science student, however, is upset by the change.

Take as second hypothetical in another town, the teaching in science classes that man-made global warming is a fact again outrages parents. This time, however, the parents’ wrath is fueled by a deeply held religious fundamentalist belief in the community. Specifically, the parents believe that God’s statements in Genesis 8:21–22 disprove the possibility of global climate change.<sup>2</sup> In that verse, God promises mankind after the flood of Noah that

[n]ever again will I curse the ground because of humans, even though every inclination of the human heart is evil from childhood. And never again will I destroy all living creatures, as I have done. As long as the earth endures, seedtime and

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1. This hypothetical is adapted from a dispute in Grand Junction, Colorado. In the Colorado case, however, the school board rejected the local petition. See Posting of Robin McGuire, CO School Board Rejects Global Warming Petition, to Scitable, [http://www.nature.com/scitable/blog/insideed/co\\_school\\_board\\_rejects\\_global](http://www.nature.com/scitable/blog/insideed/co_school_board_rejects_global) (June 21, 2010).

2. *Genesis* 8:21–22.

harvest, cold and heat, summer and winter, day and night will never cease.

The local religious community interprets these verses to mean that God will not allow drastic changes in temperature, seasons or droughts as global warming predicts. Based on these verses, the school board resoundingly votes to change the science curriculum to teach that man-made global warming (and all global warming for that matter) is not factually correct. One tenth-grade science student, however, is upset by the change.<sup>3</sup>

Assuming for the moment that the vast majority of the scientific community is correct that man-made global warming is, in reality, a verifiable scientific fact,<sup>4</sup> the harm imposed by both school districts is exactly the same. The effect on the two disgruntled tenth grader students, and all students in the districts generally, is that a true scientific fact is being presented as untrue by political or religious decree based on non-scientific considerations. After decades of jurisprudence, it is clear that the Establishment Clause of the First Amendment does not permit public elementary and secondary students to be taught in science class that global warming does not exist simply because the Bible forbids the possibility in Genesis 8:21–22. Under current constitutional interpretations, however, nothing prevents a local school board from enacting a purely politically driven policy that misleads students about the scientific validity of man-made global warming so long as the policy is not religious in its effect or purpose. In short, this Article confronts the vexing problem that currently the First Amendment only seems to protect students from pseudo-science and misinformation that is religiously based and not pseudo-science that is politically motivated, even though they are equally damaging to the students' education. This Article discusses the concept that the First Amendment guarantees a student's "right to learn" in compulsory public school science classes. Such a "right to learn" prevents public schools from deliberately misleading students

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3. This hypothetical is based on a growing argument against global warming. In 2009, Congressman John Shimkus, a member of the House Committee on Energy and Commerce, took this position during a subcommittee hearing. Cathal Kelly, *God will Save Us from Climate Change: U.S. Representative*, STAR (Nov. 10, 2010), <http://www.thestar.com/news/world/article/888472--god-will-save-us-from-climate-change-u-s-representative>.

4. U.N., CLIMATE CHANGE 2007—THE PHYSICAL SCIENCE BASIS: CONTRIBUTION OF WORKING GROUP I TO THE FOURTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (S. Solomon et al. eds., 2007).

about the true nature of scientific facts, whether the motivation be religious or not.

Part II will examine the concept of “science” and its application to primary and secondary education. Parts III and IV discuss creationism and its intellectual progeny as the most important example of pseudo-science being taught in the science classroom. Specifically, Part III discusses the history of the evolution debate as the best example of an attempt to miseducate science students, culminating in the recent development of laws advocating for “critical analysis” of evolution. Part IV considers the Establishment Clause jurisprudence and its shortcomings with respect to ongoing efforts to teach anti-evolution ideas in science classrooms. Part V discusses the legal basis for the establishment of the Right to Learn and the constitutional basis for requiring public elementary and secondary schools to reject any deliberate miseducation of public school students. Part VI discusses the implications of the compulsory nature of primary and secondary schooling. Part VII is an epilogue looking ahead to the application of the Right to Learn to other academic arenas, not just science classrooms. Part VII concludes by arguing that a Right to Learn is a right that should be recognized in compulsory classroom settings.

### **I. Science Curricula: Where is the Controversy?**

The task of defining “science” ought to be an unnecessary exercise. Beginning with Sir Francis Bacon, the concept of “science” has rejected the inclusion of supernatural explanations.<sup>5</sup> At its base, science is the explanation of natural phenomena by natural processes.<sup>6</sup> Science’s pursuits are ideally without politics, its methods without passion, and its conclusions without bias. It is precisely science’s reliance on observation and materialism which has caused so much angst amongst so many who feel its conclusions are without a moral compass, particularly when it comes to evolution. During the 1920s, the crusade against teaching evolution reached its zenith. Indeed, in 1924, the creationists’ chief champion, William Jennings Bryan, proclaimed: “All the ills from which America suffers can be

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5. 30 SIR FRANCIS BACON, *Novum Organum* in GREAT BOOKS OF THE WESTERN WORLD, 108 (Robert Maynard Hutchins ed., Ency. Britannica 1952).

6. See generally Anne Marie Lofaso, *Does Changing the Definition of Science Solve the Establishment Clause Problem for Teaching Intelligent Design as Science in Public Schools? Doing an End-Run Around the Constitution*, 4 PIERCE L. REV. 219, 224–230 (2006).

traced back to the teaching of evolution. It would be better to destroy every other book ever written, and save just the first three verses of Genesis.”<sup>7</sup> Aside from its overt hostility to the science of evolution, lurking just beneath the surface of Bryan’s view is the belief that the common man’s intuition is superior to the judgment of the scientist.<sup>8</sup> Where there is a conflict between personal belief and science, it is the public and not the scientist who should decide.<sup>9</sup> This anti-intellectualism is at the heart of most attempts to teach pseudo-science in a science classroom.

Science, of course, has controversies. Those learned in biology, chemistry, physics and other scientific fields acknowledge ongoing disputes within their arenas. Astrophysicists, for instance, debate whether in the first instants after the Big Bang there was a brief burst of hyper accelerated expansion called “inflation.”<sup>10</sup> That debate, of course, is a wholly different debate from whether the Big Bang occurred or did not occur. Similarly, geologists debate the nuances of plate tectonics. These are true scientific controversies. Geologists, however, do not dispute the larger concept that geological plates exist and that at the boundary of two or more plates, geological events such as earthquakes, mountain formation and oceanic trenches occur. The denial of plate tectonics is not a controversy within geology. The debates within science that occur at the frontiers of scientific understanding are where real scientific controversy resides. These controversies are debated in academic journals and university laboratories. Even when large paradigmatic shifts in scientific understanding occur, such as in 1905 when Einstein published the first of his papers on relativity, it takes years for the scientific community to confirm, test and analyze the information.<sup>11</sup> True scientific controversies are sophisticated debates among highly credentialed experts in a particular field. Most importantly for purposes of this Article, true scientific controversies are not (and probably cannot

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7. MAYNARD SHIPLEY, *THE WAR ON MODERN SCIENCE* 254–55 (1927).

8. RICHARD HOFSTADTER, *ANTI-INTELLECTUALISM IN AMERICAN LIFE* 128 (1963).

9. *Id.*

10. Paul J. Steinhardt, *The Inflation Debate: Is the Theory at the Heart of Modern Cosmology Deeply Flawed?*, *SCI. AM.* 36 (April 2011).

11. Albert Einstein, “*Zur Elektrodynamik bewegter Körper* [*On the Electrodynamics of Moving Bodies*]”, 17 *ANNALEN DER PHYSIK* 891–921 (June 30, 1905) (describing the concept of special relativity). See also C. P. Gilmore, *After 63 Years Why Are We Still Testing Einstein?* *POPULAR SCI.* 58 (Dec. 1979).

adequately be) debated in elementary and secondary school classrooms.

Fortunately, science standards in elementary and secondary schools do not often venture into the world of true scientific controversy.<sup>12</sup> A review of the National Science Education Standards reveals a comprehensive guide for science literacy.<sup>13</sup> Similar standards sponsored by the American Association for the Advancement of Science (“AAAS”) also emphasize literacy generally. AAAS defines scientific literacy as “being familiar with the natural world and respecting its unity . . . [and] understanding some key concepts and principles of science.”<sup>14</sup> Moreover, AAAS advocates the need for schools to focus on quality instruction aimed at concepts and skills that are essential to science literacy rather than teaching an ever-increasing body of science.<sup>15</sup> Put simply, the standards lay out general knowledge of the major scientific concepts and “entails being able to read with understanding articles about science in the popular press and to engage in social conversation about the validity of the conclusions.”<sup>16</sup> Although noble, the standards are hardly a caldron of scientific debate. Primary and secondary science education is rightfully about teaching major scientific principles and teaching the “scientific” way of thinking. This is not a controversial point. Even states that are deeply embroiled in the evolution debate, such as Louisiana, look to the National Science Education Standards and the AAAS standards as a basis for their science content standards.<sup>17</sup> Under these standards, there is plenty of generally accepted science for teachers to teach and students to learn prior to debating the merits of obscure controversies within the scientific community. Of course, real scientific controversies are characterized predominantly by debate amongst

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12. NAT’L COMM. ON SCI. EDUC. STDS. & ASSESSMENT & NAT’L RES. COUNCIL, NATIONAL SCIENCE EDUCATION STANDARDS 106–07 (1996).

13. *Id.*

14. AM. ASS’N FOR THE ADVANCEMENT OF SCI., PROJECT 2061: SCIENCE FOR ALL AMERICANS, BENCHMARKS FOR SCIENCE LITERACY (1993).

15. *Id.*

16. NAT’L COMM. ON SCI. EDUC. STDS. & ASSESSMENT & NAT’L RES. COUNCIL, *supra* note 12, at 22.

17. See *Bulletin 1962—Louisiana Science Content Standards 4* (2009), <http://www.doa.louisiana.gov/osr/lac/28v123/28v123.doc> (Resources for these recommended guidelines were two major works of research in science education, Project 2061: Science for All Americans, Benchmarks for Science Literacy, and National Science Education Standards.).

scientists in academic circles. The hallmark of a manufactured scientific controversy is that non-scientists debate it in school board meetings. For present purposes, it is easier to group real and manufactured controversies together under one label since the argument here is that controversy generally should not be the matter of primary- and secondary-school science classrooms. Part VI, however, shows that courts are well-equipped to distinguish “science” from “pseudo-science,” and are especially good at locating the mainstream of scientific knowledge.

## II. Background to the Evolution “Debate”

There is a well-traversed history of constitutional vigilance in the affairs of elementary and secondary public schools.<sup>18</sup> Students entrusted by their parents to the public school system are afforded constitutional protections, such as the rights to be free from unreasonable searches and seizures<sup>19</sup> and to exercise freedom of speech.<sup>20</sup> But these rights are measured against the overarching mission of the school system to educate in a protected learning environment.<sup>21</sup> Students rightfully view their teachers as role models and tend to accept information presented in the classroom as true.<sup>22</sup> In the case of religion, parents rely upon “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>23</sup> Thus, that which may be constitutionally permissible outside of the schoolhouse becomes constitutionally suspect within the classroom. For instance, the Supreme Court has permitted the posting of the Ten Commandments in public settings<sup>24</sup> Yet, the

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18. Ill. *ex rel. McCollum v. Bd. of Educ.*, 333 U.S. 203, 231 (1948) (opinion of Frankfurter, J.) (“The public school is at once the symbol of our democracy and the most pervasive means for promoting our common destiny. In no activity of the State is it more vital to keep out divisive forces than in its schools . . .”).

19. *New Jersey v. T.L.O.*, 469 U.S. 325, 334 (1985); *Safford Unified Sch. Dist. v. Redding*, 129 S. Ct. 2633 (2009).

20. *Tinker v. Des Moines Indep. Cmty. Sch. Dist.*, 393 U.S. 503, 736 (1967).

21. *See Safford*, 129 S. Ct. at 2643 (requiring only reasonable suspicion, not probable cause for search of student).

22. *Edwards v. Aguillard*, 482 U.S. 578, 584 (1987) (“The State exerts great authority and coercive power through mandatory attendance requirements, and because of the students’ emulation of teachers as role models and the children’s susceptibility to peer pressure.”).

23. *Id.* at 583–84.

24. *Van Orden v. Perry*, 545 U.S. 677, 681 (2005).

posting of the Decalogue in the public school classroom is prohibited.<sup>25</sup> As a consequence of this heightened scrutiny within the public elementary and secondary schools, the Supreme Court has often been required to invalidate statutes that advance religion in public elementary and secondary schools.<sup>26</sup>

The Supreme Court jurisprudence has overwhelmingly pointed to the compulsory nature of elementary and secondary public schools and the impressionability of the pupil as counseling for vigilant enforcement of the Establishment Clause.<sup>27</sup> Moreover, the Court has recognized the parents' right to instill private religious beliefs without interference from the school.<sup>28</sup> Even if the religious beliefs of all the parents and children in a school system are consistent with the religious tenets being taught in the classroom, such action by the school is constitutionally impermissible.<sup>29</sup> Religiously homogeneous communities are no more permitted to violate the Establishment Clause than religiously heterogeneous communities simply because the students and parents agree upon the particular religious education they want in the public schools.<sup>30</sup> Indeed, it has long been recognized that there is an independent benefit to society from the separation of religion from public schools.<sup>31</sup> This good is not only derived from the counsel of our Founding Fathers regarding the ills of state-sponsored religion, but is vital because public schools are "at once the symbol of our democracy and the most pervasive means for promoting our common destiny."<sup>32</sup> Information imparted to students in public schools lays the foundation for an informed democratic process. Indeed, our founding statesmen championed the cause of education. George Washington and Thomas Jefferson both understood the value

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25. *Stone v. Graham*, 449 U.S. 39, 41–42 (1980).

26. *See, e.g.*, *Grand Rapids Sch. Dist. v. Ball*, 473 U.S. 373 (1985) (school district's use of religious school teachers in public schools); *Wallace v. Jaffree*, 472 U.S. 38 (1985) (Alabama's statutory authorization of a moment of silence for school prayer); *Stone v. Graham*, 449 U.S. 39 (1980) (posting of a copy of Ten Commandments on public classroom wall); *Abington Sch. Dist. v. Schempp*, 374 U.S. 203 (1963) (daily reading of Bible); *Engel v. Vitale*, 370 U.S. 421, 430 (1962) (recitation of "denominationally neutral" prayer).

27. *Edwards*, 482 U.S. at 584 ("Students in such institutions are impressionable and their attendance is involuntary.").

28. *See id.*; *Pierce v. Soc'y of Sisters*, 268 U.S. 510, 534–35 (1925).

29. *McLean v. Ark. Bd. of Educ.*, 569 F. Supp. 1255, 1263 (E.D. Ark. 1982).

30. *Id.*

31. *Edwards*, 482 U.S. at 584.

32. *Id.* (citing *Illinois ex rel. McCollum v. Bd. of Educ.*, 333 U.S. 203, 231 (1948) (opinion of Frankfurter, J.)).



of an educated populace. “To the degree that the form of government gave force to public opinion,” Washington argued, “it is essential that public opinion should be enlightened.”<sup>33</sup> The aging Jefferson warned in 1816: “If a nation expects to be ignorant and free in a state of civilization, it expects what never was and never will be.”<sup>34</sup> Yet, these rhetorical tributes to education have often greatly exceeded the realities of American commitment to education. While it is surely beyond the scope of this Article to traverse the failings of American education, it is uncontroversial to say that although Americans have persistently championed public school systems, they have also failed to give them adequate support. For purposes of this discussion, it has been argued that this neglect relates to the educational creed itself, which has primarily focused on the political and economic benefits of education rather than a passion for the development of the mind.<sup>35</sup> This de-emphasis on intellect has allowed a democratization of the educational system to such a degree that even scientific facts are subject to political debate.

Decades of jurisprudence have dealt with the long twilight struggle concerning what may be taught in public schools about the origins of life. At first, the legal barbs were directed at those who wished to teach the theory of evolution.<sup>36</sup> Later, as evolution became an accepted scientific theory, legal battles were fought over whether creationist ideas could be included in public school science curriculums.<sup>37</sup> The Establishment Clause of the First Amendment, which forbids Congress from enacting any “law respecting the establishment of religion,” became a key battleground.<sup>38</sup>

Although Darwin published his *On the Origins of Species*<sup>39</sup> in 1859, it took approximately sixty years before objections to its teachings in public schools became vigorous. In large part this delay was due to a rise in Protestant fundamentalism in the 1920s.<sup>40</sup> Additionally, secondary education became compulsory for more students during the intervening period, and therefore, more students

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33. Hofstadter, *supra* note 8, at 1.

34. HOFSTADTER, *supra* note 8, at 299–300.

35. *Id.* at 305–22.

36. *See, e.g.*, *Scopes v. State*, 154 Tenn. 105, 289 S.W. 363 (1927).

37. *See infra* text accompanying notes 52–59.

38. U.S. CONST. amend. I.

39. CHARLES DARWIN, *ON THE ORIGINS OF SPECIES* (1859).

40. *Epperson v. Arkansas*, 393 U.S. 97, 98 (1968) (“The statute was a product of the upsurge of ‘fundamentalist’ religious fervor of the twenties.”).

were being exposed to evolution in schools.<sup>41</sup> This increased exposure led to an upsurge in opposition. In the 1920s, creationists attempted to ban the teaching of evolution outright in Tennessee, Oklahoma, Florida, Mississippi and Arkansas.<sup>42</sup> Not until 1968 did the Supreme Court rule in the case of *Epperson v. Arkansas* that such laws were unconstitutional.<sup>43</sup>

In the 1960s and 1970s, Christian Fundamentalists and Creationists such as Henry M. Morris began rebranding creationist ideas as “scientific” and as a scientifically credible alternative to evolution.<sup>44</sup> As the label suggests, creation science was designed to promote the idea that the Book of Genesis was scientifically valid. To that end, scientific creationists admit an ontological belief in a supreme creator, and argue that this creator is no less scientifically valid than evolution to the atheist.<sup>45</sup> “Scientific creationism,” in part, explains current geology and animal forms through the Biblical account of Noah’s flood.<sup>46</sup> For instance, “scientific creationism” discusses the capacity of Noah’s Ark and its ability to carrying two of every kind of land animal.<sup>47</sup> By the early 1980s, legislation calling for equal time for creation science had been introduced in no fewer than twenty-seven states, including Arkansas and Louisiana.<sup>48</sup>

In Arkansas, for instance, the “Balanced Treatment for Creation-Science and Evolution-Science Act” required that equal

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41. NAT’L CTR. FOR SCI. EDUC., NOT IN OUR CLASSROOMS 1–2 (Eugenie C. Scott & Glenn Branch eds., 2006) (hereafter “NOT IN OUR CLASSROOMS”) (“In 1890, . . . only 3.8% of children aged 14 to 17 attended school . . . . But high school enrollment approximately doubled during each subsequent decade, so that by 1920, there were almost 2 million students attending high school.”).

42. Louis J. Virelli III, *Making Lemonade: A New Approach to Evaluating Evolution Disclaimers Under the Establishment Clause*, 60 U. MIAMI L. REV. 423, 428–29 (2006).

43. *Epperson*, 393 U.S. at 106 (“There is and can be no doubt that the First Amendment does not permit the State to require that teaching and learning must be tailored to the principles or prohibitions of any religious sect or dogma.”).

44. *McLean v. Ark. Bd. of Educ.*, 529 F. Supp. 1255, 1259 (E.D. Ark. 1982); HENRY M. MORRIS & JOHN C. WHITCOMB, JR., *THE GENESIS FLOOD: THE BIBLICAL RECORD AND ITS SCIENTIFIC IMPLICATIONS* (1970).

45. *McLean*, 529 F. Supp. at 1260 (“Evolution is thus not only anti-Biblical and anti-Christian, but it is utterly unscientific and impossible as well. But it has served effectively as the pseudo-scientific basis of atheism, agnosticism, socialism, fascism, and numerous other false and dangerous philosophies over the past century.”).

46. MORRIS & WHITCOMB JR., *supra* note 44.

47. *Id.* at 65–70 (noting “there was no need for Noah to make any provision for fishes” and other marine animals).

48. NOT IN OUR CLASSROOMS, *supra* note 41 at 10.

time be given to “creation science and to evolution science.”<sup>49</sup> In an influential decision, the District Court struck down the teaching of creation science because it lacked the characteristics of science, and therefore, was religious.<sup>50</sup> In 1981, the Louisiana legislature passed the Balanced Treatment for Creation Science and Evolution Science in Public School Instruction Act, which required teachers to teach creation science if they taught evolution.<sup>51</sup> While the state legislature was still considering the Louisiana Balanced Treatment Act, its supporters anticipated a similar challenge to the one in Arkansas,<sup>52</sup> and immediately purged the bill’s definition of creation science of specifics, leaving only “the scientific evidences for creation and inferences from those scientific evidences.”<sup>53</sup> But this tactical ambiguity failed to render the law constitutional. In 1986, the Supreme Court ruled in *Edwards v. Aguillard* that the Balanced Treatment Act violated the Establishment Clause.<sup>54</sup> In particular, the Court found no valid secular purpose for the act, despite its claims of “academic freedom.”<sup>55</sup>

A new label for creationism appeared just two years later: “intelligent design.” Continuing the Louisiana Balanced Treatment Act’s strategy of reducing overt religious content, proponents of intelligent design advertise it as not based on any sacred texts and as not requiring any appeal to the supernatural. The designer, the proponents say, might be God, but it might also be, literally, a space alien.<sup>56</sup> The motive for such far-fetched positions, of course, is to remove any mention of a supernatural being from the discussion of the “designer” in order to escape the view of the Establishment Clause. By staking out space aliens as an alternative, the proponents of intelligent design make plain their true aim—to pass constitutional scrutiny—while leaving the door open to a hypothetical, yet

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

50. *Id.* at 1267 (“More precisely, the essential characteristics of science are: (1) It is guided by natural law; (2) It has to be explanatory by reference to natural law; (3) It is testable against the empirical world; (4) It’s [sic] conclusions are tentative, i.e., are not necessarily the final word; and (5) It is falsifiable.”).

51. *See* *Aguillard v. Edwards*, 765 F.2d 1251, 1253 (5th Cir. 1985).

52. *Id.*

53. *Id.* at 1264. *See also* 17 LA Rev. Stat. § 286.3 (defining creation-science solely as “the scientific evidences for creation and inferences from those scientific evidences”).

54. *Edwards v. Aguillard*, 482 U.S. 578, 585–94 (1987).

55. *Id.* at 585–86.

56. WILLIAM A. DEMBSKI, *THE DESIGN INFERENCE ELIMINATING CHANCE THROUGH SMALL PROBABILITIES* (1998).

unnamed, creator.<sup>57</sup> The assumption, of course, is that children will insert their personal (likely Judeo-Christian) creator into the intelligent design equation and thereby implanting God into the minds of the children without ever mentioning the name of a deity.

Mindful that teaching creationism in public schools is unconstitutional, proponents of intelligent design vociferously reject any characterization of intelligent design as a form of creationism. A careful inspection of intelligent design theory occurred in 2005 in the trial of *Kitzmiller v. Dover Area School District*.<sup>58</sup> At issue was a policy in a local school district in Pennsylvania requiring a disclaimer to be read aloud in the classroom alleging that evolution is a “[t]heory . . . not a fact[,] [g]aps in the Theory exist for which there is no evidence,” and that intelligent design is a credible scientific alternative to evolution.<sup>59</sup> The Court found that intelligent design was not science and that intelligent design “cannot uncouple itself” from its creationist antecedents.<sup>60</sup> Despite suggestions to the contrary, it was a crushing defeat for the intelligent design movement.

Beginning in the early 2000s, however, proponents of intelligent design began lobbying for the teaching of anti-evolutionism rather than for any particular alternative theory.<sup>61</sup> Instead of teaching creationism or intelligent design, teachers are exhorted to “critically analyze” evolution, to teach the “strengths and weaknesses” of evolution, to teach “evidence for and evidence against” evolution, to teach “the full range of views” about evolution, and to “teach the controversy.”<sup>62</sup> These slogans are a means of teaching intelligent design arguments without using the label of intelligent design. The idea, of course, is to use rhetoric that appeals to a sense of fairness and academic openness to create the opportunity to promote

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57. For an interesting discussion of the space-alien theory see Richards Dawkins, *Intelligent Aliens*, in *INTELLIGENT THOUGHT* 92, 101 (John Brockman ed., 2006) (“When a creationist says that an eye or a bacterial flagellum or a blood-clotting mechanism is so complex that it must have been designed, it makes all the difference in the world whether the ‘designer’ is thought to be an alien produced by gradual evolution on a distant planet or a supernatural god who didn’t evolve. Gradual evolution is a genuine explanation, which really can theoretically yield an intelligence of sufficient complexity to design machines and other things too complex to have come about by any process other than design.”).

58. *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707 (M.D. Pa. 2005).

59. *Id.* at 765.

60. *Id.*

61. NOT IN OUR CLASSROOMS, *supra* note 41 at 25.

62. *Id.*

uncritically creationist pseudoscience: to appeal to intellectual principles in an effort to promote anti-intellectual positions. The goal is to present the theory of evolution as scientifically controversial and to allow teachers to criticize evolution without directly invoking creationism or its close relative, intelligent design theory. By teaching that evolution is flawed, one does not appear to be promoting religion. By criticizing evolution without mentioning creationism or intelligent design, proponents of the anti-evolutionism hope to encourage students to acquire or retain a belief in creationism without running afoul of the Establishment Clause. In short, the current trend is to offer permissive policies or legislation that allows teachers to present anti-evolutionary ideas, including intelligent design, without fear of punishment.<sup>63</sup>

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63. Several state legislatures have introduced bills to promote “academic freedom” by prohibiting state school officials from punishing teachers who teach the alleged controversy surrounding biological and chemical evolution. Some of the state legislatures prevent teachers from punishing students (i.e., giving a failing grade) for having a differing view from Darwinian evolution concerning the origins of life on earth. Thus far, bills have been introduced eight states: Oklahoma, Iowa, Alabama, South Carolina, Missouri, Michigan, Florida, and Louisiana. It is useful to briefly survey the texts of each of the bills.

On April 1, 2008, the Missouri House of Representative member Robert Wayne Cooper introduced House Bill No. 2554 to prohibit any public school administrator from preventing “any [science] teacher in a public school system in [Missouri] from helping students understand, analyze, critique, and review in an objective manner the scientific strengths and scientific weaknesses of theories of biological or chemical evolution.” H.R. 2554, 94th Legis., 2d Reg. Sess. (Mo. 2008), *available at* <http://www.house.mo.gov/billtracking/bills081/sumpdf/hb2554i.pdf>.

On April 28, 2008, the Alabama House of Representatives considered House Bill (HB) 923, introduced by Representative David Grimes. H.R. 923, 2008 Legis., Reg. Sess. at 1 (Al. 2008), *available at* <http://alisondb.legislature.state.al.us/acas/searchableinstruments/2008rs/bills/hb923.htm>. The text of the proposed bill is lifted almost word-for-word from the model statute that the Discovery Institute published. *See Support Academic Freedom, ACAD. FREEDOM PETITION*, <http://www.academicfreedompetition.com/freedom.php> (last visited Jan. 12, 2012).

On May 15, 2008, Senators Fair, Thomas and Bryant introduced Senate bill 1386 to the South Carolina Senate. S.B. 1386, 2007 Legis., 117th Sess. (S.C. 2008), *available at* [http://www.scstatehouse.gov/sess117\\_2007-2008/bills/1386.htm](http://www.scstatehouse.gov/sess117_2007-2008/bills/1386.htm). After initially making a finding that the teaching of “biological and chemical evolution can cause controversy,” the bill continues by stating that “[p]ublic school educators must be supported in finding effective ways to present controversial science curriculum and must be permitted to help students understand, analyze, critique, and review the scientific strengths and weaknesses of theories of biological and chemical evolution in an objective manner.” *Id.* Based on these findings, the proposed law prevents the State Board of Education, superintendents of public school districts, and public school administrators from prohibiting a teacher in a public school from “helping his students understand, analyze, critique, and review the scientific strengths and weaknesses of biological and chemical evolution in an objective manner.” *Id.*

In 2002, “critical analysis” of evolution was codified by its insertion into the Ohio science standards. The standard required high-school science students to “describe how scientists continue to investigate and critically analyze aspects of evolutionary theory.”<sup>64</sup> The resultant lesson plan was based upon creationist and intelligent design literature, and targeted its attack on the common descent of man and apes.<sup>65</sup> Under criticism, the lesson plan was modified but passed in 2004 with standard creationist arguments included.<sup>66</sup> Ohio Citizens for Science attacked the lesson, claiming that it has weaknesses in five areas: poor pedagogy, incorrect definitions, scientific inaccuracies, inaccessible references and inappropriate

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On February 2, 2009, Senator Randy Brogdon introduced Oklahoma Senate Bill 320 to create the “Scientific Education and Academic Freedom Act.” S.B. 320, 52d Legis. at 1 (Okla. 2009), *available at* [http://webserver1.lsb.state.ok.us/2009-10bills/SB/sb320\\_int.rtf](http://webserver1.lsb.state.ok.us/2009-10bills/SB/sb320_int.rtf). The proposed bill stated that “[t]he Legislature . . . finds that the teaching of some scientific subjects, such as biological evolution, the chemical origins of life, global warming, and human cloning, can cause controversy.” *Id.* at 2. The proposed bill says that “[t]he State Board of Education, district boards of education, district superintendents and administrators, and public school principals and administrators shall endeavor . . . to assist teachers to find more effective ways to present the science curriculum where it addresses scientific controversies.” *Id.* In order to help teachers find “more effective” ways to present the scientific “controversies,” teachers shall be permitted to “review in an objective manner the scientific strengths and scientific weaknesses of existing scientific theories pertinent to the course being taught.” *Id.* The proposed bill later prohibits the educational authorities from preventing a teacher from helping students to critique existing scientific theories, and prohibits a teacher from penalizing any student “because the student may subscribe to a particular position on scientific theory.” *Id.* at 3.

On February 3, 2009, Representative Rod A. Roberts introduced House File (HF) 183, also known as the “Evolution Academic Freedom Act,” to the Iowa House of Representatives. H.R. 183, 2009 Legis. (Iowa 2009), *available at* <http://coolice.legis.state.ia.us/Cool-ICE/default.asp?Category=billinfo&Service=Billbook&ga=83&hbill=HF183>. Comparable to the other bills, this proposed bill states that “the topic of biological and chemical evolution has generated intense controversy about the rights of instructors and students to hold differing views on those subjects.” *Id.* at 1. The proposed bill prevents discipline against teachers for presenting scientific information relevant to the full range of scientific views regarding biological or chemical evolution. *Id.* at 2. In almost the same exact language as SB320 in Oklahoma, the Iowa bill states that students cannot be penalized either for subscribing to a particular position or view regarding biological or chemical evolution. *Id.* S.B. 320, 52d Legis. (Okla. 2009), *available at* [http://webserver1.lsb.state.ok.us/2009-10bills/SB/sb320\\_int.rtf](http://webserver1.lsb.state.ok.us/2009-10bills/SB/sb320_int.rtf).

64. Ohio Dep’t of Educ., *Critical Analysis of Science—Grade 10* [L10H23 Critical Analysis], *available at* [http://science2.marion.ohio-state.edu/ohioscience/L10-H23\\_Critical\\_Analysis.pdf](http://science2.marion.ohio-state.edu/ohioscience/L10-H23_Critical_Analysis.pdf) (last visited Jan. 18, 2012).

65. NOT IN OUR CLASSROOMS, *supra* note 41 at 32.

66. *Id.*

internet resources.<sup>67</sup> Essentially, the lesson promoted pseudo-scientific argument and contained no experimental data.<sup>68</sup> Any legal challenge to the lesson plan was mooted in 2006 when the Ohio Board of Education reversed itself and voted to eliminate the Critical Analysis of Evolution lesson plan and the language in the science education standard on which it was based.<sup>69</sup>

In 2005, the Kansas Board of Education, persuaded by the Kansas-based Intelligent Design Network, added language to the science standard that included “scientific criticisms of [evolutionary] theory,” encouraging students thereby to “critically analyze the conclusions that scientists make.”<sup>70</sup> Hearings on the proposed standards were boycotted by members of the scientific community,

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67. Robert Day, *The Ohio Department of Education L101H23 “Critical Analysis of Evolution” Innovative Lesson Plan or Stealthy Advocacy* 9 (2006), available at [http://www.angelfire.com/ri/skibizniz/evolution\\_NARST\\_2006.pdf](http://www.angelfire.com/ri/skibizniz/evolution_NARST_2006.pdf). The criticism by Ohio Citizens for Science was that “The Lesson introduces classic Intelligent Design arguments into 10th grade science classes through scripted debates and references to intelligent design materials. The Lesson suggests five ‘aspects’ of evolution for debate. Four ‘aspects’ correspond to chapters in *Icons of Evolution* by Jonathan Wells, a Senior Fellow of the Center for Science and Culture, a prominent self-proclaimed Intelligent Design think tank. University scientists, some members of the Ohio board of education and others note that the lesson contains only pseudo-scientific arguments. In spite of claims to the contrary, the lesson contains no data or experimental results. Half-truths (e.g., noting that no one has ever seen a bacterium become a chloroplast) are presented as “evidences” against the endo-symbiotic origin of cellular organelles. This same group argues that the lesson follows outdated pedagogical methodology (debates), rote copying of questionable definitions (e.g., an anomaly as an idea rather than an observation or datum, and a theory as “a supposition”). The Lesson’s grading rubrics award points for courtesy during presentation but no points for scientific validity. The Lesson Plan contains numerous other errors. For example, a Nature reference included in the resources exists in title only on a Creationist Web site. A paper on lateral gene transfer was cited as a resource for the Fossil Record “aspect” Many citations are identical to those in *Icons of Evolution*, including outdated material that has been superseded by research in the last decade. Among “Technology connections” recommended by the Lesson Plan are a Creationist Website ([www.origins.org](http://www.origins.org)), and an Intelligent Design Website ([www.arn.org](http://www.arn.org)). On February 9, 2004, the Standards Committee of the Board removed *Icons of Evolution* from the Lesson Plan resources. Other Intelligent Design Creationism material was retained. The Committee did not delete material that depends on *Icons of Evolution*, thereby violating its own (parenthetic) prohibition against the teaching or testing of intelligent design.”

68. See HOFSTADTER, *supra*, note 34.

69. Jodi Rudoren, *Ohio Board Undoes Stand on Evolution*, N.Y. TIMES, (Feb. 15, 2006) <http://www.nytimes.com/2006/02/15/national/15evolution.html?ei=5088&en=b7c2d46c441c4d20&ex=1297659600&adxnln=1&partner=rssnyt&emc=rss&adxnlnx=1143874996-efB71WYjUDCdpD+8eNH/K>.

70. Kansas Bd. of Educ., “*Kansas Science Education Standards, Approved November 8, 2005*,” available at <http://kansasscience2005.com/Key%20Proposed%20Changes%20to%20Kansas%20Science%20Standards.pdf>.

which argued that their participation would lend an undeserved air of legitimacy to the hearings. The “critical analysis” standard remained in place for two years, until 2007 when the definition of science was once again returned to “the search for natural explanations for what is observed in the universe.”<sup>71</sup>

The critical analysis proponents won their greatest victories in Texas and Louisiana. In Louisiana, the Louisiana Science Education Act was signed into law in June 2008.<sup>72</sup> That statute encourages teachers and principals to “create and foster an environment within public elementary and secondary schools that promotes critical thinking skills, logical analysis, and open and objective discussion of scientific theories being studied including, but not limited to, evolution, the origins of life, global warming, and human cloning.”<sup>73</sup> To that end, a teacher may use supplemental textbooks and other instructional materials to help students understand, analyze, critique, and review scientific theories.<sup>74</sup> It is curious to consider what scientific facts have been left out of Louisiana’s science education that prompted the passage of this statute. The answer, of course, is that all established scientific facts are available to Louisiana’s teachers. The purpose of the statute is to open the back door to anti-evolutionist ideas. There is no legitimate purpose for the law that could not be fully served by the state of affairs prior to the enactment of the law.<sup>75</sup> Similar bills have been introduced in eight states: Oklahoma, Iowa, Alabama, South Carolina, Missouri, Michigan, Florida and Louisiana.

In Texas, like Kansas and Ohio, the debate centered on some key ambiguous language in the science standards. Ultimately, after much public scrutiny, the Texas Board of Education rejected language requiring teachers to teach “strengths and weaknesses” of

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71. *Id.*

72. Louisiana Science Education Act, La. Rev. Stat. Ann. § 285.1 (West 2008), available at <http://www.legis.state.la.us/lss/lss.asp?doc=631000>.

73. *Id.* § 285.1(B)(1). The inclusion of global warming and human cloning is curious. The Louisiana legislature may have been attempting to avoid mentioning only evolution in its statute to pay heed to the Supreme Courts admonition in *Edwards v. Aguillard* that “[o]ut of many possible science subjects taught in the public schools, the legislature chose to affect the teaching of the one scientific theory that historically has been opposed by certain religious sects.” 482 U.S. 578, 593 (1987). Precisely what is meant by “critical thinking” of human cloning is difficult to predict but one can assume that the Louisiana legislature is not in favor of the practice.

74. Louisiana Science Education Act, La. Rev. Stat. Ann. § 285.1(C).

75. *Edwards*, 482 U.S. at 588.



evolution, but adopted language that required examination of ““all sides of scientific evidence”“ in new science standards.<sup>76</sup>

### III. A Case Study: Avoiding the Establishment Clause

What is clear from the almost 100-year history is that attempts to introduce creationism into schools are punctuated by the efforts of creationists to “outmaneuver” constitutional scrutiny. As discussed at length above, with each subsequent legal setback, the anti-evolutionists adapt their language and their aim in order to teach to students pseudo-science in the science classroom. This ongoing dialectic has led us to the latest series of “critical analysis” laws discussed above. The problem for proponents of evolution is that the current Establishment Clause jurisprudence is ill equipped to address the rapidly adapting tactics of the anti-evolutionists.<sup>77</sup>

In the context of public education, the courts have evaluated state action challenged on Establishment Clause grounds under each of three complementary and intersecting tests. The first test, and the one of longest lineage, is the now familiar disjunctive three-part Lemon test.<sup>78</sup> First, the act must have a secular purpose. This secular purpose must be genuine, not a sham, and not secondary to a religious objective.<sup>79</sup> Second, the act’s primary effect must be one that neither advances nor inhibits religion. Third, the act must not result in excessive entanglement of government and religion. If state action violates any of these prongs, it fails to pass constitutional muster. The second test, commonly referred to as the endorsement test, seeks to determine whether the government endorses religion by means of the

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76. *Texas Board Comes Down on 2 Sides of Creationism Debate*, CNN (Mar. 27, 2009), <http://www.cnn.com/2009/US/03/27/texas.education.evolution/>. (“In all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental observation and testing, including examining all sides of scientific evidence of those explanations so as to encourage critical thinking by the students.”).

77. Louis J. Virelli III, *Evolutionary Due Process*, 104 NW. U. L. REV. COLLOQUY 251, 252–53 (Jan. 17, 2010) (observing that the strategy of creating facially neutral anti-evolutionary legislation that does not directly attack evolution is increasing).

78. *Lemon v. Kurtzman*, 403 U.S. 602 (1970).

79. See, e.g., *Santa Fe Indep. Sch. Dist. v. Doe*, 530 U.S. 290, 308 (2000) (“When a governmental entity professes a secular purpose for an arguably religious policy, the government’s characterization is, of course, entitled to some deference. But it is nonetheless the duty of the courts to ‘distinguis[h] a sham secular purpose from a sincere one.’”); *Edwards*, 482 U.S. 578, 586–87 (“While the Court is normally deferential to a State’s articulation of a secular purpose, it is required that the statement of such purpose be sincere and not a sham.”).

challenged action.<sup>80</sup> The government unconstitutionally endorses religion when it “conveys a message that religion is ‘favored,’ ‘preferred,’ or ‘promoted’ over other beliefs.”<sup>81</sup> Finally, the third test, aptly named the coercion test, analyzes school-sponsored religious activity in terms of the coercive effect that the activity has on students.<sup>82</sup> Under this test, school-sponsored activity contravenes the First Amendment when “(1) the government directs (2) a formal religious exercise (3) in such a way as to oblige the participation of objectors.”<sup>83</sup>

It is not difficult to deduce from these constitutional tests that savvy public officials, intent on hiding their religious purpose and watering-down the effect of their acts, may evade constitutional bars. Indeed, the “critical analysis” tactic is the most forceful and direct step taken in that direction. By invoking only critical thought, the proponents of these statutes hope to hide their religious purpose. Who among us, after all, is against critical thought and analysis? Moreover, the desired presumption is a reasonable one: that the effect of critical thought and analysis can only be beneficial. Is it not true that all intellectual endeavors are worthy of intellectual questioning? The answer is, of course, yes. The problem is that these critical analysis policies are uncritically promoting pseudoscience. They single out evolution for special criticism, ignoring all other major scientific theories including those in which there really is current argument.<sup>84</sup> The result is that students will be misinformed and misguided. Of course, like any vibrant area of scientific research, arguments exist among scientists about certain aspects of evolution, but none reject the process of evolution outright.

Under current Establishment Clause jurisprudence, a court faced with an act requiring “critical analysis” of evolution could have a

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80. *Cnty. of Allegheny v. ACLU*, 492 U.S. 573, 594 (1989) (holding that the display of a creche on the Grand Staircase of the Allegheny County Courthouse violated the First Amendment but that the display of a menorah as part of a secular exhibit was constitutional).

81. *Id.* at 593.

82. *Lee v. Weisman*, 505 U.S. 577 (1992) (holding unconstitutional a school district’s policy permitting school principals to invite clergy to give “nonsectarian” invocations and benedictions at graduation ceremonies).

83. *Jones v. Clear Creek Indep. Sch. Dist.*, 977 F.2d 963, 970 (5th Cir.1992) (citation omitted).

84. The Louisiana Statute also gives passing mention to human cloning and global warming as well. Presumably, the proponents of the Act hope that the “critical analysis” of these topics is to suggest that (1) human cloning is ethically wrong and (2) global warming is either not occurring or not man-made. *See supra* note 66.

difficult time showing religious purpose or effect. As a result, the court would likely do what courts have done in the past and what was done in this Article: recite the long history of creationist tactics and show how the challenged statute is merely the next link in the historical chain. Up until now, courts have been able to smoke out religious intent and effect based on their implicit assumption that the challenged action appears to be improperly attacking evolution.<sup>85</sup> The assumption is that an attack on evolution is a nod to creationism. And the latest round of “critical analysis” statutes succumbs to the same temptation to single out evolution, and will likely fail on that basis. However, the next generation of statutes will likely not mention evolution and will not be based upon models created by the Discovery Institute or other creationist foundations. The challenge of preserving our science classrooms will become even more difficult.

In the context of public and secondary education, courts should be stop this “race to the bottom” and focus explicitly on the real victims of these policies: the public school students who are entitled to an honest rendering of scientific facts.

#### IV. A Right to Learn

The idea that students are entitled to an honest education is not new. The protection of constitutional guarantees in the classroom begins with *Meyer v. Nebraska*.<sup>86</sup> In 1923, the Supreme Court held that a state could not constitutionally punish a private school teacher for violating a state statute that prohibited the teaching of any language other than English to a child who had not completed the eighth grade.<sup>87</sup> The defendant, a teacher in a Lutheran parochial school, had been convicted of teaching German to a ten-year-old child in violation of the statute. In overturning the conviction, the Court recognized the salutary purpose of the statute to help integrate foreign speaking populations and promote civic development.<sup>88</sup> The Court, however, found that the statute used “prohibited means” to achieve a “desirable end.”<sup>89</sup> Therefore, the statute was an arbitrary infringement upon the Due Process liberty interest to acquire useful

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85. See *Edwards*, 482 U.S. at 610 (“[T]he Court today holds, essentially on the basis of its visceral knowledge regarding what must have motivated the legislators.”) (Scalia, J., dissenting) (internal quotations omitted).

86. *Meyers v. Nebraska*, 262 U.S. 390 (1923).

87. *Id.* at 401 to 402.

88. *Id.* at 402.

89. *Id.* at 401.

knowledge.<sup>90</sup> In striking down the statute, the Court acknowledged that “[t]he American people have always regarded education and acquisition of knowledge as matters of supreme importance which should be diligently promoted.”<sup>91</sup> The Court found that “mere knowledge” of the German language in no way may be reasonably considered harmful.<sup>92</sup> Unreasonable interference into the sacrosanct process of passing along useful information to students, even for legitimate ends, is prohibited.<sup>93</sup>

Over time, as the substantive Due Process rationale of *Meyer* became disfavored, *Meyer* and the substantive rights it asserted were recast as First Amendment rights.<sup>94</sup> Indeed, *Meyer*, along with the closely related case of *Pierce v. Society of Sisters*<sup>95</sup> that followed two years later, stood for two distinct principles, namely the rights of parents to raise their children as they see fit, and the rights of the teacher to teach and the pupil to learn. In 1968, the Supreme Court expressly decided this latter principle in *Epperson v. Arkansas*.<sup>96</sup>

The well-known facts of *Epperson* are worth repeating here. Arkansas high school biology teacher Linda Epperson brought a declaratory judgment action seeking the Arkansas Chancery Court to

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90. *Id.* at 401–02.

91. *Id.* at 400.

92. *Id.*

93. *Id.* at 402 (*Meyer* does not question many of the State’s powers to interpose itself into schooling. Indeed, *Meyer* acknowledges the right of the state to compel attendance to either public or private school, set appropriate regulations at schools, and prescribe a curriculum.).

94. See *Griswold v. Connecticut*, 381 U.S. 479, 482–83 (1965) (“By *Pierce v. Society of Sisters* . . . the right to educate one’s children as one chooses is made applicable to the States by the force of the First and Fourteenth Amendments. By *Meyer v. Nebraska* . . . the same dignity is given the right to study the German language in a private school. In other words, the State may not, consistently with the spirit of the First Amendment, contract the spectrum of available knowledge. The right of freedom of speech and press includes not only the right to utter or to print, but the right to distribute, the right to receive, the right to read and freedom of inquiry, freedom of thought, and freedom to teach—indeed, the freedom of the entire university community. Without those peripheral rights, the specific rights would be less secure. And so we reaffirm the principle of the *Pierce* and the *Meyer* cases.”) (emphasis added) (citations omitted).

95. *Pierce v. Soc’y of Sisters*, 268 U.S. 510 (1925). In *Pierce*, the Court invalidated an Oregon statute that required children between the ages of eight and sixteen to attend public schools. The court referred, in language almost identical to that used in *Meyer*, to the legitimacy of the state’s reasonably regulating all schools, public and private, but concluded that “[u]nder the doctrine of *Meyer v. Nebraska* . . . the Act of 1922 unreasonably interferes with the liberty of parents and guardians to direct the upbringing and education of children under their control.” *Id.* at 534–35.

96. *Epperson v. Arkansas*, 393 U.S. 97 (1968).

declare as void a statute prohibiting her from teaching “the theory or doctrine that mankind ascended or descended from a lower order of animals,” or from adopting or using “a textbook that teaches this theory.”<sup>97</sup> Violation was a misdemeanor and subjected Epperson to dismissal from her position.<sup>98</sup> The Chancery Court struck down the statute as a violation of the First Amendment because it tended to hinder the quest for knowledge, restricted the freedom to learn, and restrained the freedom to teach.<sup>99</sup> Essentially, the Chancery Court felt the statute violated free speech rights contained in the First Amendment. The Supreme Court of Arkansas disagreed, however, reversed in two sentences stating that the statute was a valid exercise of the state’s power to set public school curriculums.<sup>100</sup> The United States Supreme Court reversed the Supreme Court of Arkansas on the grounds that the statute violated the First Amendment’s Establishment Clause. In doing so, the Court noted that the “overriding fact is that Arkansas’ law selects from the body of knowledge a particular segment which it proscribes for the sole reason that it is deemed to conflict with a particular religious doctrine; that is, with a particular interpretation of the Book of Genesis by a particular religious group.”<sup>101</sup>

The Court also turned its attention to the chief conflict between itself and the Arkansas Supreme Court, namely, the conflict between the state’s prerogative to set public school curriculums and the Court’s obligation to limn the contours of the Constitution.<sup>102</sup> The Court aptly noted that “[j]udicial interposition into the operation of the public school system of the Nation requires care and restraint,”<sup>103</sup> and that courts “cannot intervene in the resolution of conflicts which arise in the daily operation of school systems and which do not directly and sharply implicate basic constitutional values.”<sup>104</sup> The Court, however, also acknowledged that the “vigilant protection of constitutional freedoms is nowhere more vital than in the community of American schools.”<sup>105</sup>

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97. *Id.* at 98–99 (internal quotations omitted).

98. *Id.* at 98.

99. *Id.* at 100–101.

100. *Id.* at 101.

101. *Id.* at 103.

102. *Id.* at 104–105.

103. *Id.* at 104.

104. *Id.*

105. *Id.* at 105 (citing *Shelton v. Tucker*, 364 U.S. 479, 487 (1960)).

In deciding *Epperson*, the Court discussed the *Meyer* case. The Court noted that the *Meyer* decision

acknowledged the State's power to prescribe the school curriculum, but it held that these were not adequate to support the restriction upon the liberty of teacher and pupil. The challenged statute it held, unconstitutionally interfered with the right of the individual, guaranteed by the Due Process Clause, to engage in any of the common occupations of life and to acquire useful knowledge.<sup>106</sup>

Reluctant to rest its decision in *Meyer* and mindful of the thicket *Meyer's* broad decision could create, the Court decided that it did not need to "explore the implications of [the *Meyer* decision] in terms of the justiciability of the multitude of controversies that beset our campuses today."<sup>107</sup> The Court's reference to *Meyer*, therefore, is worthy of note because after its brief mention, the Court resolves the case on the safer, more-narrow Establishment Clause basis.<sup>108</sup> In doing so, the Court succinctly concluded that "the State's undoubted right to prescribe the curriculum for its public schools does not carry with it the right to prohibit, on pain of criminal penalty, the teaching of a scientific theory or doctrine where that prohibition is based upon reasons that violate the First Amendment."<sup>109</sup> Clearly, the Court concluded, the Arkansas law sought to "blot out" Darwin's theory because of its conflict with the Biblical account of creation in Genesis.<sup>110</sup>

The *Epperson* Court had the First Amendment argument available to it, something that the *Meyer* Court did not:<sup>111</sup> a fact that makes the *Epperson* Court's reference to *Meyer* even more curious. Yet, the *Epperson* Court's reference to, and then disregard of *Meyer* as any basis for its holding, is best understood by examining the common effort by the state legislature to "blot out" a particular area

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106. *Id.* at 105.

107. *Id.* at 106.

108. *Id.*

109. *Id.* at 107.

110. *Id.* at 109.

111. The Supreme Court decided *Meyer* before its application of the First Amendment to the States. See *Everson v. Bd. of Educ.*, 330 U.S. 1 (1947) (applying the Establishment Clause to the States); *Cantwell v. Connecticut*, 310 U.S. 296 (1940) (applying the Free Exercise Clause to the States); *Gitlow v. New York*, 268 U.S. 652 (1926) (applying free speech protections to the States).

of human thought, whether it be the German language or the theory of evolution. Indeed, Justice Stewart's concurrence in the result only makes plain his concern that the States not be able to control curriculums to such an extent that students are deprived of the ability to explore entire areas of respected human thought.<sup>112</sup> That kind of restriction, Justice Stewart concludes, would "clearly impinge upon the guarantees of free communication contained in the First Amendment, and made applicable to the States by the Fourteenth."<sup>113</sup> While acknowledging that the state retains the right to not teach biology altogether,<sup>114</sup> once incorporated into the curriculum, the failure to even mention the dominant established scientific theory on a topic covered by the curriculum is arbitrary and irrational. Although a State may not be constitutionally obligated to establish and maintain a public school system, all have nevertheless done so and has required its children to attend. In short, having taken on that responsibility, states have an obligation to the students to provide an intellectually honest rendering of the topics within their curriculum.

Despite *Meyer's* reliance on substantive due process, it has survived and continues to be cited.<sup>115</sup> Whether *Meyer* is seen as a substantive due process case or as a First Amendment case, the basic right that students are entitled to learn facts free from dogma and superstition is unwavering.<sup>116</sup> No doubt the spirit of the First Amendment preserves the right of teachers to teach and students to

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112. *Id.* at 116.

113. *Id.*

114. *Id.* at 116. Justice Black also stated in his concurrence that "[i]t would be difficult to make a First Amendment case out of a state law eliminating the subject of higher mathematics, or astronomy, or biology from its curriculum." *Id.* at 111.

115. *See, e.g.,* *Washington v. Glucksberg*, 521 U.S. 702, 719–20, 727 n.19 (1997) (substantive due process case).

116. The Supreme Court has recognized a Due Process right to a public education. *See Goss v. Lopez*, 419 U.S. 565, 574 (1975) ("Although Ohio may not be constitutionally obligated to establish and maintain a public school system, it has nevertheless done so and has required its children to attend. Those young people do not 'shed their constitutional rights' at the schoolhouse door. *Tinker v. Des Moines Indep. Cmty. Sch. Dist.*, 393 U.S. 503, 506 (1969). "The Fourteenth Amendment, as now applied to the States, protects the citizen against the State itself and all of its creatures—Boards of Education not excepted." *W. Va. Bd. of Educ. v. Barnette*, 319 U.S. 624, 637 (1943). The authority possessed by the State to prescribe and enforce standards of conduct in its schools, although concededly very broad, must be exercised consistently with constitutional safeguards. Among other things, the State is constrained to recognize a student's legitimate entitlement to a public education as a property interest which is protected by the Due Process Clause and which may not be taken away for misconduct without adherence to the minimum procedures required by that Clause.").

learn free from state interference. The Court made this plain in *Griswold v. Connecticut*.<sup>117</sup>

By *Pierce v. Society of Sisters* . . . the right to educate one's children as one chooses is made applicable to the States by the force of the First and Fourteenth Amendments. By *Meyer v. Nebraska* . . . the same dignity is given the right to study the German language in a private school. In other words, the State may not, consistently with the spirit of the First Amendment, contract the spectrum of available knowledge. The right of freedom of speech and press includes not only the right to utter or to print, but the right to distribute, the right to receive, the right to read and freedom of inquiry, freedom of thought, and freedom to teach—indeed, the freedom of the entire university community. Without those peripheral rights, the specific rights would be less secure. And so we reaffirm the principle of the *Pierce* and *Meyer* cases.<sup>118</sup>

It is neither a long nor tortured leap from a basic constitutional right to teach and to learn to the conclusion that public schools must be held to some constitutional standard to teach honestly. The use of a classroom by a public school teacher deliberately to proselytize or to distort the data for illegitimate ends must be condemned. No claim of “academic freedom” or freedom of speech can justify a dishonest pedagogical method by a teacher.<sup>119</sup> The same must be true for actions of school boards and legislatures that mandate biased treatment of a given subject or direct that the classroom be used as an instrument of propaganda or dishonesty for political or social ends. The logical conclusion from *Meyer* is that all intellectual dishonesty in the classroom is constitutionally suspect under the First Amendment, not just those dishonesties with religious roots.<sup>120</sup>

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117. *Griswold*, 381 U.S. at 482–83.

118. *Id.*

119. Van Alstyne, *The Specific Theory of Academic Freedom and the General Issue of Civil Liberties*, 404 ANNALS AM. ACAD. POL. & SOC. SCI. 140, 146–47 (1972).

120. The right to an education has been argued to be a fundamental constitutional right. See Daniel S. Greenspahn, *A Constitutional Right to Learn: The Uncertain Allure of Making a Federal Case Out of Education*, 59 S.C. L. REV. 755 (2008). If such a right is to have any substance at all, it must implicitly demand that any education granted by the Constitution be intellectually honest and, at least with respect to science, present the students with a substantively correct education. The right to an education does not entitle the student to presence in the classroom, it entitles the student to the substance of an education. See *id.*



## V. Compulsion of Science Education Requires Honesty

An important pre-requisite to the right to students to an honest, deceit-free education is the compulsory nature of public school science classes. Compulsory, tax-funded schooling is ubiquitous in the United States. Indeed, education laws mandating that children attend school up to a certain age exist in every state.<sup>121</sup> In 1925, the Supreme Court recognized compulsory education laws as a valid exercise of state power.<sup>122</sup>

While compulsory education laws are widely applauded for the social benefits and widely accepted as legitimate, there can be no doubt that such laws restrict the liberty of the individual. Students are required to spend most of their waking hours at school learning from state-sponsored teachers. Students, in the broadest sense, are not free to leave. Indeed, it has been exactly this compulsory nature of schools that has, in part, justified the vigilance exerted by the Court in striking down any type of religious teachings in public schools.<sup>123</sup>

In the context of the Due Process Clause, the Court has recognized that when individuals are initially subjected to some deprivation of liberty, such as compelled confinement, the state takes on affirmative obligations to ensure that the individual is not further harmed by the confinement.<sup>124</sup> For instance, in *Youngberg v. Romeo*, the Court considered the substantive rights of involuntarily committed mentally disabled individuals.<sup>125</sup> The respondent's chief argument was that once the State committed a person, the State had some affirmative duty to protect that individual from harm.<sup>126</sup> In determining whether a substantive right protected by the Due Process Clause had been violated, the Court balanced "the liberty of the individual" and "the demands of an organized society."<sup>127</sup> In other words, the State's restrictions on the individual's liberty bear some relationship to the State's interest in restraining the individual. Applied to the education realm, the argument could be successful if

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121. For a list of all compulsory education laws, see *State Compulsory Education Laws*, <http://law.findlaw.com/state-laws/compulsory-education> (last visited Jan. 18, 2012).

122. *Pierce v. Soc'y of Sisters*, 268 U.S. 510, 530 (1925).

123. See *Edwards v. Aguillard*, 482 U.S. 578, 584 (1987) ("Students in such institutions are impressionable and their attendance is involuntary.").

124. *Youngberg v. Romeo*, 457 U.S. 307 (1982).

125. *Id.* at 309.

126. *Id.* at 324.

127. *Id.* at 320 (quoting *Poe v. Ullman*, 367 U.S. 497, 542 (1961) (Harlan, J., dissenting)).

stated as thus: “if a state restricts an individual’s liberty for the express purpose of educating that individual and then fails to educate her, then the nature of the restraint bears no reasonable relation to the purpose of the restraint, and due process is violated.”<sup>128</sup> Yet, even if this common sense argument does not go far enough for some substantive due process critics, surely the lesser concept is palatable; that the State cannot compel attendance at school and then deliberately misinform a student of the true scientific fact for some improper purpose, whether religiously motivated or not.<sup>129</sup> A student entrusted to the schools cannot be deliberately mistaught, for examples, that creationism is scientific fact, the earth is flat, and plate tectonics is only a “theory” and not fact. Protected by the First Amendment, the student compelled to attend science class should not to be deceived for a political, religious or any other improper purpose.

Moreover, requiring teachers to be intellectually honest does not infringe upon any academic freedom to teach. Invocations of academic freedom are simply irrelevant to the idea that the content of the education provided to primary and secondary school children must be scientifically valid. As the Court noted in *Edwards v. Aguillard*,<sup>130</sup> academic freedom in the secondary school context does not grant the teacher the right to deviate from the curriculum. Nor does it allow the teacher to proselytize or promote political propaganda. Academic freedom in the context of secondary schools must be conceived of providing limited protection to teachers to choose the means and manner of teaching the set curriculum.

## VI. Courts Understand Science

The primary advantage of asserting a more general right of students to an intellectually honest science education is that the analysis necessarily becomes simpler and less subject to semantic maneuvering that has often plagued the Establishment Clause

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128. Note, *A Right to Learn?: Improving Educational Outcomes Through Substantive Due Process*, 120 HARV. L. REV. 1323, 1337 (2007); *Compulsory Education and Substantive Due Process: Asserting Student Rights to a Safe and Healthy School Facility*, 10 LEWIS & CLARK LAW REV. 201 (2006).

129. In *DeShaney v. Winnebago Cnty. Dept. of Soc. Serv.*, 489 U.S. 189, 196–97 (1989), the Court held that the State had no affirmative obligation to protect the individual from the actions of third parties. *DeShaney* applies, however, only to the situation where an individual is not under any State compulsion.

130. *Edwards*, 482 U.S. at 587.

jurisprudence. As discussed above, opponents of evolution have continually had to adapt their attacks on evolution to circumvent the most recent pro-evolution decision. This dialectical dance has forced anti-evolutionists to move from straightforward, religion-based attacks on evolution to more indirect, facially neutral ones. The result, ultimately, will be that the attacks on evolution in schools will become so removed from religious language that the Establishment Clause will lose its constitutional teeth.

The analysis, however, is simpler by shifting the constitutional question from being focused on the religious nature of the school's action, which is becoming harder to discern, to the scientific validity of the school's action. Returning to the two global-warming hypotheticals at the outset of this Article, it is wholly insignificant to the First Amendment analysis whether a school teaches that man-made global warming is fiction because of political beliefs or because of religious beliefs. Intellectual honesty requires that the school teach the existence of global warming whenever it decides to teach anything about global warming at all. In other words, the school cannot lie to its pupils, regardless of its motivations.

Those opposed to the idea that there should be (or already is) a Right to Learn in the First Amendment worry that courts should not be in the business of determining school science curricula. Nevertheless, courts have long been in the business of striking down aspects of school science curricula that violate the Establishment Clause. While courts may be adroit at sniffing out religion masquerading as science, a concern remains that courts are ill equipped to determine science from pseudo-science generally. Yet, for almost one hundred years, courts have been regularly making the determination of whether a particular scientific technique or theory is "generally accepted" as reliable in the relevant scientific community.<sup>131</sup> Rule 702 of the Federal Rules of Evidence deals with "scientific knowledge" and requires the court to determine, in the first instance, if the expert testimony is grounded in the "methods and procedures of science."<sup>132</sup> Indeed, the Supreme Court has stated what

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131. *Frye v. United States*, 293 F. 1013, 1014 (1923).

132. Fed. R. Evid. 702. The Rule states: "If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case." *Id.* See also *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579, 590

has been argued at length herein: “that it would be unreasonable to conclude that the subject of scientific testimony must be ‘known’ to a certainty; arguably, there are no certainties in science.”<sup>133</sup> “Science is not an encyclopedic body of knowledge about the universe. Instead, it represents a process for proposing and refining theoretical explanations about the world that are subject to further testing and refinement.”<sup>134</sup> In order to qualify as “scientific knowledge,” an inference or assertion made by an expert witness must be derived by the scientific method. Trial courts make these determinations on a regular basis.

The well-known Daubert framework need not be recounted in full detail here. Suffice it to say that faced with proposed expert testimony, a court is keenly aware of its gatekeeper obligation to determine whether the expert had followed “scientific methodology,” or the process of formulating hypotheses and then conducting experiments to prove or falsify the hypothesis.<sup>135</sup> In deciding what is “science,” the court should (1) determine whether the theory or technique can be empirically tested, (2) determine whether the theory or technique has been subjected to peer review and publication, (3) consider the potential rate of error, and (4) consider the general acceptance of the scientific theory in the relevant scientific community.<sup>136</sup> When faced with a proposed scientific teaching in a classroom, the court can examine the proposed science under the same lens.

## VII. Epilogue: Out of the Science Classroom

In May 2010, the State of Texas’s Board of Education, which had previously amended its science standards to allow of the criticism of evolution, adopted several dozen changes to the state’s social study curriculum.<sup>137</sup> The conservative-controlled Board changed the

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(1993) (“The adjective ‘scientific’ implies a grounding in the methods and procedures of science. Similarly, the word ‘knowledge’ connotes more than subjective belief or unsupported speculation.”).

133. See *Daubert*, 509 U.S. at 590.

134. *Id.*

135. *Id.*

136. *Id.*

137. See Tex. Educ. Agency, *Social Studies TEKS*, <http://www.tea.state.tx.us/index2.aspx?id=3643> (last updated Feb. 24, 2011). For instance the curriculum originally stated that “[t]he student is expected to (A) trace the process by which democratic-republican government evolved from its beginnings in classical Greece and Rome, through and continuing with the Enlightenment” to “[t]he student is expected to explain the

curriculum to undue a perceived “liberal” bias in the history, despite no historians being consulted.<sup>138</sup> The curriculum downplays the role of Thomas Jefferson among the Founding Fathers, questions the separation of church and state, and claims that the U.S. government was infiltrated by Communists during the Cold War. Moreover, the new curriculum emphasizes that the United States was founded as a Christian nation.<sup>139</sup> In understanding citizenship, the student is asked “to identify the influence of ideas regarding the right to a ‘trial by a jury of your peers,’ and the concepts of ‘innocent until proven guilty’ and ‘equality before the law’ that originated from the Judeo-Christian legal tradition and in Greece and Rome.”<sup>140</sup> In understanding history, the student is expected to “identify major intellectual, philosophical, political, and religious traditions that informed the American founding, including Judeo-Christian (especially biblical law), English common law and constitutionalism, Enlightenment, and republicanism, as they address issues of liberty, rights, and responsibilities of individuals.”<sup>141</sup> Other changes reflected the school board’s conservative political views by elevating the Republican former President Ronald Reagan to a higher prominence and by teaching McCarthyism in a more favorable light.<sup>142</sup>

Whether one agrees with the historical validity of these changes is not important. The controversy highlights the risks that confront all teachers and students when school boards remake curriculums, not to improve the content of the curriculum, but out of political or other suspect motivations. While political wrangling takes place in many areas of society, the need to maintain an honest education becomes ever more vital. This Article has focused exclusively on science curriculums because scientific facts are characterized by their derivation from the scientific method. While paradigms may shift

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development of democratic-republican government from its beginnings in the Judeo-Christian legal tradition and classical Greece and Rome, through the English Civil War and the Enlightenment.” COMM. OF FULL BD., PROPOSED REVISIONS TO 19 TAC CHAPTER 113, TEXAS ESSENTIAL KNOWLEDGE AND SKILLS FOR SOCIAL STUDIES, SUBCHAPTER C, HIGH SCHOOL AND 19 TAC CHAPTER 118, TEXAS ESSENTIAL KNOWLEDGE AND SKILLS FOR ECONOMICS WITH EMPHASIS ON THE FREE ENTERPRISE SUBCHAPTER A, HIGH SCHOOL SYSTEM AND ITS BENEFITS, SUBCHAPTER A, HIGH SCHOOL 25 (2010), available at <http://ritter.tea.state.tx.us/rules/tac/chapter113/ch113c.html>.

138. See <http://www.nytimes.com/2010/03/13/education/13texas.html>

139. See *id.*

140. *Id.* at 26.

141. *Id.* at 42.

142. *Id.*

within the scientific community, those shifts trickle down to the classroom long after controversies can be examined within the crucible of the scientific community. Thus, secondary science classes are not usually where cutting edge science is expounded. Generally, by the time scientific facts meet students, they are within the mainstream of scientific thought. Yet, other areas of study, such as history, are less susceptible to peer review and are more open to interpretation. Thus, controversies are opened and reopened, perspectives change, and distortions are harder to detect. But risks do exist and there is no intellectual reason why the newly asserted “right to learn” cannot apply more broadly to other fields of study.

### VIII. Conclusion

Now, perhaps more than ever, science is becoming a political battle. Politicians deny climate change, promote refusal of vaccines, champion creationism and refuse stem cell research.<sup>143</sup> What politicians debate, however, rarely reflects the actual scientific data. Frequently, the scientific community has spoken conclusively on the matter. That is not to say that science does not have its debates. Debates rage among scientists and controversies exist. Those controversies, however, rarely, if ever, present themselves in primary or secondary science classrooms. Rather, what trickles down to the public school system are not true scientific controversies, but the remnants of the larger public debates about science. When we hear about school boards altering science curricula to make them congruous with community values, the conversation has shifted away from science. At best, those board members have earnest beliefs that teaching the true science will somehow damage the students and undermine deeply held political or religious beliefs, so they alter the story to conform not to science, but to belief.

This Article argues that when the state compels attendance in science classrooms, it is obligated to teach science unadulterated by politics or religion. It has that obligation because the students have a First Amendment right to learn, not just what the school board wants them to learn, but the true nature of scientific facts. This should be non-controversial. Courts are well equipped to determine science from pseudo-science, especially when exclusively limited to concepts

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143. For a good discussion of the political and cultural attacks on science, see generally SHAWN LAWRENCE OTTO, FOOL ME TWICE: FIGHTING THE ASSAULT ON SCIENCE IN AMERICA (2011).

in primary or secondary school. The result of this right to learn under the Free Speech Clause is that all pseudo-science, whether religiously motivated or not, can be kept from the science classroom.

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