



**LAW, RELIGION AND SCIENCE –
DETERMINING THE ROLE RELIGION PLAYS IN SHAPING
SCIENTIFIC INQUIRY IN CONSTITUTIONAL DEMOCRACIES
– THE CASE OF INTELLIGENT DESIGN¹**

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ABSTRACT. Recently a new battle has emerged that implicates law, science and religion. The battle has focused on intelligent design (ID) and the numerous legal, philosophical, and educational concerns surrounding it. In the United States, resolution of these concerns centers on two questions: Is ID science? And is ID religion? Despite the fact that ID does not meet the standards of scientific rigor, ID proponents have been able to create a remarkably well-designed marketing plan aimed at imposing a theistic naturalism in schools and scientific discourse in the U.S. and a growing number of other countries. Both the ID movement and some of its most vociferous opponents have a vested interest in suggesting that science, especially evolutionary biology, and religion are incompatible and that law should recognize this supposed incompatibility. This paper presents a philosophical and legal counterpoint.

Keywords: intelligent design, law, religion, science, education

1. Introduction

In the United States a battle rages everyday over where humanity came from, or more specifically how humans came to be human. Much of the debate is focused on whether a supposedly new concept of human origins—Intelligent Design—should be taught in public schools. Intelligent Design advocates have brought this battle beyond U.S. borders and the issue has come up, or will soon come up, in numerous other countries. Eastern Europe has been a particularly

strong target for this growing movement and for the Creation Science movement before it. Yet few people know much if anything about this “new” concept, how it came to the fore, that it is actually based on religious rather than scientific arguments, and what it means for law, faith and the future of science.

Intelligent design advocates have a vested interest in this confusion. Intelligent design (ID) is in part a response to several important cases decided by the United States Supreme Court.¹ Confusion regarding the history and nature of ID has the potential—so far unrealized—to serve its advocates well in future legal battles in the United States. ID is, in part, a savvy marketing response to repeated legal defeats for creationism and “creation science” in American public schools. In some other countries there are no such constitutional barriers to the teaching of Intelligent Design and it must be hoped that educators and scientists in these countries are able to keep ID from being taught as science, for as will be explained, it is not science, at least as that term is understood by scientists today; and most assuredly ID advocates want it taught as science wherever possible.

If ID advocates simply proposed their ideas in a philosophical or theological context—ideas that are already thousands of years old in those disciplines—there would be little dispute. After all, in a free society there is nothing wrong with believing in design. Freedom of religion is an important touchstone for any free society. The problem arises when ID enters the “proof game” in the scientific context—i.e., attempts to claim the mantle of science. The movement has a vested interest in doing this so that it can market its ideas in science classrooms,² but to do so legitimately and without violating the U.S. Constitution ID must not be religion and should be science, and thus the proof game is everything to ID proponents.³

By couching ID as science and not theology ID proponents are able to argue for access to the forum of scientific debate. As will be seen, they often treat the scientific realm as a limited public forum for debate of “scientific” theories.⁴ They then claim ID is being discriminated against when it is excluded from that forum.⁵ These claims rely on free speech concepts such as viewpoint discrimination and content discrimination, often cast by ID proponents in broad terms like “academic freedom” and “fairness.”⁶ These arguments are, however, question begging. If ID is a scientific theory it might have a place in scientific discourse, but if not such claims will fail.

Otherwise, alchemy could claim a place in chemistry classrooms, astrology in astronomy classes and UFOlogy in a number of fields. Moreover, public school classrooms (primary and secondary) have never been viewed as forums for unlimited speech under the First Amendment in the United States.

In order to justify including intelligent design in scientific courses under current U.S. legal standards the ID movement needs to redefine science.⁷ In a recent landmark case regarding intelligent design in the public schools, a biologist who is also a leading proponent of ID acknowledged under intense questioning that a definition of science that would include intelligent design would also include astrology.⁸ In all fairness to this biologist, he had no choice because as will be explained later in this article there is no way around this conundrum when one tries to include ID within the definition of science.

2. Some (Very) Basic Background on Intelligent Design

In *Creationism's Trojan Horse: The Wedge of Intelligent Design*,⁹ Professor Barbara Forrest and Paul R. Gross painstakingly document the history of the ID movement. In that book they note that ID was designed, in part, as a strategy to get around the numerous legal defeats that both creationism and creation science endured.¹⁰ In fact, however, this link may be even greater than Forrest and Gross argue. Early ID supporters read the language in United States Supreme Court cases like *Edwards v. Aguillard*¹¹ and *Epperson v. Arkansas*,¹² and realized they had to take God out of their theory in order to get ID into American public schools and into scientific discourse more generally.¹³ They also realized they would need to do work that could at least plausibly be called science and that they would need to gain acceptance for this work at least in the public's eye.¹⁴

Among the originators of the ID movement are two law professors, Phillip Johnson and David K. DeWolf.¹⁵ One might expect that biologists would be the primary originators of what is claimed to be an alternative scientific theory to evolution, but when one looks at the early proponents of ID there were more philosophers, law professors and social scientists than natural scientists, a number of the natural scientists were not biologists, and none of the biologists was an evolutionary biologist.¹⁶

In fact, it was Phillip Johnson, a law professor, who spurred the movement with the 1991 publication of his book, *Darwin on Trial*.¹⁷ Interestingly, the book starts out by discussing *Edwards v. Aguillard*.¹⁸ From there Johnson moves into an attack on what many ID advocates refer to as “scientific materialism,” which he defined as attempts “to explain all human behavior as the subrational product of unbending chemical, genetic, or environmental forces.”¹⁹ His ultimate assault in the book is on Darwinian science,²⁰ and this remains true of ID today.²¹

Much of the basis for ID appears to be a view of the world which promotes the notion there are absolute moral principles that humans should abide by and are meant to abide by,²² that Darwinian science removes the basis for such principles by treating human existence as a series of unguided biological accidents (their character, not a necessary or even accurate one),²³ and that Darwinianism promotes scientific and natural materialism; that is, the view that natural forces are responsible for everything.²⁴ However, a key strategic advantage (at least for purposes of U.S. constitutional law) of ID over its more openly creationist predecessors is that it does not acknowledge that the Intelligent Designer is G-d.

As will be seen, the roots of ID are in Christian Apologetics and natural theology, so attempts to deny that the designer is divine seem to be a response to the language in *Edwards v. Aguillard*, discussed below, prohibiting the teaching of religious theories that are not falsifiable as science. It is an attempt at shielding ID from legal attacks under the Establishment Clause of the First Amendment to the United States Constitution.²⁵

There are two overarching components to ID. First, exploiting supposed gaps in evolutionary biology and attacking evolutionary biology generally.²⁶ Second, trying to demonstrate the designer through the complexity of living organisms.²⁷ The end goal of both of these tactics is to overthrow scientific materialism and what ID proponents call “naturalism.”²⁸ Naturalism, according to ID proponents, is the idea that natural forces explain what we see in the world and in living organisms, and that the world and the organisms in it came about through purely natural (i.e. no higher power) mechanisms.²⁹

Interestingly, this is a straw man argument. One can accept naturalism and the mechanisms said to support it without denying a higher power. In fact famed biologist Kenneth Miller wrote extensively about this in *Finding Darwin's God*.³⁰ It is only because

ID proponents enter the scientific proof game that their straw man takes on life. There are many people of faith who accept what ID proponents call “methodological naturalism,”³¹ which is just a fancy term for the idea that natural processes have given rise to much of what we see in the world around us. Naturalism is not inherently inconsistent with faith, nor does it preclude the theological notion of God as designer.³² For people of faith who accept scientific evidence, naturalism may simply suggest that the natural mechanisms observed and documented by scientists are the work of God.³³ The latter point, of course, being beyond scientific proof. This is not a problem until one: A. assumes that naturalism somehow must conflict with faith; and B. that science is the appropriate arena in which to try to prove the existence of the supernatural/divine. ID assumes both these things.³⁴

In 1802, Reverend William Paley published his famous, *Natural Theology*.³⁵ In this book Paley discusses the concept of the watchmaker God.³⁶ His book was part of an important and broader movement particularly popular in the 17th and 18th centuries, which looked to relate the natural world and religion.³⁷ Paley, like other theological naturalists, studied the natural world quite seriously and through the lens of how the natural world reflects the divinity of God.³⁸ Paley’s watchmaker analogy can be restated roughly as follows: a person walking through a park comes upon a stone on the ground and in it may see the natural world at work without regard to design. That same person walks through the park again and comes upon a watch. The person upon observing the watch is likely to recognize that the watch must have been designed by an intelligent creator, and thus the analogy proceeds to equate complex natural phenomena to the watch and the watchmaker to an intelligent (and divine) creator.³⁹ Even in Reverend Paley’s time this reasoning was not new. The idea goes at least as far back as Plato’s famous dialogue, the *Timaeus*.⁴⁰ Analogues can be found in the Roman philosopher Cicero’s *De Natura Deorum (On the Nature of the Gods)*⁴¹ and in Thomas Aquinas’ *Summa Theologica*.⁴²

Of course Paley, unlike many ID proponents, did not claim the concept was new, nor did he attempt to hide its connection to the divine. Reverend Paley was unabashedly a Christian Apologist.⁴³ For those unfamiliar with the concept, Christian Apologetics involves attempting to prove the truth of Christian teachings.⁴⁴ Paley had no reason to hide this, and in fact his work, when viewed as a work of

Christian Apologetics and natural theology, was impressive for its time.⁴⁵ But that, of course, is the point. Reverend Paley would not deny that the designer (watchmaker) is God, and he would not deny that natural theology is theology.

The point is that the watchmaker (ID) argument was not even new in the early Nineteenth century although Reverend Paley's explication of it was quite advanced for its time. Yet, ID proponents claim to have developed "new" theories such as "irreducible complexity" and "specified complexity," which bare a remarkable resemblance to natural theology and creationist arguments.⁴⁶ All the ID proponents have done is repackage these old ideas without explicit reference to the divine and sprinkle in some fancy terminology that makes it all sound more scientific.⁴⁷ Detailed discussion of these ideas are beyond the scope of this article. For an in depth discussion of these concepts, and the scientific, philosophical, religious and legal implications of them, as well as the ID movements' attack on evolution through natural selection, see Frank S. Ravitch, *Marketing Intelligent Design: Law and the Creationist Agenda* (Cambridge Univ. Press 2011).

What this means from a constitutional perspective in the United States is that ID is a religious theory and it can not be taught in public school sciences classes. This conclusion is further backed by the fact that ID is not accepted as science by mainstream scientists (the abovementioned book explains this in greater detail) and that a leading ID proponent admitted on the witness stand that science would need to be redefined to include ID and that such a definition would include astrology. In the United States, at least, ID may be taught in philosophy or comparative religion classes so long as it is not taught as scientific or religious truth.

3. ID and the United States Constitution

In *Kitzmiller v. Dover Area School District*,⁴⁸ a federal district court held that the inclusion of a disclaimer favoring ID in classrooms, the purchase and placement of ID texts in the school library, and conduct by some school board members violated the Establishment Clause of the First Amendment.⁴⁹ The key issue in the case was whether ID is religion or science.⁵⁰ This issue was so important because if ID is a religiously grounded concept including it in science classrooms, even through a mandatory disclaimer, would violate the Establishment

Clause of the First Amendment to the United States Constitution.⁵¹ If ID is science, however, there might be an argument it could be included in such classes despite its religious underpinnings. If ID is neither religion nor science there is no constitutional issue because if it is not religious the Establishment Clause could not be violated;⁵² although teaching ID as science would still raise serious educational concerns that could be addressed at the state level.

The court heard testimony from leading philosophers of science,⁵³ biologists,⁵⁴ and ID proponents.⁵⁵ After hearing all this testimony and evaluating documentary evidence such as manuscripts of an ID textbook that was virtually identical to a creation science text with “intelligent designer” substituted for G-d and “intelligent design” for “creation,” the court held that ID is not science and that it is a religiously grounded theory.⁵⁶ The court’s holding that ID is a religiously based theory and not a scientific theory was central to its reasoning under the Establishment Clause.⁵⁷ The Supreme Court had already held in *Edwards v. Aguillard*,⁵⁸ that religiously based theories of creation (in that case “creation science”) could not be taught in public school science classes without running afoul of the Establishment Clause.⁵⁹ Once the *Kitzmiller* court determined that ID is not science, and that it is religion, the outcome that the school board policies violated the Establishment Clause was unavoidable.⁶⁰

The court applied two legal tests that had been used by the United States Supreme Court in earlier Establishment Clause cases, including the cases dealing with Creationism and Creation Science: the Endorsement test and the *Lemon* test.⁶¹ The *Lemon* test has three prongs. First, government must have a secular purpose for whatever actions/laws are being questioned.⁶² Second, the primary effect of the law or other government action must neither advance nor inhibit religion.⁶³ The third element of the *Lemon* test is that there can not be excessive entanglement between government and religion.⁶⁴ Traditionally, this element has had two facets. First, what is known as institutional entanglement—concern over government meddling with or overseeing religion, or government and religious entities becoming too intertwined institutionally.⁶⁵ The second facet is divisiveness entanglement, which occurs when government support of, or interaction with, religion or religious entities creates divisiveness in the community along religious lines.⁶⁶ This latter facet has been eliminated from the test in the aid and funding context, but appears to still apply in other contexts.⁶⁷ The *Lemon* test is an “or” test,

meaning that if any of the three elements are violated the law or government action is unconstitutional.⁶⁸

The Endorsement Test was first introduced by Justice Sandra Day O'Connor in her concurring opinion in *Lynch v. Donnelly*,⁶⁹ a case upholding the display of a nativity scene by the city of Pawtucket, Rhode Island. Justice O'Connor wrote:

The Establishment Clause prohibits government from making adherence to a religion relevant in any way to a person's standing in the political community. ... Endorsement sends a message to nonadherents 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. Disapproval sends the opposite message.

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.

Focusing on the evil of government endorsement or disapproval of religion makes clear that the effect prong of the *Lemon* test is properly interpreted not to require invalidation of a government practice merely because it in fact causes, even as a primary effect, advancement or inhibition of religion.

What is crucial is that a government practice does not have the effect of communicating a message of government endorsement or disapproval of religion. It is only practices having that effect, whether intentionally or unintentionally, that make religion relevant, in reality or public perception, to status in the political community.

Justice O'Connor characterized the endorsement test as a clarification of the first two prongs of the *Lemon* test, and the Court sometimes treats it as such today.⁷⁰ The Court has also referred to the endorsement test as a separate test, and many lower courts treat it as such even though the analysis overlaps. The perspective from which courts are to determine whether a given government activity endorses religion

is that of the reasonable observer.⁷¹ The reasonable observer is presumed to be aware of the relevant history and context of the government action in question.⁷² The context can be physical as in the case of religious displays and also vocal—i.e. focusing on the message being sent by the government action. Whether or not a government action endorses religion is determined by assessing whether a reasonable observer acquainted with the history and context of the government action would perceive that government is created political insiders and outsiders along religious lines.⁷³

In *Kitzmiller*, the court held that the school board policy and related actions (such as the acquisition of ID textbooks for the school library) violated the endorsement test⁷⁴ and the purpose and effects prongs of the *Lemon* test,⁷⁵ and thus it violated the Establishment Clause.⁷⁶ This is so because the court found that ID is not science and that there was overwhelming evidence proving that ID is religiously grounded.⁷⁷ The evidence demonstrated that the purpose of implementing the ID policy was to endorse the majority school board members' religious views,⁷⁸ and that there is no secular purpose that would support teaching ID as science.⁷⁹ Therefore, the policy would make a reasonable observer familiar with the history of the policy feel that the board was creating political and religious insiders and outsiders based on religious views.⁸⁰

The board argued that the purpose of the policy was to promote critical thinking skills and improve science education.⁸¹ Certainly exposure to different ideas and values might support teaching ID in comparative religion or philosophy classes,⁸² but because the court held ID is not a scientific theory there is no secular purpose for teaching it in science classes.⁸³ The board fared no better when the court analyzed the effects of the policy under the endorsement test. The court held that because ID is religious and not science the effect of the disclaimer and book purchases was to endorse religion.⁸⁴ Thus, when the policy was implemented, the disclaimer was read in classes, and ID books were added to the library in a well advertised manner, a reasonable observer would believe that such actions had the effect of creating political and religious insiders and outsiders.⁸⁵ There was substantial evidence to back up the notion that indeed this is exactly what happened in Dover when the policy was being debated and after it was passed and implemented.⁸⁶ This same analysis essentially applied to the *Lemon* effects test as well.⁸⁷ The court used the same

reasoning to hold that the primary effect of the Dover School Board policy was to promote the religious theory of ID.⁸⁸

4. Conclusion

The U.S. experience with ID raises numerous questions about the role religion can play in effecting science in constitutional democracies. The stakes are high. Real science has led to numerous breakthroughs in medicine, technology, travel, and the environment. If science is successfully undermined by religiously grounded theories future scientific research could be effected and advances slowed. At the same time protecting science must not lead to the demeaning of religion or interference with its free exercise in areas, unlike science, where religion has a place. In the United States the First Amendment to the United States Constitution poses a potentially effective barrier to this happening. In other countries, such as Japan and Canada, similar constitutional provisions may prevent it. Yet in other countries the barriers must be institutional rather than constitutional. It is up to these nations' science and educational authorities to make sure that religion is not used to limit science, while at the same time protecting robust religious freedom. This has happened in England and Australia where educational authorities have rejected teaching ID in the schools on the basis of sound educational judgement. What will happen elsewhere remains to be seen, but for now, the U.S. has the greatest experience with ID.

NOTE

This paper is a brief description of some of the issues addressed in Frank S. Ravitch, *Marketing Intelligent Design: Law and the Creationist Agenda* (Cambridge University Press, 2011).

REFERENCES

1. *Edwards v. Aguillard*, 482 U.S. 578 (1987); *Epperson v. Arkansas*, 373 U.S. 97 (1968).
2. Robert Pennock, *Tower of Babel: The Evidence Against the New Creationism* 344–77 (MIT Press 1999); *See generally*, Barbara Forest and Paul R. Gross, *Creationism's Trojan Horse: The Wedge of Intelligent Design*

(Oxford Univ. Press 2004). (discussing the marketing strategies of the ID movement).

3. *Kitzmiller v. Dover Area School District*, 400 F.Supp.2d 707, 735–46 (E.D. Pa. 2005).

4. *Cf.* David K. DeWolf, Stephen C. Meyer & Mark Edward DeForrest, *Teaching the Origins Controversy: Science, Or Religion, Or Speech?*, 2000 Utah L. Rev. 39, 106 (“While public schools are not public fora per se, they are publicly funded places where ideas are exchanged. Thus, if public schools or other governmental agencies bar teachers from teaching about design theory but allow teachers to teach neo-Darwinism, they will undermine free speech and foster viewpoint discrimination.”); *Id.* at 56–57 (“Thus, those biologists who seek to insulate their preferred theories from critique by rhetorical gerrymandering – that is, by equating dominant evolutionary theories with science itself and then treating all criticism of such theories as necessarily ‘unscientific’ – themselves act in a profoundly unscientific manner.”).

5. *Id.*; Francis J. Beckwith, *Public Education, Religious Establishment, and the Challenge of Intelligent Design*, 17 Notre Dame J.L. Ethics & Pub. Pol’y 461, 489-90 (2003) (“Thus, forbidding the teaching of ID (or legitimate criticisms of evolution) in public schools because it lends support to a religion, while exclusively permitting or requiring the teaching of evolution, might be construed by a court as viewpoint discrimination, a violation of state neutrality on matters of religion, and/or the institutionalizing of a metaphysical orthodoxy, for ID and evolution are not two different subjects (the first religion, the second science) but two different answers about the same subject.”); DeWolf, *et al supra* note 11, at 58 (“But clearly students would not be well served by presenting a false picture of agreement where in fact there is controversy.”).

6. *See* notes 5–6, *supra* and accompanying text; *see also*, Jay D. Wexler, *The Scopes Trope*, 93 Geo. L.J. 1693, 1695–96 (2005) (reviewing Larry A. Witham, *Where Darwin Meets the Bible: Creationists and Evolutionists in America* (2002) (“... intelligent design advocates have argued that notions of academic freedom, equality, and educational comprehensiveness require school boards and officials to allow teachers to introduce students to intelligent-design theory and, in some cases, even require them to do so.”).

7. *Kitzmiller*, 400 F.Supp.2d at 735–46.

8. *Id.* at 736.

9. (Oxford Univ. Press 2004).

10. *Id.* at 275-76.

11. 482 U.S. 578 (1987).

12. 373 U.S. 97 (1968).

13. *Kitzmiller v. Dover Area School District*, 400 F.Supp.2d 707, 716–23, 735-46 (E.D. Pa. 2005); *see also*, Richard B. Katskee, *Why it Mattered to Dover that Intelligent Design Isn’t Science*, 5 First Amend. L. Rev. 112, 119 (2006) (noting that ID is in part a response to the *Edwards* decision);

Nicholas A. Schuneman, *One Nation Under. . .The Watchmaker? Intelligent Design and the Establishment Clause*, 22 *BYU J. Pub. L.* 179, 186 (2007) (same); Kevin Trowel, Note, *Divided by Design: Kitzmiller v. Dover Area School District, Intelligent Design, and Civic Education*, 95 *Geo. L.J.* 855, 858 (2007) (same).

14. See generally, Forrest and Gross, *infra* note 17 (Setting forth ID movement's strategy to claim the mantle of science and gain public recognition); William A. Dembski, *Intelligent Design: The Bridge Between Science & Theology* (Intervarsity Press 1999) (early work by leading ID advocate making such arguments).

15. Barbara Forrest and Paul R. Gross, *Creationism's Trojan Horse: The Wedge of Intelligent Design* 15–20, 174 (Oxford Univ. Press 2004).

16. *Id.* at 18–19.

17. (Inter-Varsity Press 1991).

18. Forrest and Gross, *supra* note 17, at 15–23.

19. This definition is from the Discovery Institute's Center for the Renewal of Science and Culture website as it originally existed in 1996. The language on that site has since been changed (although links to the original site are widely available on the web), but this or very similar language is found in the Discovery Institute's *Wedge Document*, the writings of numerous intelligent design writers, and Ben Stein's recent movie *Expelled: No Intelligence Allowed* (2008).

20. Phillip Johnson, *Darwin on Trial* (Inter-Varsity Press 1991).

21. Forrest and Gross, *supra* note 17.

22. Johnson, *supra* note 22.

23. *Id.*

24. *Id.*

25. *Id.*; *supra* note 17, and accompanying text.

26. Johnson, *supra* note 22; Michael Behe, *Darwin's Black Box: The Biochemical Challenge to Evolution* (Simon & Schuster 1998); William A. Dembski, *Intelligent Design: The Bridge Between Science & Theology* (Intervarsity Press 1999).

27. Behe, *supra* note 28, Dembski, *supra* note 28.

28. *Id.*

29. ID proponents are not alone in couching naturalism in these sorts of terms. A leading opponent of ID and supporter of this view of naturalism has made similar arguments to ID proponents on the meaning of scientific materialism and naturalism. See Richard Dawkins, *River Out of Eden* 132–33 (Harper Collins 1995) (“The Universe we observe has precisely the properties we should expect if there is, at bottom, no design, no purpose, no evil and no good, nothing but blind, pitiless indifference”).

30. (Harper/Collins Cliff Street Books 1999).

31. *Id.*

32. *Id.*

33. *See generally, id.* (the notion that these natural mechanisms are the work of God is a religious question and not a scientific one, but the latter approach does not preclude the former belief).
34. Behe, *supra* note 28; Dembski, *supra* note 28; Johnson, *supra* note 22.
35. (Bobbs-Merrill Paperback Edition 1963).
36. *Id.*
37. Alister McGrath, *The Order of Things: Explorations in Scientific Theology* (Blackwell 2006); Stephanie L. Shemin, *The Potential Constitutionality of Intelligent Design*, 13 *George Mason L. Rev.* 621, 663–64 (2005).
38. Paley, *supra* note 37, and accompanying text.
39. *Id.*
40. Plato, *Timaeus* (Peter Kalkavage trans., Focus 2001).
41. Cicero, *De Natura Deorum I* (Richard McKirahan, ed., Bryn Mawr 1997).
42. Thomas Aquinas, *The Summa Theologica of St. Thomas Aquinas* (Christian Classics 1981).
43. Paley, *supra* note 37, and accompanying text.
44. Norman L. Geisler, *Christian Apologetics* (Baker Academic 1988).
45. Paley, *supra* note 37, and accompanying text.
46. Robert Pennock, *Tower of Babel: The Evidence Against the New Creationism* (MIT Press 1999).
47. *See generally, id.* (Setting forth an exceptionally well detailed account of the relationship between natural theology, creationism, creation science, and ID).
48. 400 F.Supp.2d 707 (E.D. Pa. 2005).
49. *Id.*
50. *Id.*
51. *Id.* at 711-23, 735-46.
52. *Cf. Kitzmiller*, 400 F.Supp.2d at 711–23 (pointing out constitutional issues arise because ID is a religious theory, not just because it is bad science).
53. *Id.* at 719, 721, 735–36.
54. *Id.* at 724–25, 727–29, 737–38, 740, 743–44.
55. *Id.* at 718–23, 735–45.
56. *Id.* at 735–46.
57. *Id.*
58. 482 U.S. 578 (1987).
59. *Id.*
60. *Id.*
61. *Id.* at 712–14.
62. *Lemon v. Kurtzman*, 403 U.S. 602, 612 (1971).
63. *Id.*
64. *Lemon*, 403 U.S. at 613.
65. *Id.* at 616–22.

66. *Id.* at 622–24.
67. Compare *Agostini v. Felton*, 521 U.S. 203, 232–34 (1997) (rolling the entanglement prong of *Lemon* into the effects prong and dramatically limiting the importance of the divisiveness factor), with *Santa Fe Indep. Sch. Dist. v. Doe*, 530 U.S. 290, 311 (2000) (reasoning that a student election mechanism for determining whether prayer should be delivered before football games encourages divisiveness along religious lines in a public school setting and is at odds with the Establishment Clause).
68. *Lemon*, 403 U.S. at 612–13.
69. 465 U.S. 668 (1984).
70. *Id.* at 692–94; See also *Edwards v. Aguillard*, 482 U.S. 578, 585–94 (1987).
71. See *Santa Fe*, 530 U.S. at 308; *McCreary County*, 545 U.S. at 861.
72. *Capitol Square Review Bd. v. Pinette*, *infra.* this Chapter (O’Connor, J., concurring).
73. *Id.* at 773 (O’Connor, J., concurring).
74. *Id.* at 714–35, 765.
75. *Id.* at 746–765.
76. *Id.* at 765–66.
77. *Id.* at 745–46, 765.
78. *Id.*
79. *Id.* at 735–43.
80. *Id.* at 745–46.
81. *Id.* at 762–63.
82. *Id.* at 765.
83. *Id.* at 735–46, 763–65.
84. *Id.* at 745–46, 763–64 (school board policy and actions violated effects inquiry under endorsement and *Lemon* tests).
85. *Id.*
86. *Id.* at 748–62.
87. *Id.* at 763–65.
88. *Id.*