To my wife, Alicia, and my boys, George and Sammy
ACKNOWLEDGMENTS

I would like to thank everyone who encouraged me to complete this dissertation and not give up. I would like also like to thank my advisor, Dr. R. Craig Wood for his support and guidance. I would also like to thank my committee members Dr. David S. Honeyman, Dr. Dale Campbell, and Dr. David Miller for their suggestions and comments. I especially would like to thank Dr. Campbell for going above and beyond and coming through for me in the clutch and Dr. Wood, who despite being very ill, took the time to read through the chapters of my dissertation and provide me with feedback.

I would particularly like to thank my family for giving me the time to complete this dissertation. My wife, Alicia, has been tremendously supportive through this whole experience. My children have had to sacrifice time spent with me, while I was working on my dissertation. I am truly fortunate to have such a wonderful family.
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The Intelligent Design Movement has attempted to infuse Intelligent Design into the curriculum of public schools ever since the Edwards decision, which ruled that “creation science” was a violation of the Establishment Clause. Kitzmiller v. Dover was the first legal case to challenge the teaching of Intelligent Design in public schools. In Kitzmiller, Judge Jones ruled that Intelligent Design was not science and therefore, the only legitimate purpose of the Dover County School Board was to advance religion. Judge Jones based his decision on a “belt-and-suspenders” approach using both the Lemon Test and the Endorsement Test in his decision.

The purpose of this study was to chronicle the history of Establishment Clause litigation leading up to Kitzmiller. It was also to examine the literature surrounding Intelligent Design and the Intelligent Design movement. Finally, this study examines the landmark case of Kitzmiller v. Dover to show the process of how Judge Jones arrived at his decision. This study also tried to offer recommendations whereby Intelligent Design might be taught in a public school setting as well as follow-ups for future research.
CHAPTER 1
INTRODUCTION

Separation of Church and State

Thomas Jefferson first introduced the phrase “separation of church and state” in a letter written to the Danbury Baptists in 1802. Concerning the First Amendment of the Constitution, Jefferson wrote:

Believing with you that religion is a matter which lies solely between Man and his God, that he owes account to none other for his faith or his worship, that the legitimate powers of government reach actions only, and not opinions, I contemplate with sovereign reverence that act of the whole American people which declared that their legislature should "make no law respecting an establishment of religion, or prohibiting the free exercise thereof," thus building a wall of separation between Church and State.¹

Jefferson was influenced by the writings of John Locke, who wrote The Reasonableness of Christianity² and Letters on Religious Toleration.³ In fact, Jefferson’s Bill for Establishing Religious Freedom⁴ was derived from Locke’s Letter Concerning Toleration.⁵ In turn, Jefferson’s bill was a forerunner to the religion clauses of the first amendment.⁶

⁵ Works of Locke, supra note 3.
Locke was an advocate for religious freedom. He felt religious intolerance was incongruent with good government. According to Locke, religious turmoil resulted when both religious and governmental leaders meddled in each other’s affairs: “I esteem it above all things necessary to distinguish exactly the business of civil government from that of religion, and to settle the just bounds that lie between the one and the other.” Therefore, Locke concluded the proper division between government and religion should be: “all the power of civil government relates only to men’s civil interests, is confined to the care of the things of this world, and hath nothing to do with the world to come,” while “churches have [no] jurisdiction in worldly matters.”

Therefore, Locke not only believed in limitations for government, but also for religion. Locke also believed the government had no authority over the realm of individual conscience. The right to liberty of conscience was understood as a right to not being coerced to perform religious actions that violated one’s beliefs about the proper way to worship or against being prohibited from performing religious actions that one believed were appropriate for religious worship. Conscience was a natural right, which could not be conceded to the government or for others to control. It is impossible to grant

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8 Works of Locke, supra note 3, at 9.
10 Works of Locke, supra note 3, at 19.
12 Noah Feldman, Divided by God: America’s Church-State Problem – and What We Should Do About It 29 (Farrar, Straus and Giroux 2005) (“It took John Locke to translate the demand for liberty of conscience into a systematic argument for distinguishing the realm of government from the realm of religion.”) [hereinafter Divided by God]
another the power to change one’s mind.\textsuperscript{13} Even if one were to allow another the power
to decide the forms of worship, way of practicing and professing one’s faith, if the
individual did not subscribe to those beliefs it would amount to “great obstacles to our
salvation.”\textsuperscript{14} For example, the Framers’ were concerned that if citizens were required to
pay taxes to support religious institutions that held beliefs with which the citizens
disagreed; their conscience would be violated.\textsuperscript{15} Instead, conscience had to be
protected from the government. Locke’s views on religious tolerance, conscience, and
the social contract were very influential in the drafting of the Establishment Clause and
the Free Exercise Clause.\textsuperscript{16}

Jefferson differed from Locke in that he also believed in religious toleration for
atheists and Catholics.\textsuperscript{17} Unlike Locke, Jefferson also did not believe in the government
providing financial support for religious teaching, arguing that “to compel a man to
furnish contributions of money for the propagation of opinions which he disbelieves and

\textsuperscript{13} John Plamenatz et al., Man and Society: Political and Social Theories from Machiavelli to Marx 130-33
& 133 (Longman Publishing Group 1992) (discussing Spinoza’s advocacy of man’s freedom to reason
and liberty of conscience).

\textsuperscript{14} Religions Peace: Or a Plea for Liberty of Conscience (1646), reprinted in Tracts on Liberty of
king nor bishop can, or is able to command faith .... You may force men to church against their
consciences, but they will believe as they did afore, when they come there .... “ (footnote omitted)).

be applied by asking whether coercion has occurred and concluding that aid to religious
schools is noncoercive).

\textsuperscript{16} Divided by God, supra note 12, at 29.

\textsuperscript{17} Thomas Jefferson, Notes on Locke and Shaftesbury (1776), reprinted in I The Papers of Thomas
abhors, is sinful and tyrannical." Finally, Jefferson differed in that he was against the
government’s promotion or encouragement of religion, even through persuasion.\footnote{Jefferson, \textit{supra} note 4, at 77.} 

James Madison possessed a much different view of religion than Jefferson.\footnote{Letter from Thomas Jefferson to the Rev. Samuel Miller (Jan. 23, 1808), \textit{in} II \textit{Works of Jefferson}, at 7 (Paul L. Ford ed. 1905)(explaining his refusal to issue a presidential proclamation of a day of fasting and prayer).} The main architect of the Establishment Clause, Madison contended, “…if Religion be exempt from the authority of the Society at large, still less can it be subject to that of the Legislative Body.” Madison believed that one’s duty to the Creator is “precedent both in order of time and degree of obligation, to the claims of Civil Society,” and “therefore that in matters of Religion, no man’s right is abridged by the institution of Civil Society.”\footnote{Ralph L. Ketcham, \textit{James Madison and Religion: A New Hypothesis}, \textit{in} James Madison on Religious Liberty 175 (Robert S. Alley ed., Prometheus Books 1985).} In other words, Madison believed freedom of religion could include exemption from applicable laws under certain circumstances.\footnote{James Madison, \textit{Memorial and Remonstrance}, \textit{in} 2 \textit{The Writings of James Madison} at 183, 184 (Gaillard Hunt ed. 1901).} 

Of the “total separation of the church from the state,” Madison wrote, “strongly guarded as is the separation between Religion and Government in the Constitution of the United States,” and he declared, “practical distinction between Religion and Civil Government is essential to the purity of both, and as guaranteed by the Constitution of the United States.” Ultimately, Madison believed in the freedom to practice religion. Unlike Madison; however, Jefferson believed liberty of conscience meant mostly freedom from sectarian religion, rather than freedom to practice religion in whatever

\footnote{McConnell, \textit{supra} note 7, at 7.}
form one chooses. It is interesting to note, that modern courts have come to rely on the rationalist premises of Locke that Jefferson espoused, to argue for a no-exemption interpretation of the free exercise clause, even though Madison’s more generous version of religious liberty may more accurately depict the understanding of the free exercise provision at the time of the drafting of the Bill of Rights.

Intelligent Design Defined

The modern day idea of intelligent design was introduced by a group of American creationists in an attempt to avoid previous court rulings that prohibited the teaching of creationism as science. The origin of intelligent design can be traced back to the pivotal 1987 United States Supreme Court case of Edwards v. Aguillard, which dealt with the separation of church and state. While the teaching of “creation science” alongside evolution was ultimately found to be a violation of the Establishment Clause, the Supreme Court also held that “teaching a variety of scientific theories about the origins of humankind to school children might be validly done with the clear secular intent of enhancing the effectiveness of science instruction.”

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23 McConnell, supra note 7, at 7.

24 McConnell, supra note 7, at 7.


26 Edwards, 482 U.S. at 580-81.

27 Kitzmiller, 400 F. Supp. 2d at 707, 712.

28 Edwards, 482 U.S. at 580-81.
In 1989 following the ruling in *Edwards*, the creation science textbook, *Of Pandas and People*, was published with every instance of the word “creation” or “creationism” found in earlier drafts replaced with the words “intelligent design.” In fact, in some drafts the revisions were made so hastily, that instead of replacing the word “creationists” with “design proponents,” the author sandwiched it between the “c” and “ists” from “creationists” to read “Cdesignproponentsists.” This textbook was originally intended for high school biology classes. *Of Pandas and People* would be at the center of focus again in the case of *Kitzmiller v. Dover Area School District*.

In 1991, inspired by the *Edwards*, retired legal scholar, Phillip E. Johnson, published *Darwin on Trial* which attempted to replace the methodological naturalism of the scientific method with “theistic realism” in what would later be defined as the “wedge strategy.” Michael Behe, Stephen C. Meyer, and William Dembski joined Johnson in his attempt. By 1995, Meyer gained funding from the Discovery Institute, a political think tank, to create the Center for Renewal of Science and Culture for the promotion of the intelligent design movement.

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29 *Edwards*, 482 U.S. at 580-81.

30 *Kitzmiller*, 400 F. Supp. 2d at 707, 712.

31 *Judgement Day: Intelligent Design on Trial* (PBS television broadcast Nov., 2007)


According to the Discovery Institute, intelligent design is the idea that “certain features of the universe and of living things are best explained by an intelligent cause, not an undirected process such as natural selection.”\(^{35}\) It is not unlike the traditional teleological argument except that intelligent design fails to specify the identity of the designer.\(^{36}\)

Although proponents of intelligent design avoid naming the agent of creation, leaders within the movement have identified the designer as a Christian God.\(^{37}\) Other assertions made by the intelligent design movement include the idea of irreducible complexity. In 1996, a biochemist from Lehigh University, Michael Behe coined the term “irreducible complexity,” in his book *Darwin’s Black Box*. According to Behe, irreducible complexity is “a single system which is composed of several well-matched interacting parts that contribute to the basic function, wherein the removal of any one of the parts causes the system to effectively cease functioning.”\(^{38}\)

Behe’s classic example of irreducible complexity is the mousetrap. According to Behe, the mousetrap is made up of several interacting parts: the base, the catch, spring, and hammer; if any of these parts is missing the mousetrap will not function properly.\(^{39}\) Proponents of intelligent design argue that natural selection could not create

\(^{35}\) Discovery Institute, Top Questions, http://www.discovery.org/csc/topQuestions.php#questionsAboutIntelligentDesign


an irreducibly complex system, because natural selection only occurs when all parts are assembled. Furthermore, design theorists argue evolutionary natural selection only acts on characteristics which are functionally beneficial to the survival of an organism. Therefore, the smaller nonfunctional parts of a complex structure would not be selected for and pass on through successive generations. It is therefore, assumed that there must be a guiding force behind this non-random act leading to the development of a complex structure. Following Behe’s logic, bacterial flagellum, the blood clotting cascade, cilia, and the immune system are all believed to develop through irreducible complexity.

In 1986, the term “specified complexity” was used by chemist Charles Thaxton to explain how messages were transmitted by DNA within the cell. According to Thaxton, these signals were specified by intelligence originating with an intelligent agent. William Dembski built on this concept and developed “specified complexity” in the 1990s. Dembski maintains that when something is both complex and “specified” that it must be the product of an intelligent cause and not the result of natural causes. Dembski offers the following example: “A single letter of the alphabet is specified without being complex. A long sentence of random letters is complex without being


41 Kitzmiller, 400 F. Supp. 2d at 738-739.

42 Kitzmiller, 400 F. Supp. 2d at 738-739.

43 Kitzmiller, 400 F. Supp. 2d at 741.


specified. A Shakespearean sonnet is both complex and specified." Dembski classifies anything with less than a $1 \times 10^{-150}$ chance of occurring by chance as complex specified information (CSI). However, based on Dembski’s definition complex specified information cannot occur naturally, his argument is a tautology.\footnote{William A. Dembski, Intelligent Design: The Bridge Between Science & Theology 47 (InterVarsity Press 2002).}

**Kitzmiller v. Dover**

The only case to specifically explore the constitutionality of intelligent design, thus far, is the *Kitzmiller v. Dover*.\footnote{Kitzmiller, 400 F. Supp. 2d at 707, 712.} In his decision, Judge John Jones wrote:

To preserve the separation of church and state mandated by the Establishment Clause of the First Amendment to the United States Constitution, and Art. I, § 3 of the Pennsylvania Constitution, we will enter an order permanently enjoining Defendants from maintaining the ID Policy in any school within the Dover Area School District, from requiring teachers to denigrate or disparage the scientific theory of evolution, and from requiring teachers to refer to a religious, alternative theory known as ID.\footnote{Kitzmiller, 400 F. Supp. 2d at 709. Judge Jones so ruled after a six-week trial in which the Court made all findings of fact and conclusions of law after reviewing evidence presented at trial. *Id.* at 711.)}

The decision in *Kitzmiller* based on the purpose and effects prong analysis from the *Lemon* Test caused irreparable damage to ID’s ability to enter America’s classrooms.\footnote{Philip Sparr, Special "Effects": Kitzmiller v. Dover Area School District, 400 F. Supp. 2d 707 (M.D. Pa. 2005), and the Fate of Intelligent Design in Our Public Schools, 86 Neb L. Rev. 708 (2008).} To reach this conclusion, the court carefully recounted the historical foundations of the ID movement (e.g., creationism and creation science) and
determined ID to be a non-scientific, religious argument.\textsuperscript{51} Through the thorough analysis of one of the most prominent and respected ID supporters, Michael Behe, the court's opinion struck at the heart of the ID movement and produced a roadmap for future courts to follow.\textsuperscript{52} Even if ID proponents choose a less conspicuous school board policy or neglect to directly mention ID by name; given the ubiquitous nature of ID and the precedence established by the \textit{Kitzmiller} decision, subsequent courts would be remiss to refuse the roadmap \textit{Kitzmiller} has created.\textsuperscript{53} While \textit{Kitzmiller} is not a Supreme Court - or even United States Court of Appeals - decision, the court's opinion will serve as persuasive authority in future debates regarding the constitutionality of teaching ID or directing students to ID and its criticism of evolution.\textsuperscript{54}

\textbf{Research Question}

This purpose of this study was to examine intelligent design as to ascertain whether intelligent design, as it is currently operationalized, is a violation of the Establishment Clause.\textsuperscript{55} Subsequently, is there a way in which intelligent design could be presented, whereby the courts would not see intelligent design as a violation of the Establishment Clause?\textsuperscript{56} In order to answer these questions, cases involving evolution and creation science were examined to gain a better understanding legal precedents

\textsuperscript{51} \textit{Kitzmiller}, 400 F. Supp. 2d at 765. ("We have addressed the seminal question of whether ID is science. We have concluded that it is not, and moreover that ID cannot uncouple itself from its creationist, and thus religious, antecedents.")

\textsuperscript{52} \textit{Sparr}, supra note 50, at 720-721.

\textsuperscript{53} \textit{Id}. at 733.

\textsuperscript{54} \textit{Id}. at 732.

\textsuperscript{55} U.S. CONST. amend. I.

\textsuperscript{56} U.S. CONST. amend. I.
involving leading up to *Kitzmiller v. Dover*.\(^{57}\) Secondly, this research examined the various state statues and constitutionality of the statues in regard to the Establishment Clause standards. Similarly, other landmark cases involving the Establishment Clause and other relevant cases including *Kitzmiller v. Dover*\(^{58}\) were reviewed to better understand on what grounds intelligent design was determined to be unconstitutional. Finally, this study examined the theses of intelligent design, so as to determine whether intelligent design could be presented in such a way so as to not be in violation of the Establishment Clause.\(^{59}\)

**Statement of the Problem**

The introduction of intelligent design into school curricula has reignited a national debate over whether alternatives to evolution should be taught in public schools.\(^{60}\) The major challenge to intelligent design occurred in *Kitzmiller v. Dover Area School District*.\(^{61}\) At the federal district court level, intelligent design was found to violate the Establishment Clause. Nonetheless, intelligent design has garnered support from such notable people as the President of the United States and even the Vatican.\(^{62}\) In 2005, the Kansas State Board of Education voted by a 6 to 4 margin to adopt new standards which would allow for the teaching of intelligent design in public schools.\(^{63}\) A year later,

\(^{57}\) *Kitzmiller*, 400 F. Supp. 2d at 707, 712.

\(^{58}\) *Kitzmiller*, 400 F. Supp. 2d at 707, 712.

\(^{59}\) U.S. CONST. amend. I.

\(^{60}\) David R. Bauer, Resolving the Controversy Over “Teaching the Controversy”: The Constitutionality of Teaching Intelligent Design in Public Schools, 75 Fordham L. Rev. 1019 (2006).

\(^{61}\) *Kitzmiller*, 400 F. Supp. 2d at 707.

\(^{62}\) Bauer, supra note 60, at 1020.

an entirely new school board promising to restore former standards was voted into the State Board of Education in Kansas. There has been several legislative bills introduced which would allow the teaching of alternatives to evolution including intelligent design. Undoubtedly, these will bring similar challenges as to the constitutionality in the court system.

The U.S. Supreme Court has yet to address the issue of intelligent design. The intelligent design movement, supported by various religious groups including the Discovery Institute, will continue to pressure state legislatures to adopt legislation directed at introducing intelligent design into the state curriculum as long as this continues the debate over intelligent design will continue.

**Significance of the Study**

State statues designed to introduce alternatives to the teaching of evolution have meet with various legal challenges. The legal challenges center on the constitutionality of the alternatives introduced and the intent of the legislation. *Kitzmiller* provides the only legal decision as to the constitutionality of the introduction of intelligent design into school curricula. This analysis provides educational leaders with information needed to effectively make informed decisions based on legal precedent and avoid potential litigation regarding the teaching of alternatives to evolution such as intelligent design.

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65 *Kitzmiller*, 400 F. Supp. 2d at 707, 712.
Method of the Study

Traditional legal research methods were employed to examine and analyze the various legal cases involving evolution and the teaching of alternatives to evolution in public schools. Legal research can be described as “systematic inquiry into the law that can be described as a form of historical-legal research that is neither qualitative nor quantitative.”66

Data Analysis

In order to determine the merit for this research, a search of all the legal issues involving intelligent design was made. After identifying the appropriate federal and state cases, inductive reasoning was used in analyzing case law. Comparative analysis was to analyze the similarities and differences in regard to the Establishment Clause. Similar treatment was given to the individual state statues. First the relevant state statues pertaining to evolution or alternatives to evolution were identified. Then the statues were analyzed in regard to the Establishment Clause.

The Limitations

The compass of this study centered on the constitutionality of intelligent design as it pertains to the Establishment Clause of the First Amendment. Only those cases in the state and federal courts found to be relevant to the determination of the constitutionality of intelligent design were analyzed.

Furthermore, this study limited its scope to the legislation enacted, litigation resulting from such legislation, and the impact past litigation might have on educational

leaders. Where possible solutions have been put forth for the possible inclusion of intelligent design school curricula, this does not constitute an endorsement for intelligent design nor does this suggest that intelligent design be taught in public schools. These suggestions are simply ways in which educational leaders may be able to satisfy supporters of the intelligent design movement without violating the constitution.

The Delimitations

The delimitation of the study was that in researching the viability of intelligent design as an alternative to teaching evolution in the public schools, no attempt was made to look at other competing theories to evolution. Additionally, no attempt was made to examine the thesis of evolution because it is currently accepted in the scientific community and Darwin’s theory of evolution is being taught in many of the public schools.

Organization of the Study

Chapter 1 introduced intelligent design and presented an overview of the history surrounding the teaching of alternatives to evolution in public schools. Also presented in the first chapter were the organization and research methods used in this legal study. Chapter 2 reviews the history of the Supreme Court’s Establishment Clause jurisprudence. Chapter 3 looked at the literature on intelligent design. Chapter 4 discussed Kitzmiller,67 the plaintiff and defendant’s testimonies, the Federal District Court’s Decision, the significance of the case and the implications of the case. Chapter 5, the concluding chapter, summarized the legislation surrounding the Establishment Clause. The final chapter offered possible ways in which intelligent design would not

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67 Kitzmiller, 400 F. Supp. 2d at 707, 712.
violate the Establishment Clause and could be taught in schools. Finally, recommendations for further research were made.
CHAPTER 2
ESTABLISHMENT CLAUSE JURISPRUDENCE

The First Amendment to the United States Constitution states that “Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof.” Since those words were first written over two hundred years ago, “[t]he responsibility of interpreting the First Amendment and applying it to complicated real situations has belonged ultimately to the United States Supreme Court.” However, the Court has not always applied the First Amendment in a consistent manner.

The Supreme Court has often relied upon the intent of the Framers in interpreting the Constitution and its amendments. Interpreting the Framers' intent is a difficult task. "Had the Founding Fathers possessed the foresight to predict the multitudes of interpretations we have tried to read back into their minds, they might have given us

1 U.S. Const. amend. I, 1.


3 Kristin J. Graham, The Supreme Court Comes Full Circle: Coercion as the Touchstone of an Establishment Clause Violation, 42 Buff. L. Rev. 147, 148 (1994).

carefully crafted dissertations covering everything from the nascent public school movement to public Christmas displays.\textsuperscript{5}

In developing its early Establishment Clause jurisprudence, the Supreme Court examined the writings of Madison and Jefferson.\textsuperscript{6} The drafters of the First Amendment's Religion Clauses,\textsuperscript{7} sought to guarantee religious freedom while maintaining a separation between church and state.\textsuperscript{8} This separation, however, becomes problematic in the context of public schools, where education, state action, and individual rights combine.\textsuperscript{9}

While the metaphor of a "wall of separation" has often been used in establishment cases, the Court has recognized that "the vigilant protection of constitutional freedoms is nowhere more vital than in the community of American schools."\textsuperscript{10} On more than one occasion, the Supreme Court has expressed that public schools must be kept "scrupulously free" from entanglement between church and state, since they are


\textsuperscript{6} Graham, supra note 3, at 154.

\textsuperscript{7} U.S. Const. amend. I, 1.

\textsuperscript{8} Everson v. Board of Education, 330 U.S. 1 (1947). As to the Framers’ intent regarding separation of government and religion, Justice Black noted, "the established pattern of religious organizations exercising political supremacy became so commonplace as to shock the freedom-loving colonials into a feeling of abhorrence. The imposition of taxes to pay ministers’ salaries and to build and maintain churches and church property aroused their indignation. It was these feelings which found expression in the First Amendment. . . . [James Madison argued that] a true religion did not need the support of law; . . . that the best interest of a society required that the minds of men always be wholly free; and that cruel persecutions were the inevitable result of government-established religions."

\textsuperscript{9} Betsy Levin, Educating Youth for Citizenship: The Conflict Between Authority and Individual Rights in the Public School, 95 Yale L. J. 1647, 1655-67 (1986).

designed to serve as a powerful agency for promoting cohesion among all citizens.\textsuperscript{11} Accordingly, the Supreme Court has prohibited public school students from receiving religious instruction on public school premises;\textsuperscript{12} the posting of the Ten Commandments on the wall of a public school classroom;\textsuperscript{13} state-sponsored education for religious school students in religious schools;\textsuperscript{14} and the state-sponsored prayer in public schools.\textsuperscript{15}

Indeed, the establishment clause has been well litigated since \textit{Lemon v. Kurtzman} in 1971.\textsuperscript{16} In twenty-seven cases since \textit{Lemon}, the Justices have written nearly one hundred opinions dealing primarily with establishment of religion claims.\textsuperscript{17} Three of the twenty-seven cases had a unanimous judgment,\textsuperscript{18} and more than one opinion was filed in two of those three cases.\textsuperscript{19} \textit{Board of Trustees of Scarsdale v. McCreary}\textsuperscript{20} was a summary decision without a written opinion. In five cases including \textit{Lemon}, a plurality

\begin{itemize}
\item \textsuperscript{12} McCollum v. Bd. of Educ., 333 U.S. 203, 211-12 (1948).
\item \textsuperscript{13} Stone v. Graham, 449 U.S. 39, 42-43 (1980).
\item \textsuperscript{14} Sch. Dist. v. Ball, 473 U.S. 373, 397-98 (1985).
\item \textsuperscript{16} Lemon v. Kurtzman, 403 U.S. 602 (1971).
\item \textsuperscript{18} Corporation of Presiding Bishop of the Church of Jesus Christ of Latter Day Saints v. Amos, 483 U.S. 327, 107 S. Ct. 2862 (1987); Witters v. Washington Dep't of Services for the Blind, 474 U.S. 481 (1986); and Board of Trustees of Scarsdale v. McCreary, 471 U.S. 83 (1985).
\item \textsuperscript{19} Corporation of Presiding Bishop of the Church of Jesus Christ of Latter Day Saints v. Amos, 483 U.S. 327, 107 S. Ct. 2862 (1987); Witter v. Washington Dep't of Services for the Blind, 474 U.S. 481 (1986).
\item \textsuperscript{20} Board of Trustees of Scarsdale v. McCreary, 471 U.S. 83 (1985).
\end{itemize}
rather than a majority opinion was filed.\textsuperscript{21} Hence, the opinions are confusing and the legal theory unclear.\textsuperscript{22}

Over half of the twenty-seven cases, concern establishment challenges involving primary and secondary education, including challenges to school aid programs benefiting private religious institutions, and to religious influences in the public schools.\textsuperscript{23} Five of the cases deal with higher education establishment challenges, including aid programs to private religious institutions and religious influences in public higher education.\textsuperscript{24} The other cases are establishment challenges outside the context of education.\textsuperscript{25}

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Everson v. Board of Education

Modern Establishment Clause jurisprudence was founded in 1947 with *Everson v. Board of Education*. The New Jersey state Legislature passed a statute authorizing boards of education to reimburse parents for the cost of the transportation to and from school, including those parents of children going to Catholic parochial schools. Everson, a district taxpayer, argued that the statute was, in effect, a "law respecting an establishment of religion," since it allowed for the reimbursement of parents of children attending sectarian schools.

The Supreme Court, in a 5-4 decision, upheld the validity of the statute. Citing Thomas Jefferson's concept of the First Amendment as a "wall between church and state," the *Everson* Court stated the purpose of the Establishment Clause in the proceedings. In writing the majority opinion, Justice Black, analogized transportation as general welfare benefits to all citizens. Justice Black also noted that the children,

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27 *Everson*, 330 U.S. at 3.

28 *Everson*, 330 U.S. at 8.

29 *Everson*, 330 U.S. at 16.

30 *Epperson*, 393 U.S. 97, 101 n.8. The "establishment of religion" clause of the First Amendment means at least this: Neither a state nor the Federal Government can set up a church. Neither can pass laws which aid one religion, aid all religions, or prefer one religion over another. Neither can force nor influence a person to go to or to remain away from church against his will or force him to profess a belief or disbelief in any religion. No person can be punished for entertaining or professing religious beliefs or disbeliefs, for church attendance or nonattendance. No tax in any amount, large or small, can be levied to support any religious activities or institutions, whatever they may be called, or whatever form they may adopt to teach or practice religion. Neither a state nor the Federal Government can, openly or secretly, participate in the affairs of any religious organizations or groups and vice versa. In the words of Jefferson, the clause against establishment of religion by law was intended to erect "a wall of separation between church and State."

31 *Id.* at 6.
not the religion, were the actual beneficiaries of the aid.\textsuperscript{32} Due to the state’s legitimate secular purpose of promoting safety for children, the Court found the statue not to be a violation of the \textit{Establishment clause}.\textsuperscript{33}

The element of coercion was essential to the Court's analysis in \textit{Everson}. The Court stressed that coercion would not be tolerated either by force, influence, or punishment. Therefore, if the Court had not allowed for the transportation of children attending parochial schools by striking down the statue, the government might have been seen as coercive to "force [students] . . . to remain away from church against [their] will" and at the same time to punish its taxpaying citizens "for entertaining or professing religious beliefs" and "for church attendance."\textsuperscript{34}

\textit{Everson} is significant because it applied the \textit{Establishment Clause} to the states through the Incorporation Doctrine within the Fourteenth Amendment.\textsuperscript{35} \textit{Everson} also provided the foundation upon which future Establishment cases would be decided.

\textbf{Epperson v. Arkansas}

Nearly forty years after \textit{Scopes},\textsuperscript{36} the Court once again turned its attention to

\textsuperscript{32} \textit{Id.} at 18. This legislation, as applied, does no more than provide a general program to help parents get their children, regardless of the religion, safely and expeditiously to and from accredited schools.

\textsuperscript{33} \textit{Id.} at 17.

\textsuperscript{34} \textit{Everson}, 330 U.S. at 15-16.

\textsuperscript{35} \textit{Everson}, 330 U.S. at 13-15 (explaining that the Fourteenth Amendment had been interpreted as rendering the prohibitions of the First Amendment applicable to the states and the state’s subsidiaries).

\textsuperscript{36} Scopes v. State, 289 S.W. 363 (Tenn 1927) In \textit{Scopes v. State}, the Tennessee Supreme Court maintained the Anti-Evolution Act, making it "unlawful for any teacher...to teach any theory that denies the story of divine creation of man as taught in the Bible." Furthermore, the court found that the Anti-Evolution Act did not require the teaching of anything, and therefore was not in violation of the Establishment Clause. In fact, one judge concluded educators could still teach parts of evolution not conflicting with the Bible. The court avowed that the exclusion of evolution's "materialistic" explanation of the origin of life was entirely permissible as an act of neutrality because evolution conflicted with the theistic beliefs held by a majority of the population.
secondary school science curricula in 1968. The Court stated, "courts do not and 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." 

However, in 1968, the U.S. Supreme Court did overturn an Arkansas state law modeled after the famous Tennessee "Monkey Law" in the major landmark case of *Epperson v. Arkansas*. The Arkansas statute prohibited "the teaching in its public schools and universities of the theory that man evolved from other species of life. The statute was a product of the upsurge of 'fundamentalist' religious fervor of the twenties." In 1965, newly hired, tenth-grade biology teacher Susan Epperson was given a textbook containing material on evolution from the Little Rock, Arkansas School Board. In order to avoid criminal charges, which could lead to her dismissal, she sought for the court to declare the Arkansas statute unconstitutional.

The Court determined the statute violated the First and Fourteenth Amendments. The Court determined that the law was enacted because evolution conflicted with "a

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38 *Epperson*, 393 U.S. 99 at 104.


40 *Epperson*, 393 U.S. at 98 (The Court stated, "the Arkansas statute was an adaptation of the famous Tennessee 'monkey law'... ").

41 *Epperson*, 393 U.S. at 97.

42 *Id.* at 97.

43 *Id.* at 100.

44 *Id.*

45 *Id.* at 109.
particular interpretation of the Book of Genesis by a particular religious group," and for that reason, the state tried to unconstitutionally tailor the curriculum to fit with the teachings of a particular religious viewpoint.\textsuperscript{46} Predating \textit{Lemon},\textsuperscript{47} Justice Fortas wrote the unanimous Court opinion using what would later become the \textit{Lemon} Test's first prong—purpose:

> In the present case, there can be no doubt that Arkansas has sought to prevent its teachers from discussing the theory of evolution because it is contrary to the belief of some that the Book of Genesis must be the exclusive source of doctrine as to the origin of man. . . . It is clear that fundamentalist sectarian conviction was and is the law's reason for existence.\textsuperscript{48}

The history behind the controversial legislation indicated what the legislature's intent was in passing it. While carefully avoiding any reference to the story of "Divine Creation" as "candidly stated" in the Tennessee's anti-evolution law, legislators drafting the Arkansas anti-evolution law sought a more low-profile and "less explicit" approach.\textsuperscript{49} Nevertheless, legislators were not cautious enough in concealing their motives.\textsuperscript{50} For Justice Fortas found the statue disingenuous, a sham, and essentially no difference in the purpose of the two statements. Of this, he wrote, "There is no doubt that the motivation for the law was the same: to suppress the teaching of a theory which, it was thought, 'denied' the divine creation of man."\textsuperscript{51} The Court cited evidence in support of

\begin{itemize}
\item \textsuperscript{46} \textit{Id.} at 103.
\item \textsuperscript{47} \textit{Lemon} v. Kurtzman, 403 U.S. 602, 612-14 (1971).
\item \textsuperscript{48} \textit{Epperson}, 393 U.S. at 107-108.
\item \textsuperscript{49} \textit{Id.} at 108-109.
\item \textsuperscript{50} \textit{Id.} at 98 (Justice Fortas noted, "The statute was a product of the upsurge of 'fundamentalist' religious fervor of the twenties. The Arkansas statute was an adaptation of the famous Tennessee 'monkey law' which that State adopted in 1925.")
\item \textsuperscript{51} \textit{Id.} at 109 (quoting Tennessee's "monkey law").
\end{itemize}
its decision including political advertisements equating evolutionary teachings with an atheistic worldview that were run to urge the adoption of the Arkansas law. According to one analyst, "the Court reasoned that the antievolution statute violated the Establishment Clause because a state cannot restrict student access to scientific information simply to satisfy religious preferences." Ultimately, the Court felt the statute "tended to hinder the quest for knowledge, restrict the freedom to learn, and restrain the freedom to teach."

The significance of Epperson was that it provided the basis for what would become the "purpose prong" of the Lemon test constructed just a few years later. Epperson also reiterated the importance Establishment Clause violations in public schools: "[T]he vigilant protection of constitutional freedoms is nowhere more vital than in the community of American schools." Two cases later followed the Epperson decision: Smith v. State and Wright v. Houston Independent School District.

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52 Id. at 108 n.16.
54 Epperson, 393 U.S. at 100 (quoting from Chancery Court's unpublished decision).
55 Id. at 104 (quoting Shelton v. Tucker, 364 U.S. 479, 487 (1960)).
56 Smith v. State, 242 So. 2d 692, 693-4 (Miss. 1970) (Smith struck down a law resembling Arkansas's in Mississippi, which made it illegal to teach evolution in schools that were funded in any way by tax dollars.)
57 Wright v. Houston Independent School District, 486 F.2d 137 (5th Cir. 1973) (In Wright, a Texas court rejected an antievolutionist's First Amendment claim over a school district's decision to teach evolution. The court did not agree with the tenous arguments made by students believing in creationism, who insisted that the teaching of evolution was also an endorsement of religion and therefore a violation of the Establishment Clause.)
Walz v. Tax Commission

In 1970, the Supreme Court developed what would eventually become another important “prong” in the Lemon Test\(^{58}\) involving “excessive entanglement,” when it took on the landmark case of Walz v. Tax Commission of New York.\(^{59}\)

For the purpose of litigation, Frederick Walz, a New York attorney, purchased a vacant lot on Staten Island, New York City.\(^{60}\) As a taxpayer, Mr. Walz filed a lawsuit challenging the constitutionality of the New York Real Property Tax exemption, which exempted public welfare organizations, including religious organizations, and property used for public welfare purposes, including religious purposes from property taxes.\(^{61}\)

Seeking an injunction preventing the New York City Tax Commission from applying the tax exemption to property used solely for religious worship on the ground that the exemption, Walz argued in the New York courts that the exemption "constitutes an involuntary payment by plaintiff to the aforementioned religious organizations in violation of plaintiff's right of religious freedom . . . [and] constitutes confiscation of plaintiff's

\(^{58}\) Lemon v. Kurtzman, 403 U.S. 602, 612 (1971) (providing that state action violates the Establishment Clause if it lacks a secular purpose, has the primary effect of advancing or inhibiting religion, or results in excessive entanglement between church and state).


\(^{60}\) Richard Severo, Church-Tax Plaintiff Pays a $5.24-a-Year Levy, N.Y. Times, June 20, 1969, at 1, col. 3. (The property was described as a weed-filled 22 foot by 29 foot plot near a junk yard, valued at $ 100 and taxed at the rate of $ 5.24 per year)

\(^{61}\) N. Y. Real Prop. Tax Law § 420, subd. 1 (Supp. 1969-1970)(Real property owned by a corporation or association organized exclusively for the moral or mental improvement of men and women, or for religious, bible, tract, charitable, benevolent, missionary, hospital, infirmary, educational, public playground, scientific, literary, bar association, library, patriotic, historical, or cemetery purposes, for the enforcement of laws relating to children or animals, or for two or more such purposes, and used exclusively for carrying out thereupon one or more of such purposes either by the owning corporation or association or by another such corporation or association as hereinafter provided shall be exempt from taxation as provided in this section).
property without due process of law. . .” Walz argued that by including houses of worship under the larger umbrella of tax exemption afforded to nonprofit organizations and public welfare institutions essential constituted a government subsidy of religion. He based his legal arguments on the case of *Everson v. Board of Education*, and even quoted the opinion by Justice Black:

> The "establishment of religion" clause of the First Amendment means at least this: Neither a state nor the Federal Government . . . can pass laws which aid one religion, aid all religions, or prefer one religion over another. . . No tax in any amount, large or small, can be levied to support any religious activities or institutions, whatever they may be called, or whatever form they may adopt to teach or practice religion. (citations omitted)

A motion was made for summary judgment by the New York City Tax Commission and was granted by a Special Term of the New York Supreme Court on the ground that "[s]uch exemptions are granted in pursuance of long-standing public policy of this State, under a statute which is presumptively constitutional, and which is hereby sustained." It was unanimously affirmed by both the Appellate Division and the Court of Appeals which added that " . . . courts throughout the country have long and consistently held

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62 Walz v. Tax Commission, 397 U.S. 664 (1970) (No. 135) (If all New York real estate taxes were reduced proportionately by the amount that would be collected if exempt religious property were fully taxed at the same rate, Walz's tax bill would be reduced by 11 cents per year according to calculations of the attorneys for the Episcopal Diocese of New York.)

63 Brief for Appellant at 4-5, *Walz*, 397 U.S. at 674.

64 Brief for Appellant at 6-8, *Walz*, 397 U.S. at 674

65 *Everson*, 30 U.S. at 15.


that the exemption of such real property from taxation does not violate the Constitution of the United States."\(^{68}\)

Indeed, similar exemption statues have existed in different states for hundreds of years dating back to Colonial times when the established church was a public agency. In fact, in *Walz*, Justice Brennan even noted that neither Thomas Jefferson nor James Madison, the architects of the Establishment Clause, were overly concerned with the separation of church and state specifically as it applies to churches' tax exemptions.\(^{69}\) In other words, "the adoption of the early exemptions without controversy ... strongly suggests that they were not thought incompatible with constitutional prohibitions against involvements of church and state."\(^{70}\) The New York tax exemption was found in the New York Constitution\(^{71}\) and has been in effect in since 1829.\(^{72}\) Even when the church became disestablished, the Colonial practice of tax exemption continued in most states by both constitutional provision and legislative enactment.\(^{73}\)

Before *Walz*, the idea of state property tax exemptions for property owned by religious organizations was widely accepted and was based on the concept that religious organizations provided a public welfare function not because they were


\(^{69}\) *Walz*, 397 U.S. at 684-85.

\(^{70}\) Id. at 685.

\(^{71}\) N.Y. Const. art. 16, § 1: (Exemptions from taxation may be granted only by general laws. Exemptions may be altered or repealed except those exempting real or personal property used exclusively for religious, educational or charitable purposes as defined by law and owned by any corporation or association organized or conducted exclusively for one or more of such purposes and not operating for profit).


religious. In fact, the basis for the New York State tax exemption was "[t]he social value of religion is at least equal to the social and economic values which form a basis for other permissible exemptions, such as those for charitable and educational purposes."\(^74\)

Chief Justice Burger, writing the majority opinion for the Court, held that the New York City property tax exemption for church-owned property used for public worship, was not prohibited by the Establishment Clause, although it was not constitutionally required.\(^75\) Citing that, the inclusion, of church-owned property within the general exemption category for property owned by public welfare, charitable and educational organizations, was "not aimed at establishing, sponsoring, or supporting religion."\(^76\)

Therefore, the property tax exemption neither advanced nor inhibited religion in its legislative purpose. Furthermore, the statue had not singled out one particular church or religious group rather; it had granted exemption to all houses of religious worship along with a broad class of properties held by nonprofit, quasi-public corporations including hospitals, libraries, playgrounds, scientific, professional, historical, and patriotic groups. The State finds these groups useful, desirable, and in the public interest and considers these groups beneficial and stabilizing influences in community life.\(^77\)

\(^{74}\) Brief for State of New York as Amicus Curiae Supporting Respondents, Walz v. Tax Commission, 397 U.S. 664 (1970) (No. 135). Governmental support for religion through the tax system long antedated the First Amendment. It became established at a time when many of the social welfare functions now taken over by the states were performed almost exclusively by the churches: care of orphans, the aged, the ill, the infirm, the destitute. Since the churches performed functions which otherwise would have had to be performed by the states, it was accepted that they be relieved of the burden of paying taxes out of funds which otherwise could be devoted to public welfare activities.

\(^{75}\) Walz, 397 U.S. at 666-680.

\(^{76}\) Id. at 674.

\(^{77}\) Id. at 672-73.
Justice Burger, who would later write the "entanglement" prong of the *Lemon* test, then proceeded to add that we must also be sure that in the end-- the effect -- is not an excessive entanglement with religion and thus the idea of "excessive entanglement" was formed.\(^{78}\) Importantly, the Court found, such exemptions ensure a "minimal and remote involvement between church and state" and therefore avoid an "excessive entanglement."\(^{79}\) On the other hand, taxation could "tend to expand" the government’s involvement with the church through tax valuations and assessments, government liens and foreclosures on church property thus creating too "excessive [an] entanglement" between church and state.\(^{80}\) Finally, the Court, in upholding the statue, continued the "unbroken" history that "covers our entire national existence and indeed predates it."\(^{81}\) After all, the granting of exemptions began with the colonists more than two centuries ago, and were later sanctioned by Congress and state legislatures. None of which "led to an established . . . religion" but have "operated affirmatively to help guarantee the free exercise of all forms of religious belief."\(^{82}\) The Court, therefore viewed that stopping a practice so "deeply embedded" in our culture and so widely accepted by "common consent" would require a more compelling case.\(^{83}\)

Ultimately, the Court realized "[n]o perfect or absolute separation is really possible; the very existence of the Religion Clauses is an involvement of sorts--one that seeks to

\(^{78}\) *Id.* at 674.

\(^{79}\) *Id.* at 676.

\(^{80}\) *Id.* at 675–76.

\(^{81}\) *Id.* at 678.

\(^{82}\) *Id.*

\(^{83}\) *Id.* at 676–78 (quoting Jackman v. Rosenbaum Co., 260 U.S. 22, 31 (1922)).
mark boundaries to avoid excessive entanglement." While the Court has come to rely on Jefferson's "wall" metaphor in its promotion of strict separationism, the "wall," at times may be blurred or in distinct.85

**Lemon v. Kurtzman**

The modern test for evaluating whether the issue of funding educational programs within religiously affiliated educational institutions violates the Establishment Clause emerged in *Lemon v. Kurtzman*.86 Since its inception in 1971, the *Lemon* Test has become the main test for determining Establishment Clause violations.87 The Supreme Court had heard several Establishment Clause cases, but it was not until *Lemon v. Kurtzman*88 that the court had a necessity for detailed test with which to determine the government's neutrality in establishment cases.89

In *Lemon*, the Court addressed the constitutionality of two different states' acts: the Rhode Island Salary Supplement Act of 1969 and Pennsylvania's Non-Public Elementary and Secondary Education Act of 1968.90 The Pennsylvania statute allowed for the reimbursement of pedagogical materials, textbooks, and supplementation of non-

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84 *Id.* at 670. In *Walz*, the Court upheld tax exemptions for churches because, in part, the New York State tax code did not single out one particular church or religious group but granted exemptions to all houses of worship within a broad class of property owned by nonprofit corporations, including hospitals and libraries.


86 *Lemon*, 403 U.S. at 602, 614.

87 Steven G. Gey, "Under God," The Pledge of Allegiance, and Other Constitutional Trivia, 81 N.C. L. Rev. 1865, 1885 (2004) (the Lemon Test "has been the primary organizing principle of Establishment Clause decisions since the test was adopted by the Court in the 1971 decision Lemon v. Kurtzman.")


89 *Id.*

90 *Id.* at 606-09.
public teachers' salaries to the same levels as those of public school teachers by the state - provided that the subjects taught were secular in nature.91 In a similar fashion, the Rhode Island statute allowed for a fifteen-percent supplementation in nonpublic school teachers' salaries provided the courses taught by the teachers were secular in nature and the teachers agreed not to receive a supplement when teaching any course in religion via writing.92 The acts were designed to offset the rising salaries in public schools by allowing schools to contract with and provide financial supplement to nonpublic school teachers teaching secular subjects.93

The Court was concerned that teachers in parochial schools might violate the First Amendment's Establishment Clause by improperly including faith and morals in the teaching of secular subjects.94 The Court felt the surveillance necessary by the states in order to avoid this situation would cause an excessive and enduring entanglement between church and state.95 In making this determination, the Court examined the character and purpose of the institutions benefiting from the statutes, the nature of the aid provided, and the relationship between the religious institution and the government that resulted from receiving the aid.96 For example, in the Rhode Island statute, the

91 Id. at 607-09.
92 Id.
93 Lemon, 403 U.S. 606-607. Under the Rhode Island statute, a teacher could be supplemented not more than fifteen percent of his or her current annual salary, if he or she taught at a nonpublic school at which the average per-pupil expenditure for secular education was less than that of State's public schools. Id. at 607-608. The statute limits secular education to those subjects taught at the State's public schools, using the same teaching materials. Id. at 608.
94 Id. at 613.
95 Id.
96 Id. at 615.
Court found that the schools, which were near churches, contained religious symbols such as crosses and crucifixes and were under the supervision of the Bishop of Providence, Rhode Island.\textsuperscript{97} Furthermore, because two-thirds of the teachers were nuns governed by an employee's handbook under the force of synodal law, the Court felt the teachers could not maintain religious neutrality while caring out their secular duties.\textsuperscript{98} Therefore, state would be required to provide continuous surveillance of the schools in order to make sure that the money provided was going to secular education.\textsuperscript{99} Further complicating matters, the statute would require the state to evaluate the percentage of total expenditures that covered secular education compared to the percentage that covered religious teaching in nonpublic schools where average per-pupil expenditures equaled or exceeded that of public schools.\textsuperscript{100} Since this created excessive entanglement, the Court held the statute unconstitutional.\textsuperscript{101}

In a similar fashion, the Court found that the Pennsylvania statute also caused excessive entanglement, since the schools were controlled by religious organizations, having the purpose of propagating and promoting a particular religious faith, and

\begin{itemize}
  \item \textsuperscript{97} Id. at 615, 617-618.
  \item \textsuperscript{98} Id. at 618-19 (Even though several teachers testified that they "did not inject religion into their secular classes." The Court reasoned that because "the teacher is employed by a religious organization, subject to the direction and discipline of religious authorities," such teachers "would find it hard to make a total separation between secular teaching and religious doctrine."
  \item \textsuperscript{99} Id. at 619. The Court reasoned that a teacher would need constant supervision to ensure that the teacher is honoring the secular purpose requirement of the statute.
  \item \textsuperscript{100} Id. at 620.
  \item \textsuperscript{101} Id. The Court stated that "this kind of state inspection and evaluation of the religious content of a religious organization is fraught with the sort of entanglement that the Constitution forbids."
\end{itemize}
carrying out operations to fulfill said purpose.\textsuperscript{102} Furthermore, because the statute allowed for the money to be provided directly to the schools, instead of the students or their parents, the statute caused an increased amount of interaction between the government and religious schools causing excessive entanglement.\textsuperscript{103}

In search of a uniform standard with which to analyze Establishment Clause issues, Chief Justice Burger devised the \textit{Lemon} test, a test which all challenges to the Establishment Clause have subsequently had to pass.\textsuperscript{104} In order to survive the \textit{Lemon} test: "First, the statute must have a secular legislative purpose; second, its principal or primary effect must be one that neither advances nor inhibits religion; finally, the statute must not foster "an excessive government entanglement with religion.""\textsuperscript{105} Any violation of one of these three prongs makes the statute unconstitutional under the Establishment Clause.\textsuperscript{106}

The "purpose" prong requires the proponent of the statue to provide a valid secular purpose for the legislation.\textsuperscript{107} In the "effect" prong, the Court asks the question of whether the government action "will in part have the effect of advancing [or inhibiting] religion."\textsuperscript{108} Finally, in the "entanglement" prong, the court must determine (1) "the

\textsuperscript{102} \textit{Id.} Since the Pennsylvania case had been dismissed for failure to state a claim, the Court asserted that the complaint's allegations must be accepted as true for purposes of the Court's review.

\textsuperscript{103} \textit{Id.} at 621 (If the money had gone to the student or his or her parents, the entanglement between government and religion would have been less substantial.)

\textsuperscript{104} \textit{Lemon}, 403 U.S. 602, 612-613.

\textsuperscript{105} \textit{Lemon}, 403 U.S. 612-13.


\textsuperscript{108} Tilton v. Richardson, 403 U.S. 672, 683 (1971).
character and purposes of the institutions that are benefited," (2) "the nature of the aid that the State provides," and (3) "the resulting relationship between the government and the religious authority" in order to determine whether excessive entanglement exists.\(^\text{109}\)

Subsequent applications of the test, resulted in the Court ruling that states may not provide instructional materials to religious schools nor may they reimburse religious schools for the salaries of teachers teaching secular subjects.\(^\text{110}\) Furthermore, the Court held that state salary supplements to teachers at religious schools teaching only subjects offered in public schools using materials used in public schools was a violation of the Establishment Clause.\(^\text{111}\) Additionally, the Court struck down grants to maintain and repair parochial school facilities that served low-income families,\(^\text{112}\) as well as small (fifty-dollar) tax credits for low-income parents of children attending religious schools. The Court also decided that states could not pay teachers at religious schools for the preparation of state-mandated examinations,\(^\text{113}\) nor could the states provide instructional materials such as maps, films, and laboratory equipment, to religious schools.\(^\text{114}\) Finally, the Court found it a violation to provide programs on the premises of religious schools, such as remedial speech and hearing therapy,\(^\text{115}\) as well as the

\(^{109}\) _Lemon_, 403 U.S. at 615.

\(^{110}\) Id. at 606-07.


\(^{113}\) Id.


reimbursement of bus transportation for children attending religious schools participating in educational field trips.\textsuperscript{116}

According to Chief Justice Burger, the line between church and state was not a wall, as Thomas Jefferson had once argued, but, instead “a blurred, indistinct, and variable barrier depending on all the circumstances of a particular relationship.”\textsuperscript{117} It was through the *Lemon* test, that the Supreme Court believed they could balance the First Amendment’s Establishment and Free Exercise Clauses, and in doing so maintain a neutral stance toward religion.

**Criticism of the Lemon Test**

The Court continues to use the *Lemon* test today, more than thirty-five years after its introduction;\textsuperscript{118} however, numerous justices have criticized it,\textsuperscript{119} referring to it as nothing more than a “helpful signpost.”\textsuperscript{120} The Court’s support of the *Lemon* Test has changed with the make-up of the Court over the years. Before Justice Powell and Chief Justice Burger retired, the majority of the Court supported the *Lemon* test five to four.\textsuperscript{121} After they retired, taking one from each side of the argument it was split 4-3 in favor of the *Lemon* Test.\textsuperscript{122} They were replaced by Justice Kennedy and Justice Scalia.\textsuperscript{123}

\footnotesize
\textsuperscript{116} Wolman, 433 U.S. at 225.

\textsuperscript{117} Lemon v. Kurtzman, 403 U.S. 614 (1971).

\textsuperscript{118} McCreary County v. ACLU, 545 U.S. 844, 859-61 (2005) (refusing to abandon the Lemon purpose test).


\textsuperscript{122} *Schlosser*, at 382.
Like Chief Justice Rehnquist and Justice White, Justice Scalia has been quite outspoken against the use of the *Lemon* test.\(^{124}\) In his dissent in *Edwards v. Aguillard*,\(^{125}\) Justice Scalia expressed his doubt whether th[e] ‘purpose’ requirement of *Lemon* is a proper interpretation of the Constitution” and even questioned whether it should be abandoned.\(^{126}\) Scalia would probably prefer a reformulation of the *Lemon* test rather than a complete abandonment in keeping with the status quo.\(^{127}\)

Scalia argued that the purpose prong had no basis in the history or text of the first amendment language.\(^{128}\) Scalia contends, in *Edwards*, that the statute’s secular purpose would survive the purpose prong.\(^{129}\) Scalia asks that judicial deference be

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\(^{123}\) Justice Antonin Scalia was nominated by President Reagan, affirmed by the Senate, and appointed to the court in 1986. 56 U.S.L.W. 2168 (1986).

\(^{124}\) *Schlosser*, at 380.

\(^{125}\) *Edwards v. Aguillard*, 482 U.S. 578 (1987) (The majority in *Edwards* utilized the *Lemon* framework to strike down a statutory requirement that creation science and evolutionary science be given equal treatment in the schools.)

\(^{126}\) *Edwards*, 482 U.S. at 613 (Scalia, J., dissenting) (Justice Scalia stated in his dissent in *Edwards*: “In the past we have attempted to justify our embarrassing Establishment Clause jurisprudence on the ground that it ‘sacrifices clarity and predictability for flexibility.’ . . . I think it time that we sacrifice some ‘flexibility’ for ‘clarity and predictability.’ Abandoning *Lemon’s* purpose test . . . would be a good place to start.” *Id.* at 639-40).

\(^{127}\) Scalia, *THE JUDGES ARE COMING*, reprinted in 126 Cong. Rec. at 18922, col. 1 (1980) (stating "I do not care how analytically consistent with analogous precedents such a holding might be, nor how socially desirable in the judge's view. If it contradicts a long and continuing understanding of society . . . it is quite simply wrong."); Nomination of Judge Antonin Scalia: Hearings before the Committee on the Judiciary, U.S. Senate, S. Hrg. 99-1064, 99th Cong., 2nd Session 1, 1-2 (1986), at 205. (Thus, it seems he would rather declare new legislation unconstitutional than to upset the long-standing tradition of society or the Court.)


\(^{129}\) *Edwards*, 107 S. Ct. at 2593
given to the legislature when a secular purpose is articulated in the legislative history of the act.\(^\text{130}\) Justice Scalia even goes so far as to state that as long as the legislature had "a sincere belief" that there was a secular purpose behind the act he would declare it constitutional.\(^\text{131}\)

However, rather than abandoning the purpose prong altogether, Justice O'Connor's seemed to favor a revision of the purpose prong.\(^\text{132}\) Allowing for judicial deference, Justice O'Connor's test would require the party challenging the statute to show the legislature's intent to advance religion in order to prove a violation.\(^\text{133}\) Without such evidence, the Court would presume that the statute did not endorse or advance religion unconstitutionally and defer to the legislature. It seems Justice O'Connor's reinterpretation of the "purpose prong" may seem to a suitable compromise for the Court,\(^\text{134}\) because of the prohibiting nature of her test and the parallel prohibiting language of the first amendment.\(^\text{135}\) This may assuage Justice Scalia.

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\(^{130}\) *Id.* at 2596.

\(^{131}\) *Edwards*, 107 S. Ct. at 2593. (Scalia states he would find this "sincere belief" to be sufficient "regardless of whether that purpose is likely to be achieved by the provision they enacted.")

\(^{132}\) *Lynch*, 465 U.S. at 692 (O'Connor, J., concurring) and *Wallace*, 472 U.S. at 70 (O'Connor, J., concurring).

\(^{133}\) *Schlosser*, at 384.

\(^{134}\) *Wallace*, 472 U.S. at 69 (O'Connor, J., concurring) (stating the goal in formulating a test "should be to frame a principle for constitutional adjudication that is not only grounded in the history and language of the first amendment, but one that is also capable of consistent application to the relevant problems.‘ Last Term, I proposed a refinement of the Lemon test with this goal in mind.")

\(^{135}\) Justice O'Connor's purpose prong states that legislatures can pass no law with the intent to endorse religion. The first amendment states Congress shall make no law respecting an establishment of religion, while the Lemon test says the legislatures must have a secular purpose in enacting a law. O'Connor's test allows the Court to focus on the endorsement or establishment of religion and if none is found, constitutionality is presumed. The Lemon test forces the Court to find a valid motivation behind the legislative action (a secular purpose) or strike down the legislation.
Justice O'Connor's second prong revision requires that the statute convey a message endorsing religion through the eyes of an objective observer.\textsuperscript{136} She stated that government actions should be found as endorsements if they had the effect of making "religion relevant, in reality or public perception, to [a person's] status in the political community."\textsuperscript{137} In adopting the "endorsement test" the Court's narrow role of protecting minority interests,\textsuperscript{138} is advanced according to Justice Scalia. Therefore, it follows that the second prong of Justice O'Connor's test would be consistent with Justice Scalia's beliefs.\textsuperscript{139}

Justice O'Connor's revisions seem to be only a slight departure from the \textit{Lemon} test and even other Justices on the Court have questioned the continued use of \textit{Lemon}, Justice O'Connor is the only Justice to put forth a viable alternative to the test.\textsuperscript{140}

However, the death of Chief Justice William Rehnquist and the retirement of Justice Sandra Day O'Connor lead one to question the future of \textit{Lemon}.\textsuperscript{141} Justice O'Connor was one of the five Justices who voted to apply \textit{Lemon} in McCreary County, while Chief Justice Rehnquist was one of the four Justices who declined to apply \textit{Lemon}

\textsuperscript{136} \textit{Wallace}, 472 U.S. at 76 (O'Connor, J., concurring)(By looking at the statute through the eyes of an objective observer one can consider if nonadherents (minority religions) to a religious practice see themselves as outsiders and, in addition, if adherents (majority religions) to a religious practice see themselves as insiders or favored members of society).


\textsuperscript{138} Scalia, \textit{THE JUDGES ARE COMING}, reprinted in 126 Cong. Rec. 18920-22 at 894-95 (1980) (arguing the role of the court is "protecting individuals and minorities against impositions of the majority" and that judicial intervention should be limited to such cases).

\textsuperscript{139} \textit{Schlosser}, at 384.

\textsuperscript{140} \textit{Id}.

in Van Orden. The confirmations of Chief Justice John Roberts and Justice Samuel Alito in late 2005 and early 2006, may not bode well for Lemon as both jurists share a commitment to a text-based, rule-of-law approach to the Constitution.

Currently, the justices generally maintain that the Lemon test is still good law, that is at least in regard to its first two prongs (purpose and effects). Furthermore, with one exception, the Supreme Court has always recognized the validity of the Lemon test in Establishment Clause decisions. Accordingly, most circuit courts have been inclined to follow. Thus, the Lemon test has not been expressly abandoned and courts have applied the Lemon test regularly.

While the Supreme Court has expressed concerns about the test and the consistency with how it has been applied, the Lemon standard remains the primary test for the Establishment Clause cases including most major cases involving

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145 The sole exception is the Supreme Court’s decision in Marsh v. Chambers, 463 U.S. 783 (1983).


147 North Carolina Civil Liberties Union v. Constangy, 947 F.2d 1145 (4th Cir. 1991).


creationism and the teaching of evolution. The test has played a pivotal role in both “balanced-treatment” cases and the more recent *Kitzmiller v. Dover*\(^\text{151}\) case involving intelligent design. In fact, since the case of *Epperson v. Arkansas*,\(^\text{152}\) the Lemon test has been used at least in part in determining violations of the Establishment Clause.\(^\text{153}\) Many cases, after *County of Allegheny v. ACLU*,\(^\text{154}\) have also relied upon Justice O’Connor’s Endorsement test and especially the idea of a “reasonable observer” in identifying violations of the *Establishment Clause*.

**Edwards v. Aguillard**

The Supreme Court reversed the trend of “creation science” with its landmark decision in *Edwards v. Aguillard*.\(^\text{155}\) The Louisiana legislature enacted a “balanced-treatment” statute requiring the teaching of creation science whenever natural selection was taught, although it did not require the teaching of either.\(^\text{156}\) The Louisiana legislature claimed the Act was designed to "protect academic freedom," and to advance "basic concepts of fairness" by "teaching all of the evidence."\(^\text{157}\) Basically, the Creationism Act gave educators and administrators two options: ignore evolution or teach it accompanied by "creation science," that is, "the scientific evidences for [creation


\(^{156}\) *Id.* at 581 (citing La. Rev. Stat. Ann. § 17:286.4A (1982)).

\(^{157}\) *Id.* at 586.
and evolution] and inferences from those scientific sources."\textsuperscript{158} The law also provided certain protections and resources to teachers of creation science, while not affording the same protection to teachers of evolution.\textsuperscript{159} Any instructor who chose to support "creation science" was protected against discrimination by any school board, college board, or administrator under the statute.\textsuperscript{160} The statute provided for curriculum to be developed by a publicly funded committee composed only of "creation scientists," while offering no similar compensation to "evolutionary scientists" for evolution curriculum.\textsuperscript{161}

Proponents of "creation science" relied upon religion to explain biological mechanisms that they believed natural selection could not have produced.\textsuperscript{162} In one

\textsuperscript{158} \textit{Id.} at 581 (citing La. Rev. Stat. Ann. § 17:286.3(2)-(3) (1982)).

\textsuperscript{159} \textit{Id.} at 588 (citing La. Rev. Stat. Ann. § 17:286.7B (1982)).

\textsuperscript{160} The statute read in pertinent part:

A. Commencing with the 1982-1983 school year, public schools within this state shall give balanced treatment to creation-science and to evolution-science. Balanced treatment of these two models shall be given in classroom lectures taken as a whole for each course, in text-book materials taken as a whole for each course, in library materials taken as a whole for the sciences and taken as a whole for the humanities, and in other education programs in public schools, to the extent that such lectures, textbooks, library materials, or educational programs deal in any way with the subject of the origin of man, life, the earth, or the universe. When creation or evolution is taught, each shall be taught as a theory, rather than as proven scientific fact.

B. Public schools within this state and their personnel shall not discriminate by reducing a grade of a student or by singling out and publicly criticizing any student who demonstrates a satisfactory understanding of both evolution-science or creation-science and who accepts or rejects either model in whole or part.

C. No teacher in public elementary or secondary school or instructor in any state-supported university in Louisiana, who chooses to be a creation-scientist or to teach scientific data which points to creationism shall, for that reason, be discriminated against in any way by any school board, college board, or administrator.

\textsuperscript{161} \textit{Id.} at § 17:286.7.

A. Each city and parish school board shall develop and provide to each public school classroom teacher in the system a curriculum guide on presentation of creation-science.

B. The governor shall designate seven creation-scientists who shall provide resource services in the development of curriculum guides to any city or parish school board upon request. Each such creation-scientist shall be designated from among the full-time faculty members teaching in any college and university in Louisiana. These creation-scientists shall serve at the pleasure of the governor and without compensation.

\textsuperscript{162} \textit{Edwards}, 482 U.S. at 591.
version creation scientists made reference to a catastrophe exemplified by a world-wide flood which explained the diversity of flora and fauna in part by references to catastrophism as exemplified by a world-wide flood\textsuperscript{163} - apparently, an allusion to the biblical account of Noah's Ark. The similarity between creation science and the story depicted in Genesis caught the attention of Justice Powell, who noted that a previous draft of the bill that eventually became the Creationism Act defined "creation-science" essentially as scientific evidence for the young-earth interpretation of Genesis.\textsuperscript{164} Although evidences for the young-earth view of Genesis were later removed when the bill was amended, the legislator who proposed the amendment suggested it was not intended to defeat the purpose of the bill, but because he did not want to suggest an "all inclusive list" of scientific evidences.\textsuperscript{165}

First, the Court examined the relationship of the Creationism Act's stated purpose and its actual purpose.\textsuperscript{166} The Court did not see how "outlawing the teaching of evolution or ... requiring the teaching of creation science" furthered the purpose of protecting "academic freedom" on the contrary, the Court felt the Act was designed to restrict it by "discrediting" evolution by counterbalancing its teaching at every turn with

\textsuperscript{163} Id. at 600 (Powell, J., concurring).

\textsuperscript{164} Id. at 600-01 (Powell, J., concurring). (The previous draft of the bill defined creation science to include the following: the scientific evidences and related inferences that indicate (a) sudden creation of the universe, energy, and life from nothing; (b) the insufficiency of mutation and natural selection in bringing about development of all living kinds from a single organism; (c) changes only within fixed limits or originally created kinds of plants and animals; (d) separate ancestry for man and apes; (e) explanation of the earth's geology by catastrophism, including the occurrence of a worldwide flood; and (f) a relatively recent inception of the earth and living kinds)

\textsuperscript{165} Id. at 601.

\textsuperscript{166} Id. at 586.
the teaching of creationism."\textsuperscript{167} In doing so, the Court found that the Act failed its stated purpose of "academic freedom" since it failed to expand teachers' abilities to comprehensively present scientific information, ultimately undermining education in the sciences.\textsuperscript{168}

In its determination, the Court found three fundamental problems with Louisiana's position: (1) Teachers already enjoyed academic freedom in the classroom, and therefore legislation was not necessary to grant or enhance this freedom; (2) although the intention of the Act was to present the two theories in a balanced and fair way, the Court found that the Act preferred the teaching of creation science over the teaching of evolution; and (3) finally, both the timing and frequency were perfectly correlated as to when the two theories were taught.\textsuperscript{169}

The Court was in agreement with the Fifth Circuit, which had already found that "no law prohibited Louisiana public school teachers from teaching any scientific theory,"\textsuperscript{170} so therefore, the Creationism Act provided teachers with no authority they did not already have, the Act's "stated purpose is not furthered by it."\textsuperscript{171}

\textsuperscript{167} Id. at 589 (quoting Aguillard v. Edwards, 765 F.2d 1251, 1257 (5th Cir. 1985)).

\textsuperscript{168} Id. at 587.

\textsuperscript{169} Id. at 587-94.

\textsuperscript{170} Id. at 587 (noting that the court of appeals found that "no law prohibited Louisiana public school teachers from teaching any scientific theory" and that the law "provides Louisiana school teachers with no new authority").

\textsuperscript{171} Id. at 587-88 (citing Wallace v. Jaffree, 472 U.S. 38, 59 (1985)).
The Court then looked at the statute's historical context and its legislative history, including statements by the law's proponents. Especially damaging were comments made by the Act's sponsor, Senator Bill Keith, confirming his belief that "scientific evidence supporting his religious views should be included in the public school curriculum to redress the fact that the theory of evolution incidentally coincided with . . . religious beliefs antithetical to his own." The Court also took into consideration the meaning of "creation science" based on a 1981 survey conducted by the state's Department of Education. In the survey, carried out by school superintendents responsible for implementing the balanced treatment act, approximately 75 percent of the respondents understood "creation science" to be a religious doctrine, and most of them thought it referred to "the literal interpretation of the Book of Genesis." The Court noted that the record included "uncontroverted affidavits" from scientists and others attesting that "origin through abrupt appearance in complex form" was a true scientific theory; however, none of these affiants had contributed to the enactment of the law, and the Court was not persuaded as to the meaning of the Act or its alleged secular purposes. Senator Keith's leading expert on

172 Id. at 590 (The Court referred to the "historic and contemporaneous link between the teachings of certain religious denominations and the teaching of evolution.")

173 Id. at 591 n. 12 to 593 n. 14.

174 Id. at 592-93 & n.14.

175 Id. at 595, 596 n.18.

176 Id. at 596 n.18.

177 Id. at 595-96.
creation science, Edward Boudreaux, even testified at the legislative hearings that the
theory of creation science included belief in the existence of a supernatural creator.\textsuperscript{178}

After looking at the language of the Louisiana "Balanced Treatment" law,\textsuperscript{179} the
statements of Senator Keith,\textsuperscript{180} and other legislators and government officials,\textsuperscript{181} as well
as those who testified before the legislature on the bill,\textsuperscript{182} the Court held that the
purpose of the law favor the views of certain Christian denominations by promoting
creationism.\textsuperscript{183} The Court concluded that the Act was unconstitutional because it had a
religious purpose: "to advance the religious viewpoint that a supernatural being created
humankind."\textsuperscript{184} The Court clarified: "We do not imply that a legislature could never
require that scientific critiques of prevailing scientific theories be taught... Teaching a
variety of scientific theories about the origins of humankind to schoolchildren might be
validly done with the clear secular intent of enhancing the effectiveness of science
instruction."\textsuperscript{185} However, the Court emphasized the right of families to "entrust public
schools with the education of their children" with the assurance that those schools

\textsuperscript{178} \textit{Id.} at 591.
\textsuperscript{179} \textit{Id.} at 581, 586-89.
\textsuperscript{180} \textit{Id.} at 587, 591-93.
\textsuperscript{181} \textit{Id.} at 591.
\textsuperscript{182} \textit{Id.} at 591 n.13.
\textsuperscript{183} \textit{Id.} at 592-94, 596-97.
\textsuperscript{184} \textit{Id.} at 591.
\textsuperscript{185} \textit{Id.} at 593-94.
would not "advance religious views that may conflict with the private beliefs of the student and his or her family." ¹⁸⁶

In quoting Epperson, the Court explained that the Establishment Clause "forbids alike the preference of a religious doctrine or the prohibition of theory which is deemed antagonistic to a particular dogma." ¹⁸⁷ The Court also noted "out 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." ¹⁸⁸

Justice Brennan's majority opinion reflected the Court's continued effort to find establishment clause violations in the context of elementary and secondary education. ¹⁸⁹ In applying the Lemon criteria, the Court expanded on the meaning of the test's first prong burrowing from Justice O'Connor's concurrence in Lynch v. Donnelly, ¹⁹⁰ and asserted that "the purpose prong of the Lemon test asks whether government's actual purpose is to endorse or disapprove of religion." ¹⁹¹ The majority opinion applied the Lemon test and found no secular purpose in the Louisiana legislation. ¹⁹² The Court did not consider the second and third prongs of the test, since the legislation failed the first prong of the Lemon test. A motion was made for summary judgment based on the

¹⁸⁶ Edwards, 482 U.S. at 584 (Edwards, focused solely on children in elementary and secondary schools).

¹⁸⁷ Id. (quoting Epperson, 393 U.S. at 106-07) (emphasis added in Edwards).

¹⁸⁸ Id. at 593.

¹⁸⁹ Edwards, 482 U.S. at 584, 107 S. Ct. at 2578.


¹⁹¹ Edwards, 482 U.S. at 585 (quoting Lynch, 465 U.S. at 690 (O'Connor, J., concurring)).

¹⁹² Edwards, 482 U.S. at 584, 107 S. Ct. at 2578.
language of the state statute, "the legislative history and historical context" of the law, the "specific sequence of events" preceding the law's enactment, and a report of the state's education department that had been based upon a survey of school superintendents.\(^{193}\)

The Court divided 7-2. Justice Lewis Powell, in his concurring opinion, recounted the long history of attacks on evolution by religious fundamentalists, and found the purpose of the Louisiana statute was to promote sectarian beliefs about the origin and diversity of life.\(^{194}\) According to Powell the principal individuals and organizations producing "creation science" literature had committed themselves to a belief in the inerrancy of the Bible.\(^{195}\) He concluded "a member [at the Creation Research Society] must accept 'that the account of origins in Genesis is a factual presentation of simple historical truth.'"\(^{196}\)

\(^{193}\) *Id.* at 595.

\(^{194}\) *Edwards*, 482 U.S. at 590, 603.

\(^{195}\) *Id.* at 602.

\(^{196}\) *Id.* Powell also quoted three other elements of the CRS statement of belief to which members must subscribe:

[i] All basic types of living things, including man, were made by direct creative acts of God during Creation Week as described in Genesis. Whatever biological changes have occurred since Creation have accomplished only changes within the original created kinds. [ii] The great Flood described in Genesis, commonly referred to as the Noachian Deluge, was an historical event, world-wide in its extent and effect. [iii] Finally, we are an organization of Christian men of science, who accept Jesus Christ as our Lord and Savior. The account of the special creation of Adam and Eve as one man and one woman, and their subsequent Fall into sin, is the basis for our belief in the necessity of a Savior for all mankind. Therefore, salvation can come only thru [sic] accepting Jesus Christ as our Savior.
Zelman v. Simmons-Harris

Zelman v. Simmons-Harris\textsuperscript{197} may be the most important\textsuperscript{198} case involving public funds being allocated to religious schools. In an effort, to provide an adequate education to low-income students in a failing inner-city school district, Ohio created the Pilot Project Scholarship Program.\textsuperscript{199} The program provided tuition vouchers for students in kindergarten through eighth grade redeemable at secular or religious private schools in a school district placed "under federal court order requiring supervision and operational management of the district by the state superintendent."\textsuperscript{200} The only district eligible for the program at the time of the case was the Cleveland public school system.\textsuperscript{201} During the 1999 - 2000 school year of the program, 96, of the 3,700 students, used the vouchers to attend religious schools,\textsuperscript{202} even though the majority dismissed this finding noting, "we have recently found it irrelevant even to the constitutionality of a direct aid program that a vast majority of program benefits went to religious schools."\textsuperscript{203} Plaintiffs challenged the program claiming it was a violation of the Establishment Clause, since it resulted in financing attendance at religious schools.\textsuperscript{204}

\textsuperscript{197} Zelman v. Simmons-Harris, 536 U.S. 639 (2002).

\textsuperscript{198} Douglas Laycock, Theology Scholarships, the Pledge of Allegiance, and Religious Liberty: Avoiding the Extremes but Missing the Liberty, 118 Harv. L. Rev. 155, 167 (2004).

\textsuperscript{199} Zelman, 536 U.S. at 644-45 at 662-63.

\textsuperscript{200} Zelman, 536 U.S. at 644-45 (quoting Ohio Rev. Code Ann. § 3313,975(A)(West 2000)).

\textsuperscript{201} Zelman, 536 U.S. at 645 (Cleveland's schools were "among the worst-performing in the nation.").

\textsuperscript{202} Id. at 647 (Forty-six of the fifty-six participating private schools had a religious affiliation.)

\textsuperscript{203} Id. at 658.

\textsuperscript{204} Id. at 648.
The Cleveland public school system was a "crisis of magnitude," with only 10 percent of ninth graders able to pass a proficiency test and more than two-thirds of high school students failing to graduate. Seeing it as a way of escaping the failing urban schools, the program was strongly supported by inner-city minorities.

Justice Thomas was able to show that religious schools are more educationally effective than public schools in Cleveland by citing data. Only 57 percent of eighth graders in public schools passed the state reading test and 22 percent passed the math proficiency test, as compared to 95 percent in reading and 75 percent in math at the Catholic schools. Not to mention, "the average [government] cost of sending a child to a religious school is considerably lower than the cost of public school." This is illustrated by the fact: "[R]eligious schools received a maximum of $ 2,250 per student in public funding, whereas public schools were allocated $ 7,746 per student."

In 5-4 decision to uphold the program, the majority of the Court applied a formal neutrality standard. The majority identified two factors in determining whether a government program advances religion: (1) whether its benefits are available "to a

\begin{footnotes}
\footnote{Id. at 644.}
\footnote{Patrick M. Garry, Liberty from On High: The Growing Reliance on a Centralized Judiciary to Protect Individual Liberty, 95 Ky. L.J. 385, 391(2006).}
\footnote{Zelman, 536 U.S. at 681 (Thomas, J., concurring).}
\footnote{Viteritti, supra note 204, at 1163.}
\footnote{Id. at 1164}
\footnote{Zelman, 536 U.S. at 648-52.}
\end{footnotes}
broad class of citizens defined without reference to religion;\textsuperscript{212} and (2) whether those benefits are directed to religious institutions as a result of the recipients' "genuine and independent private choice... ."\textsuperscript{213} Accordingly, the program is neutral and does not advance religion, if those questions are answered affirmatively.\textsuperscript{214}

The Court found the program was motivated by a secular purpose in attempting to provide better educational opportunities to the poorest students in the "demonstrably failing" 75,000-student Cleveland City School District after reviewing the program's historical context.\textsuperscript{215}

Since the program passed the first prong of the \textit{Lemon} test that being a secular purpose, the only issue was whether the program had the effect of advancing religion.\textsuperscript{216} For the effect of endorsement, the Court examined the program through the eyes of a reasonable observer, in this case an adult community member, and the Court stated, "any objective observer familiar with the full history and context of the Ohio program would reasonably view it as one aspect of a broader undertaking to assist poor children in failed schools, not as an endorsement of religious schooling in general."\textsuperscript{217}

The Ohio program satisfied the criteria set forth by the Court by providing vouchers to students irrespective of their religion, and by allowing students to the option to

\textsuperscript{212} \textit{Zelman}, 536 U.S. at 651.

\textsuperscript{213} \textit{Id.} at 652.

\textsuperscript{214} \textit{Id.}

\textsuperscript{215} \textit{Id.} at 644, 649.

\textsuperscript{216} \textit{Id.} at 649.

\textsuperscript{217} \textit{Id.} at 655 (The court mention an observer familiar with the history, which assumes a certain amount of prior knowledge).
choose to use the vouchers at religious schools.\footnote{58} Although as Justice O'Connor elaborated on in her concurrence, "[the Court's] conclusion that this inquiry should consider all reasonable educational alternatives to religious schools that are available to parents."\footnote{219} The Court contended that students and parents must be free from coercion and able to exercise choice when access to religious and nonreligious options with respect to public schools is offered.\footnote{220} Since the program permitted "such individuals to exercise genuine choice among options public and private, secular and religious[, it] is therefore a program of true private choice,"\footnote{221} and free from government coercion favoring religion, therefore the program is not considered an establishment of religion.

### Lower Court Cases Involving the Establishment Clause

After the last anti-evolution statute was summarily struck down by the courts,\footnote{222} creationists focused on “balanced-treatment” legislation requiring the teaching of what was called “creation-science” in addition to teaching the traditional curriculum with evolution.\footnote{223} In 1973, Tennessee established an “equal treatment” statute requiring “an equal amount of emphasis on, the origins and creation of man and his world as the same is recorded in…the Genesis account in the Bible” whenever any textbook

\footnote{58} Zelman, 536 U.S. at 662-63.

\footnote{219} Id. at 663 (O'Connor, J., concurring).

\footnote{220} Id. at 655-56.

\footnote{221} Id. at 662.

\footnote{222} Epperson, 393 U.S. 99 at 94.

addressed the question of origins.\textsuperscript{224} Additionally, a disclaimer stating evolution was only a theory was required, even though the teaching of Genesis required no disclaimer, and finally the statue prohibited occult or satanical perspectives on the question of origins.\textsuperscript{225} In 1975, the U.S. Court of Appeals for the Sixth Circuit struck down the statue in \textit{Daniel v. Waters} largely because the statue gave a “clearly defined preferential position for the Biblical version of creation.”\textsuperscript{226}

The legislatures of Arkansas and Louisiana passed respective “balanced treatment” statues in 1981 requiring the creationist account be taught whenever evolution was taught.\textsuperscript{227} The United States District Court for the Eastern District of Arkansas found the Arkansas statue was “simply and purely an effort to introduce the Biblical version of creation into the public school curricula” and struck it down in \textit{McLean v. Arkansas}.\textsuperscript{228}

After the balanced treatment acts suffered the same defeat as the anti-evolution legislation that preceded them and creation science was found to be inherently religious and not a “science” at all, Christian fundamentalists resorted instead to attacking the

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{224} Daniel v. Waters, 515 F.2d 485, 487 (6th Cir. 1975).
\item \textsuperscript{225} Daniel v. Waters, 515 F.2d 485, 487 (6th Cir. 1975).
\item \textsuperscript{226} Daniel v. Waters, 515 F.2d 489 (6th Cir. 1975).
\item \textsuperscript{228} McLean v. Ark. Bd. of Educ., 529 F. Supp. 1255, 1256 (E.D. Ark. 1982).
\end{itemize}
\end{footnotesize}
validity of evolution through the use of oral and written disclaimers.\textsuperscript{229} Unlike the previous failed attempts of creationists, disclaimers did not prohibit the teaching of evolution nor did they require equal treatment of evolution and creation science.\textsuperscript{230}

One such resolution was enacted by the Board of Education in Tangipahoa Parish, Louisiana in 1994. It required teachers to read the following disclaimer prior to any discussion of evolution.

> It is hereby recognized by the Tangipahoa Board of Education, that the lesson to be presented, regarding the origin of life and matter, is known as the Scientific Theory of Evolution and should be presented to inform students of the scientific concept and not intended to influence or dissuade the Biblical version of Creation or any other concept.\textsuperscript{231}

Within seven months of passing, the resolution was challenged by a district court before reaching the United States Court of Appeals for the Fifth Circuit.\textsuperscript{232} The district court relied on the legislative motivation standard in \textit{McLean} and \textit{Edwards} to invalidate the disclaimer under \textit{Lemon’s} purpose prong.\textsuperscript{233}

\textsuperscript{229} Freiler v. Tangipahoa Parish Bd. of Educ., 185 F.3d 345 (5th Cir. 1999) (using a disclaimer to remind school children “that evolution as taught in the classroom need not affect what they already know”).

\textsuperscript{230} Freiler v. Tangipahoa Parish Bd. of Educ., 185 F.3d 345 (5th Cir. 1999) (finding that the school’s disclaimer resolution was adopted “following a failed attempt to introduce creation science into the Tangipahoa curriculum as a legitimate scientific alternative to evolution”).

\textsuperscript{231} Freiler v. Tangipahoa Parish Bd. of Educ., 975 F. Supp. 819, 821 (E.D. La. 1997), aff’d, 185 F.3d 337 (5th Cir. 1999).

\textsuperscript{232} Freiler v. Tangipahoa Parish Bd. of Educ., 975 F. Supp. 819, 821 (E.D. La. 1997), aff’d, 185 F.3d 342 (5th Cir. 1999).

\textsuperscript{233} Relying on the Supreme Court’s statement in \textit{Wallace v. Jaffree}, 472 U.S. 38 (1985), that a statute is unconstitutional “if it is entirely motivated by a purpose to advance religion,” Freiler, 975 F. Supp. at 827 (quoting Wallace, 472 U.S. at 57), the district court concluded that the disclaimer at issue violated the Establishment Clause because it was “motivated” by “religious concerns.” Id. at 830. In support of this conclusion, the district court pointed to statements by the resolution’s sponsor that his goal in introducing the resolution was to promote creationism. See id. at 829.
The Fifth Circuit affirmed the district court’s decision but showed deference to the School Board’s three-fold articulation of purpose.\textsuperscript{234} On the literal language of \textit{Lemon}’s purpose prong, which states a provision must only have one sincere, secular purpose, the Fifth Circuit Court concluded the disclaimer met the standard.\textsuperscript{235} However, the Fifth Circuit felt the disclaimer violated the effects prong because the “benefit to religion conferred by the reading of the Tangipahoa disclaimer is more than indirect, remote, or incidental.”\textsuperscript{236} Accordingly, Court stated:

As hard as it tries to, this Court cannot glean any secular purpose to this disclaimer... . If there is no clearly secular purpose to the act, the Court is left with but two conclusions: (1) the act was enacted for religious purposes ... ; or (2) the act had no purpose. In the absence of a finding that the School Board passed a meaningless or irrational resolution, the Court must find that the disclaimer was passed for religious reasons.\textsuperscript{237}

Much like in \textit{Daniels}, the disclaimer referred to the Bible failing to acknowledge other religious beliefs.\textsuperscript{238} Furthermore, by having the disclaimer read on school grounds during school hours, the school board gave the impression that they were endorsing the religious beliefs mentioned in the disclaimer.\textsuperscript{239} Therefore, the disclaimer was found to

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\item Freiler v. Tangipahoa Parish Bd. of Educ., 185 F.3d 344-45 (5th Cir. 1999).
\item Freiler v. Tangipahoa Parish Bd. of Educ., 185 F.3d 344 (5th Cir. 1999) (“If the disclaimer furthers just one of its proffered purposes and if that same purpose proves to be secular, then the disclaimer survives scrutiny under Lemon's first prong.”).
\item Freiler v. Tangipahoa Parish Bd. of Educ., 185 F.3d 344 (5th Cir. 1999) In support of this conclusion, the court cited the disclaimer’s juxtaposition of its criticism of evolution with its urging students to contemplate alternate theories, its reminder that students may maintain the beliefs of their parents, and its presentation of the biblical version of creation as the only enumerated alternative to evolution.
\item Freiler v. Tangipahoa Parish Bd. of Educ., 975 F. Supp. at 829 (5th Cir. 1999).
\item Freiler v. Tangipahoa Parish Bd. of Educ., 185 F.3d 341 (5th Cir. 1999) (“Biblical version of Creation or any other concept.”), with Daniel v. Waters, 515 F.2d 485, 487 (6th Cir. 1975) (“The origins and creation of man and his world as the same is recorded in other theories, including, but not limited to, the Genesis account in the Bible.”).
\item Freiler v. Tangipahoa Parish Bd. of Educ., 185 F.3d 348 (5th Cir. 1999).
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In a more recent case involving the Cobb County School Board in Georgia and the placement of a disclaimer on textbooks, which stated that evolution “is a theory, not a fact,” and “should be approached with an open mind, studied carefully, and critically considered,” the court in Selman v. Cobb County School District found the disclaimer invalid.\footnote{Selman v. Cobb County School District, 390 F. Supp. 2d 1292 (N.D. Ga. 2005).} In Selman, the court concluded the disclaimer satisfied the purpose prong of the Lemon test, because it had two secular purposes: 1) to foster critical thinking, and 2) to present the evolution theory in a nonhostile environment.\footnote{Selman v. Cobb County School District, 390 F. Supp. 2d 1302 (N.D. Ga. 2005). } However, when the court looked at the effects prong of Lemon, they substituted the “reasonable observer” for the “disinterested observer.” The court continued the judicial trend toward expanding the reach of the Lemon test by applying a modified version of the purpose prong. It analyzed what it deemed the “primary” purpose of the disclaimer - the reduction of offense to anti-evolutionist students and parents. Selman, 390 F. Supp. 2d at 1303-04. Relying on testimony from board members, the court concluded that the board adopted the disclaimer to “placate their constituents and to communicate to them that students' personal beliefs would be respected and tolerated in the classroom.” Id. at 1303. The court acknowledged that the decision to adopt the disclaimer was “influenced by sectarian interests,” but determined that the disclaimer at issue served only as an accommodation of religion and did not serve the purpose of advancing it in violation of Lemon's purpose prong. Id. at 1304.
version of the endorsement test from *County of Allegheny v. ACLU Greater Pittsburgh Chapter.*\(^{243}\) This case describes the endorsement test as prohibiting any statement that, when viewed by a reason observer familiar with the statement’s historical and cultural context, conveys a message of government endorsement of religion.\(^{244}\) Under that interpretation, the court found the disclaimer invalid because it sent a message that those who “oppose evolution for religious reasons…are favored members of the political community….”\(^{245}\) The court felt that a reasonable observer would be aware of the community’s religiously motivated support for such a disclaimer as well as the school board’s interest in appeasing its religiously motivated constituents.\(^{246}\) Furthermore, the court felt that in stating that “evolution is a theory, not a fact, concerning the origin of living things,” the sticker had an implicit effect of bolstering religious theories of origin.\(^{247}\) The court’s decision was based on the social history of the “evolution versus creation” issue.\(^{248}\) Despite the district court’s decision, the Eleventh Circuit vacated the decision

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\(^{243}\) Selman v. Cobb County School District, 390 F. Supp. 2d at 1305. The Selman court went on to explain that unlike the subjective analysis embodied in Lemon’s purpose prong, the effects test inquiry is “in large part a legal question to be answered on the basis of judicial interpretation of social facts.” Id. at 1306 (quoting Lynch v. Donnelly, 465 U.S. 668, 693-94 (1984) (O’Connor, J., concurring)).

\(^{244}\) Selman v. Cobb County School District, 390 F. Supp. 2d at 1305.

\(^{245}\) Selman v. Cobb County School District, 390 F. Supp. 2d at 1306.

\(^{246}\) Selman v. Cobb County School District, 390 F. Supp. 2d at 1306.

\(^{247}\) Selman v. Cobb County School District, 390 F. Supp. 2d at 1308-09. The court stated that the School District, in selecting this language, violated the Establishment Clause by “appearing to take a position on questions of religious belief.” Id. at 1307 (citing County of Allegheny, 492 U.S. at 593-94 (1989)).

\(^{248}\) Selman v. Cobb County School District, 390 F. Supp. 2d at 1308-09. The *Selman* court examined the social history of this issue and noted that the question of “whether evolution is referenced as a theory or fact is . . . a loaded issue with religious undertones.” *Selman*, 390 F. Supp. 2d at 1307. The court added that the sticker implicitly supported religious theories of origin by suggesting that evolution is problematic in the field of science, persuaded by witnesses, including those of the defendant School Board, that evolution is “the dominant scientific theory of origin accepted by the majority of scientists.” Id. at 1309.
and remanded the case, because evidence crucial to the district court’s ruling was omitted from the appellate record.\textsuperscript{249}

Even though every disclaimer that has been challenged in court has been invalidated under the Establishment Clause, newer facially neutral disclaimers are being developed. This is particularly troublesome to evolutionists, because disclaimers openly invite criticism of evolution and potential present a broader range of options for discrediting evolution.\textsuperscript{250} However, proponents for intelligent design maintain the purpose of such disclaimers is simply an effort to “teach the controversy” and to fill in the “so-called” gaps in evolution.\textsuperscript{251} These challenges may prove more difficult to invalidate under the Establishment Clause, since it can be argued that “there can be no rationally defensible grounds for preventing teachers from exposing students to well-documented scientific critique of a theory.”\textsuperscript{252} Even with a broad interpretation of the legislative purpose, the Establishment Clause may be ill equipped to deal with the ever-changing complexity of evolution disclaimers.

\textsuperscript{249} Selman v. Cobb County Sch. Dist., 449 F.3d 1320, 1322 (11th Cir. 2006).

\textsuperscript{250} Paul R. Gross, The State of State Science Standards 15 (2005), available at http://www.edexcellence.net/doc/Science%20Standards.FinalFinal.pdf (citing disclaimers as the primary means of response by anti-evolutionists seeking to discredit evolution); Rauber, supra note 17, at A1 (explaining that “the tactic that most worries supporters of evolution is the use of anti-evolution disclaimers inserted into science textbooks”).


\textsuperscript{252} David K. DeWolf et al., Teaching the Origins Controversy: Science, or Religion, or Speech?, 2000 Utah L. Rev. 39, 85.
Conclusion

Since the inception of the First Amendment over two hundred years ago, the process of interpreting the Framers’ intent has been left up to the Supreme Court. The Supreme Court’s interpretation has not always been consistent. The Court has relied upon the early writings of Madison and Jefferson in constructing Court opinions. Nearly one hundred opinions involving the establishment of religion were written since Lemon.

Amongst the most important establishment cases decided by the Supreme Court are: Everson v. Board of Education, Epperson v. Arkansas, Walz v. Tax Commission of New York, Lemon v. Kurtzman, Edwards v. Aguillard, and Zelman v. Simmons-Harris. There are also several important lower court cases involving the Establishment Clause including: Daniel v. Waters, McLean v.

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253 Fenwick, supra note 2, at 1.
254 Graham, supra note 3, at 148.
255 Graham, supra note 3, at 154.
256 Underwood, supra note 3, at 54.
257 Everson, 330 U.S. 1.
258 Epperson, 393 U.S. 97.
259 Walz, 397 U.S. 664.
260 Lemon, 403 U.S. 602.
261 Edwards, 393 U.S. 97.
262 Zelman, 536 U.S. 639.
263 Daniel, 515 F.2d 485.
Arkansas,\textsuperscript{264} Freiler v. Tangipahoa Parish Board of Education,\textsuperscript{265} and Selman v. Cobb County School District.\textsuperscript{266} All of these cases helped to form the foundation for future Establishment Clause cases. Though decisions involving the Establishment Clause have not always been consistent, they have provided a necessary framework for deciding other cases involving the Establishment Clause. As the Court struggles for consistency, it will turn to these pivotal cases for guidance in its decisions.

\textsuperscript{264} McLean, 529 F. Supp. 1255.

\textsuperscript{265} Freiler, 975 F. Supp.819.

\textsuperscript{266} Selman, 390 F. Supp. 2d.
CHAPTER 3
FUGITIVE LITERATURE

The concept of purposeful design in nature dates all the way back to the ancient Greeks. Within classical Greek philosophy, both Plato and Aristotle posited works containing a natural creator.¹ In Timaeus, Plato wrote of the creator of the cosmos as a good and wise “demiurge.”² Contemporary neo-Platonic design theorists, such as Michael Denton, assert that protein structures conform to “ideal forms” necessitated by a designer intrinsic to the universe.³ Aristotle referred to the creator as the “Prime Mover” in his Metaphysics.⁴ In 45 BC, Cicero declared, “the divine power is to be found in a principle of reason which pervades the whole of nature.”⁵ This is commonly known as the teleological argument for the existence of God. In his 13th century publication, Summa Theologiae, Thomas Aquinas’ “fifth proof” for God’s existence used the idea of

¹ See e.g. Plato’s Timaeus, expressing that “everything that becomes or is created must….be created by some cause, for without a cause nothing can be created. The work of the creator, whenever he looks to the unchangeable and fashions the form and nature of his work after an unchangeable pattern, must necessarily be made fair and perfect; but when he looks to the created only, and used a created pattern, it is not fair or perfect.” Plato, Timaeus 3 http://www.activemind.com/Mysterious/Topics/Atlantis/timaeus_page3.html.

² See e.g. Plato’s Timaeus, expressing that “everything that becomes or is created must….be created by some cause, for without a cause nothing can be created. The work of the creator, whenever he looks to the unchangeable and fashions the form and nature of his work after an unchangeable pattern, must necessarily be made fair and perfect; but when he looks to the created only, and used a created pattern, it is not fair or perfect.” Plato, Timaeus 3 http://www.activemind.com/Mysterious/Topics/Atlantis/timaeus_page3.html.


⁴ Aristotle, describes the “prime mover” as the natural creator of the cosmos in his work, Metaphysics. For conciseness, Aristotle identified the “prime mover” as “a perfect being, a being lacking no perfection that remains for it to attain. This perfect being, which is the prime mover of the universe, Aristotle called God.” Mortimer Adler, Aristotle for Everybody: Difficult Thought Made Easy 187 (Macmillan Publg. Co. 1978).

design. In the 19th century, William Paley introduced the watchmaker analogy in *Natural Theology*. The watchmaker analogy implies that because of all the intricate moving parts and complexity, a watchmaker must have designed the watch. That complexity does not happen by random chance, but rather by design and therefore a designer. William Paley based his beliefs on the Bible and the nature of God. For example, Paley believed structures such as the human eye, pointed directly to the nature, character and power of God.

Some see intelligent design as an adaptation of natural theory set on changing science by undermining evolution. Ironically, natural theology led Darwin to collect fossils and biological specimens, which formed the basis for his theory of the origin of species in the 19th century. Darwin used a blended biblical-Platonic view, commonly accepted amongst natural theologians at the time, to contrast his views on immutability and biogeography. There are also those who believe in theistic evolution in which evolution is compatible with a supernatural designer.

The various different teleological or design-based perspectives can be confusing. They have certain characteristics in common but also vary philosophically and theologically. Discovery Institute’s Center for Science and Culture defines intelligent design as “hold[ing] that certain features of the universe and of living things are best

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explained by an intelligent cause, not an undirected process such as natural selection.”\(^\text{10}\) The Access Research Network defines intelligent design as “the view that nature show tangible signs of having been designed by a preexisting intelligence.”\(^\text{11}\)

Furthermore, the Discovery Institute maintains that intelligent design (ID) is different from young-earth creationism because: (1) ID is based on science, whereas young-earth creationism is based on sacred texts and (2) the religious implications of ID are unconnected to ID itself.\(^\text{12}\) William Dembski believes ID differs from young-earth creationism because “intelligent design nowhere attempts to identify the intelligent cause responsible for the design in nature, nor does it prescribe in advance the sequence of events by which this intelligent cause had to act.”\(^\text{13}\)

Members of the ID community also differ in their theological views. There are old-earth creationists (e.g., Steven Meyer and William Dembski), theistic evolutionists (e.g., Michael Behe), and there are even young-earth creationists (e.g., Paul Nelson and John Mark Reynolds), who all identify themselves with the ID community.\(^\text{14}\) Young-earth creationists assert recognition and detectability of real design in the abiotic and biotic universe by a transcendent, theistic being who causally acted both during and after the initial formation of the earth approximately 6,000 years ago, whereas old-earth


\(^\text{12}\) Ross & Nelson, supra note 8, at 266.

\(^\text{13}\) William A. Dembski, Intelligent Design: The Bridge Between Science and Theology 312 (InterVarsity Press, 1999).

\(^\text{14}\) Ross & Nelson, supra note 8, at 271.
creationists believe initial formation of the earth to be closer to 4.5 billion years.\footnote{Ross & Nelson, supra note 8, at 274.} Furthermore, weak and strong theistic evolutionists differ as to the extent, to which design is empirically detectable, but agree in a continuous ancestry and that the earth is 4.5 billion years old.\footnote{Ross & Nelson, supra note 8, at 273.} There are even non-Christian adherents, such as Michael Denton and David Berlinski, that are also members of the ID community.\footnote{Ross & Nelson, supra note 8, at 271.} Based on the same criteria, Ross and Nelson define intelligent design as a teleological position asserting recognition and empirical detectability of real design in abiotic (nonliving) and/or the biotic universe.\footnote{Ross & Nelson, supra note 8, at 274.}

**The Mystery of Life’s Origin**

There are those, like Barbara Forrest, a professor at Southeastern Louisiana University, that believe the intelligent design movement really began with creationist and chemist Charles B. Thaxton’s publication *The Mystery of Life’s Origin* in 1984 by the religious organization, the Foundation for Thought and Ethics (FTE) founded by Jon A. Buell.\footnote{Barbara Forrest, Know Your Creationists: Know Your Allies, Daily Kos (2006), http://www.dailykos.com/story/2006/3/11/8448/52824} In it Thaxton argues for “Special Creation by a Creator beyond the Cosmos” and maintains “that the source that produced life was intelligent.”\footnote{Barbara Forrest, Expert Witness Report, United States District Court for the Middle District of Pennsylvania (2007), http://www.creationismstrojanhorse.com/FORREST_EXPERT_REPORT.pdf.} This inference to design was based on the principle of uniformity proposed by Charles Lyell in the 1830s to explain the geologic changes that had occurred throughout earth’s history. According
to Thaxton, Bradley, and Olson “By the principle of uniformity is meant that the kinds of causes we observe producing certain effects today can be counted on to have produced similar effects in the past.”\textsuperscript{21} We observe intelligent agents generating new information in the present.\textsuperscript{22} The authors ask “may not the principle of uniformity then be used to suggest (infer) that DNA had an intelligent cause at the beginning?”\textsuperscript{23} Stephen C. Meyer goes on say, in a review of Thaxton’s work in 1986, that signals sent by DNA in the cell show “specified complexity” indicating intelligence, which must have originated with an intelligence agent.\textsuperscript{24} Meyer wrote, “We know from experience that conscious intelligent agents do produce large amounts of information, and since all known natural processes do not (or cannot), we can infer design as the best explanation of the origin of information in the cell.”\textsuperscript{25} In 1988, Thaxton explained how his view of intelligent cause was compatible with both metaphysical naturalism and supernaturalism during the Sources of Information Content in DNA conference.\textsuperscript{26} It was the first time the term “intelligent design” was mentioned.\textsuperscript{27} The scientific claim made by intelligent design

\begin{itemize}
\item \textsuperscript{21} Charles B. Thaxton, Walter L. Bradley, & Roger L. Olsen, The Mystery of Life’s Origin 210-211 (Lewis and Stanley 1984).
\item \textsuperscript{22} Jonathon Wells, The Politically Incorrect Guide to Darwinism and Intelligent Design 98 (Regnery Publishing 2006)
\item \textsuperscript{23} Thaxton et. Al., supra note 21, at 210-211.
\item \textsuperscript{24} Stephen C. Meyer, Eternity Access Research Network, We Are Not Alone (1986).
\end{itemize}
was clear according to biologist Dean H. Kenyon, “It is fundamentally implausible that unassisted matter and energy organized themselves into living systems.”

The Foundation for Thought and Ethics’ (FTE) new form of creationism did not rely on the Bible, refer to Adam and Eve and the universal Flood, or perpetuate the belief the Earth was young. The next product for FTE was a 1989 high school biology textbook, Of Pandas and People, written by Percival Davis and Dean Kenyon. After two years of searching for a secular publisher, a small Texas press specializing in agricultural materials published the book, originally titled Biology and Origins. The book, which included the term “Intelligent Design” was unsuccessfully marketed for adoption in at least two states (Idaho and Alabama) and in several school districts.

**Darwin on Trial**

*Darwin on Trial* was written by University of California-Berkeley law professor Phillip Johnson in 1991. Reviewed in such popular publications as *Scientific American*, many scientists criticized the book for being what they called “uninformed science.” Stephen Jay Gould stated in *Scientific American,* “The book, in short, is full of errors, badly argued, based on false criteria, and abysmally written.”

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28 Thaxton et. Al., *supra* note 21, at viii.


In *Darwin on Trial*, Johnson not only criticized Darwinism for what he believed to be inconsistencies, but also referred to the evils of materialism\(^{34}\) in American society.\(^{35}\) According to Johnson, the scientific data supporting evolution is weak and the only reason evolution still exists is to reinforce philosophical materialism.\(^{36}\) His four theses could be summarized as:

1. Biological and paleontological evidences and other scientific data, with very few exceptions, tend to falsify the Darwinian story of macroevolution and its chemical origin-of-life prelude.
2. Darwinian macroevolution, as a comprehensive truth claim, is ultimately grounded on the philosophical assumption of naturalism.
3. When Darwinism is brought into question, it is routinely protected by empty labels, semantic manipulations and faulty logic.
4. Therefore, Darwinism functions as the central cosmological myth of modern culture—as the centerpiece of a quasi-religious system that is known to be true a priori rather than as a scientific hypothesis that must submit to rigorous testing.\(^{37}\)

The central question to Johnson is whether the universe came into being “through purposeless, natural processes known to science” or whether God was meaningful involved in the process.\(^{38}\) Yet, Johnson maintains that proponents of Intelligent Design do not consider themselves creationists. He distinguishes creationism from Intelligent Design by writing:

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\(^{34}\) See also the Discovery Institute's "Wedge Document," which outlines ID's strategy for replacing science in its current form with a theistic form of science (i.e., ID)). Johnson uses the example of a wedge splitting a log as analogous to intelligent design liberate science from “atheistic naturalism.” See also The "Wedge Document": "So What?,” http://www.discovery.org/scripts/viewDB/filesDB-download.php?id=349 (last visited Oct. 24, 2007) (containing the full text of the "document" and the Institute’s response to the controversy).

\(^{35}\) Scott, *supra* note 29, 124.

\(^{36}\) Scott, *supra* note 29, 128.


“Creationism” means belief in creation in a more general sense. Persons who believe that the earth is billions of years old, and that simple forms of life evolved gradually to become more complex forms including humans, are “creationists” if they believe that a supernatural Creator not only initiated this process but in some meaningful sense controls it in furtherance of a purpose.\(^{39}\)

According to Walter Bradley, Johnson felt it important to separate questions concerning an intelligent designer from questions directed at harmonizing the Bible and science.\(^{40}\) Johnson replaces the biblical genesis story with a more generalized act (creation) and an agent (the Creator).\(^{41}\) Johnson asks:

Why not consider the possibility that life is what so evidently seems to be, the product of creative intelligence? Science would not come to an end, because the task would remain of deciphering the languages in which genetic information is communicated, and in general finding out how the whole system works. What scientists would lose is not an inspiring research program, but the illusion of total mastery of nature. They would have to face the possibility that beyond the natural world there is further reality which transcends science.\(^{42}\)

Johnson also argues that science should accept the idea of supernatural forces; however, controlled, repeatable experimentation, in which Johnson himself endorses, would not be possible without the methodological assumption that there are no supernatural forces to intervene and negate lawful regularities.\(^{43}\) Johnson claims “God

\(^{39}\) Phillip E. Johnson, Darwin on Trial 4 (Regnery Gateway 1991).


\(^{41}\) Woodward, supra note 36, at 75. (the author is not implying a “single act” in the sense of a “single literal week” of creation but rather “act” in a collective or complex-unity sense).

\(^{42}\) Johnson, Super note 38, at 14.

creates for some purpose,” and this is not open to empirical test.⁴⁴ Although Johnson argues, “Naturalism and empiricism are often erroneously assumed to be very nearly the same thing, but they are not.”⁴⁵

**Significance of *Darwin on Trial***

The Intelligent Design (ID) movement remained largely unnoticed after *Of Pandas and People* was published until *Darwin on Trial* was published in 1991.⁴⁶ As a professor with an endowed chair at a leading secular university, Johnson lent a lot of creditability to the ID movement, because of his prominence and connections.⁴⁷ *Darwin on Trial* was a pivotal book for the ID movement.⁴⁸ Phillip Johnson’s attack on philosophical naturalism is not new, but it is “particularly significant because it challenges the way the courts rejected the claim that creation science is indeed science, namely by reference to how creation science violates basic constraints of scientific methodology, which requires that one appeal only to natural laws rather than to supernatural powers.”⁴⁹ While many scientists are familiar with the practice of science, most are not familiar with the philosophy of science, which ID proponents like Johnson attempt to exploit.⁵⁰ However, some critics such as Stephen Jay Gould, who are

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⁴⁴ Pennock, *supra* note 37, at 89.

⁴⁵ Johnson, *supra* note 36, at 117-118.


⁴⁷ Scott, *supra* note 29, 125.


⁵⁰ Pennock, *Supra* note 48, at 156.
familiar with the philosophy of science, have been able to avoid this potential pitfall.\(^{51}\) Nevertheless, *Darwin on Trial* helped to inspire and align members of the ID movement.

**“The Origin of Biological Information and the Higher Taxonomic Categories”**

In 2004, the article entitled “The Origin of Biological Information and the Higher Taxonomic Categories” by Steven Meyer was published in the peer-reviewed journal *Proceedings of the Biological Society of Washington* after it was sent to three reviewers, all of whom were evolutionary and molecular biologists, and it was substantially revised in accordance with their recommendations.\(^{52}\) The publishing of the article was very controversial.\(^{53}\) The file on Meyer’s article was reviewed by the president of the Council of the Biological Society of Washington and he found that peer review had been conducted properly, but they issued a statement that “the Meyer paper does not meet the scientific standards of the *Proceedings*.”\(^{54}\)

In his article, Meyer argues that neo-Darwinism and random mutation cannot account for the amount of diverse species found during the Cambrian explosion. He proceeds to debunk other competing theories that attempted to explain the diverse body

\(^{51}\) Pennock, *Supra* note 48, at 156. See also Gould, *Supra* note 33, at 118-122.


\(^{53}\) Wells, *Supra* note 22, at 105. E-mails attacking the Meyer’s article were sent from the National Center of Science Education (NCSE) to officials of the Smithsonian (SI) loosely affiliated with the Biological Society of Washington (BSW). Richard Sternberg, the editor of the *Proceedings of the Biological Society of Washington*, lodged a complaint with the U.S. Office of Special Counsel (OSC) to investigate the harassment he was receiving. In August 2005, the OSC sent Sternberg a letter confirming that “members of NCSE worked closely with SI and NMNH members in outlining a strategy to have you investigated and discredited.” The letter also confirmed the Smithsonian had falsely accused Sternberg of mishandling specimens and violating *Proceedings of the Biological Society of Washington* policies in the publication of Meyer’s article.

forms and the discontinuous increase in complex specified information (CSI) found during the Cambrian explosion.

**Complex Specified Information**

According to Claude Shannon’s mathematical theory of information, the amount of information in a system is inversely related to the probability of the arrangement of the characters or constituents in a system along a communication channel.\(^{55}\) According to Shannon, the more improbable (or complex) the arrangement, the more information a system possesses.\(^{56}\) DNA represents a communication channel because it contains the assembly instructions for building proteins.\(^{57}\) Furthermore, DNA conveys the information in specifically arranged sequences of nucleotide bases. Molecular biologists such as Francis Crick have likened *information* not only to complexity but also to specificity, where “specificity” meant “necessary to function.”\(^{58}\) Meyer then asks how did this genetic information originate and where did the information or the “specified complexity” necessary to generate the form and structure seen in Cambrian explosion originate.\(^{59}\) William Dembski used the term “complex specified information” (CSI) to

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distinguish the functional biological information from Shannon information or simply mere complexity.  

**Meyer’s Argument for Design**

Given the deficiencies of neo-Darwinism and other current theories as explanations for “appearances of design” seen in biological systems after the Cambrian explosion, the possibility of *design* as an explanation seems logical.  

Meyer writes, “Arguably, biological forms –such as the structure of a chambered nautilus, the organization of a trilobite, the functional integration of parts in an eye or molecular machine- attract our attention in part because the organized complexity of such systems seems reminiscent of our own designs.”  

Meyer argues that the presence of CSI in living organisms, as well as the discontinuous increases of CSI seen in events such as the Cambrian explosion, suggests design.  

Here again, Meyer is basing his hypothesis on what he claims is “neo-Darwinism’s inability to account for the many salient appearances of design, including the emergence of form and information” and he posits it “would seem logically to reopen the possibility of actual (as opposed to apparent) design in the history of life.”

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63 Meyer, *Supra* note 32, at 199.

64 Meyer, *Supra* note 32, at 199.
Meyer goes on to explain that many scientific theories, especially in the historical sciences, were based on inferences to the best explanation.\(^\text{65}\) In the historical sciences, uniformitarian method suggests that casual adequacy can be derived from our present knowledge of cause and effect relationships.\(^\text{66}\) According to Meyer, “We have repeated experience of rational and conscious agents – in particular ourselves - generating or causing increases in complex specified information, both in the form of sequence-specific lines of code and in the form of hierarchically arranged systems of parts.”\(^\text{67}\) Furthermore, Meyer points out, “intelligent human agents – in virtue of their rationality and consciousness- have demonstrated the power to produce information in the form of linear sequence-specific arrangements of characters. Indeed, experience affirms that information of this type arises from the activity of intelligent agents.”\(^\text{68}\) Meyer also believes genes require specified arrangements of nucleotide bases, proteins require specified arrangements of amino acids, and body plans require specialized arrangements of cell types and organs.\(^\text{69}\) Meyer argues, “design engineers – possessing purposive intelligence and rationality- have the ability to produce information-rich hierarchies in which both individual modules and the arrangements of


\(^{67}\) Meyer, Supra note 32, at 200.

\(^{68}\) Meyer, Supra note 32, at 200.

\(^{69}\) Meyer, Supra note 32, at 201.
the modules exhibit complexity and specificity.” He cites transistors, resistors and integrated circuit boards as examples of specified complexity. Meyer adds that “we know of no other casual entity or process that has this capacity [specified complexity],” therefore, “we have good reason to doubt that mutation and selection, self-organizational processes or laws of nature, can produce the information-rich components, systems and body plans necessary to explain the origination of morphological novelty such as that which arises in the Cambrian period.”

In his final argument for design, Meyer points out that natural selection lacks the purposeful goal-directed design that intelligent selection (design) provides. Stephen Meyer, Marcus Ross, Paul Nelson, and Paul Chien point out, “We know from experience that intelligent agents often conceive of plans prior to the material instantiation of the systems that conform to the plans—that is, the intelligent design of a blueprint often precedes the assembly of parts in accord with a blueprint or preconceived design plan.” He uses language as an example:

In using language the human mind routinely “finds” or generates highly improbable linguistic sequences to convey an intended or preconceived idea. In the process of thought, functional objectives precede and constrain the selection of words, sounds and symbols to generate functional (and indeed meaningful) sequences from among a vast ensemble of meaningless alternative combinations of sound or symbol.

70 Meyer, Supra note 32, at 201.

71 Meyer, Supra note 32, at 201.

72 Meyer, Supra note 32, at 202.


Based on this evidence and the lack of other adequate casual hypotheses, Meyer infers that *intelligent design* is the most causally adequate explanation for the origin of the novel forms of animals found after the Cambrian explosion.\(^75\)

**Significance of Stephen C. Meyers Publication**

Intelligent design is often criticized for its scant amount of peer-reviewed literature. Stephen C. Meyer's article "The Origin of Biological Information and the Higher Taxonomic Categories" is pointed out as one of the very few pieces of peer-reviewed literature on ID. Stephen Meyer, the Director of the Discovery Institute’s Center for Science and Culture, was one of the earliest leaders in the ID movement and helped to orchestrate the movement’s attack against evolution and naturalism and the revival of what he calls “the God hypothesis.”\(^76\) Meyer has adapted the classic information theory of Shannon to fit ID.\(^77\) Using Dembski’s complexity-specification, Meyer makes inferences based on present day examples of what he considers “specified complexity” for example consciousness, computers, and language. Meyer uses what he calls a “retrodicive” logic to make casual inferences about the past using present day facts or data and then compares those inferences to disprove rival theories.\(^78\) This is called “Inference to the Best Explanation” and as philosopher Paul Thagard explains, “Inference to a scientific theory is not only a matter of the relation of the theory to the evidence, but must also take into account the relation of competing theories to the

\(^{75}\) Meyer, *Supra* note 32, at 203.


evidence. Inference is a matter of choosing among alternative theories, and we choose according to which one provides the best explanation.\(^7^9\) As Meyer explains, “in all cases where we know the causal origin of ‘high information content,’ experience has shown that intelligent design played a causal role.”\(^8^0\) According to Juan Carreño, “Even when we disagree with the response of Meyer, we believe that his treatment of the problem has been more appropriate than that of Behe and Dembski.”\(^8^1\)

Dembski’s Explanatory Filter

According to Jonathon Wells, “we cannot infer design simply by showing that something did not originate by chance. It is only when a pattern cannot plausibly be attributed either to chance or to natural regularity that we infer design.”\(^8^2\) Dembski wrote, “Whenever explaining an event, we must choose from three competing modes of explanation. These are regularity, chance, and design...To attribute an event to design is to say that it cannot reasonably be referred to either regularity or chance –ruling out regularity, and then ruling out chance- constitute the design inference.”\(^8^3\) Dembski differentiated between regularity, chance, and design as follows:

To attribute an event to a law is to say that the event will almost always happen given certain antecedent circumstances. To attribute an event to chance is to say that its occurrence is characterized by some (perhaps not fully specified) probability distribution according to which the event might


\(^8^1\) Carreño et. al., *Supra* note 77, at 231.

\(^8^2\) Wells, *Supra* note 22, at 84.

equally well not have happened. To attribute an event to design is to say that it cannot plausibly be referred to either law or chance.\textsuperscript{84}

Dembski outlined his logic in what he called the explanatory filter. Dembski wrote, “Regularities are always the first line of defense. If we can explain by means of a regularity, chance and design are automatically precluded. Similarly, chance is always the second line of defense. If we cannot explain by means of a regularity, but we can explain by means of chance, then design is automatically precluded. There is an order of priority to explanation. Within this order regularity has top priority, chance second, and design last.”\textsuperscript{85}

Dembski gives as an example several dozen letters of the alphabet randomly lined up, if one were to find two-letter words, it would more than likely be by chance. In other words, the words found were not due to natural regularities, but not complex enough to be design. According to Dembski, “you infer design when you find something that’s improbable that also conforms to a particular kind of pattern.”\textsuperscript{86} Yet, this pattern would lack “specification” or “a recognizable pattern that exists independently of the phenomenon.”\textsuperscript{87} As Dembski puts it, “improbable events happen by chance all the time.”\textsuperscript{88} However, if the twenty-eight letters and spaces spelled “METHINKS IT IS LIKE A WEASEL,” Dembski would infer design, because not only is it extremely improbable,


\textsuperscript{85}Dembski, Supra note 52, at 38.

\textsuperscript{86}Jay W. Richards, Why Are We Here?, in Intelligent Design 101 131, 151 (H. Wayne House ed., 2008).

\textsuperscript{87}Wells, Supra note 22, at 85.

\textsuperscript{88}Dembski, Supra note 52, at 3.
but it also shows an independent pattern, a line from Shakespeare’s *Hamlet.*\(^9\) According to Dembski, it is both *complex* and *specified.\(^*\) Dembski believes the explanatory filter “formalizes what we have been doing right along when we recognize intelligent agents.”\(^9\) Dembski maintains there is no free lunch, that when we see specified complexity in nature it must be due to an intelligent agent because our human experience tell us so.\(^9\) As Dembski explains: “The fundamental claim of intelligent design is straightforward and easily intelligible: namely, there are natural systems that cannot be adequately explained in terms of undirected natural forces and that exhibit features which in any other circumstance we would attribute to intelligence.”\(^9\)

According to Dembski, “the defining feature of intelligent causes is their ability to create novel information and, in particular specified complexity.”\(^9\) However, as Dembski points out intelligent design is not a doctrine of creation, “[I]ntelligent design does not claim that living things came together suddenly in their present form through the efforts of a supernatural creator.”\(^9\) Furthermore, Dembski states, “intelligent design nowhere attempts to identify the intelligent cause responsible for the design in nature, nor does it prescribe in advance the sequence of events by which this intelligent case

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\(^9\) Wells, *Supra* note 22, at 85.

\(^9\) Wells, *Supra* note 22, at 85.


\(^9\) Dembski, *Supra* note 91, at xiv.

\(^9\) Dembski, *Supra* note 91, at 314.
has to act.”

Instead Dembski contends that, “God might have front-loaded everything in the universe in the big bang—all the irreducibly complex structures are merely unfolding like so many homunculi as time passes.” According to Dembski, “The principal characteristic of intelligent agency is directed contingency, or what we call choice.” Dembski concluded an event was contingent if it is one of several possibilities, or “if it is not the result of an automatic and non-intelligent process.”

**Criticism of Dembski’s Design Inference**

Dembski’s Design Inference is not the first argument to be made against evolution using probability as its basis. According to Dembski’s “explanatory filter” there are three ways in which to explain phenomena: regularity, chance, and design. In essence, this is a statistical filter, much like a P-value for estimating the probability of a given structure arising by chance. While some events with very low probability may occur at times by chance, what Dembski refers to as “specified” low-probability events that are not due to law or chance must be attributed to intelligent design. Using Dembski’s filter, high-probability events are attributed to “natural law,” medium or low, unspecified

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97 Dembski, supra note 91, at 314.

98 Dembski, supra note 83, at 62.

99 William A. Dembski et al., supra note 83.


102 Scott, supra note 29, 120.
events are attributed to chance, and only low, specified-probability events are attributed to intelligent design.  

There are those who feel Dembski’s arguments are too abstract and theoretical in nature, and that they rely heavily on subjective judgments that are skewed towards finding intelligent agents in the universe. Observations made about complex information sequences, or the nature and source patterns of information, appear to be so wide open that they could almost be engineered to support any conclusion. Some critics also believe there is fourth category to explain phenomena: Self-organizing things exhibiting patterns or design that are produced through non-regular natural processes. If this is true, then non-intelligent forces can produce design in nature and Dembski’s entire "process of elimination" logic is invalid.

According to Eugenie Scott, “this approach allows false positives where something is attributed to design because of missing or unknown information at the first, natural law level.” Scott uses a ring of mushrooms or a “fairy ring” as it is referred to explain

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103 Scott, supra note 29, 121.

104 Jeffrey Shallit and Wesley Elsberry, Playing Games with Probability: Dembski’s Complex Specified Information, in Why Intelligent Design Fails: A Scientific Critique of the New Creationism 121, 130-32 (Matt Young and Taner Edis eds., Rutgers 2004) (criticizing Dembski’s “pseudomathematical” arguments as being calculated to reach the desired results).

105 Id.


107 Pigliucci, supra note 105, at 59-64.

108 Scott, supra note 29, 122.
her point. If one living in the 800s were to find a symmetrical ring of mushrooms had
suddenly sprung up overnight, they would probably not assume regularity, as it does not
happen that often, nor would they assume chance because of the probability of a “fairy
ring” occurring at a given place is not very high; instead, applying Dembski’s filter, the
people of the 800’s might falsely attribute a “fairy ring” to intelligent design.\(^{109}\) This
would be an incorrect assumption because “fairy rings” form due to an underground
network of filaments radiating out from a central point, and not due to the popular belief
held in the 800s, that “fairy rings” were the result of fairy celebrations.\(^{110}\) According to
Scott, “Because Dembski’s filter depends on the extent of scientific knowledge of the
time; it thus fails to be a reliable predictor of design by intelligence.”\(^{111}\)

Michael Ruse argues that to infer design from empirical data, we must thoroughly
examine all possible natural causes at the nodes labeled as “law” or “chance” in the
explanatory filter. Just because it is not possible to examine every scenario, does not
mean that design constitutes a valid scientific explanation. According to Ruse, it is an
argument from ignorance and misconception that will eventually be replaced by the new
knowledge that science will provide.\(^{112}\)

Richard Milner and Vittorio Maestro insist that Dembski’s explanatory filter is
flawed, because it attempts define intelligent design negatively as the result of a

\(^{109}\) Scott, supra note 29, 122.

\(^{110}\) Scott, supra note 29, 122.

\(^{111}\) Scott, supra note 29, 122.

process of elimination. Dembski also uses examples such as an archer hitting a bull’s-eye repeatedly or the Search for Extraterrestrial Life (SETI) in movie Contact as illustrations of specified complexity. In the movie, Contact, SETI astronomers searched the skies for a radio signal from intelligent extraterrestrials. According to Seth Shostak, a senior astronomer for the SETI Institute, the signals produced by intelligent agents would differ from those produced by “natural astrophysical processes.” However, Milner and Maestro believe that Dembski’s analogies are nothing more than red herrings, because they depend on a prior understanding of human intellect and motivation, and that of relevant causal processes. “DNA is quite unlike a series of prime numbers,” like the signals scientists were searching for in the movie, Contact; Dembski cannot prove that genetic patterns are “set up in advance” or “independently given.” Ultimately, Dembski’s nebulous hypothesis of design provides little that is testable, and once supernatural processes are added in, it loses any chance of testability.

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Robert Pennock argues that Dembski’s tripartite filter is flawed, because design is neither mutually exclusive nor jointly exhaustive. Further, Pennock states that Dembski’s design inference fails because it assumes that design, the “set-theoretic complement” is orthogonal to chance and necessity. Pennock also goes on to say that Dembski’s concept of CSI is not clearly defined or applicable to biological information as Dembski claims. Pennock points to several examples where CSI can be explained by Darwinian mechanisms. Philosopher of science, Peter Godfrey-Smith states, “Dembski’s version is one of the least plausible versions of the design argument.”

No Free Lunch

In another one of Dembski’s books, No Free Lunch, Dembski tries to apply No Free Lunch theorems (NFL) to Darwinism. NFL theorems compare the effectiveness of different “search algorithms.” For instance, if one were trying to determine the best way to get to the highest place on unfamiliar terrain in the dark, they might say, “Walk uphill in the steepest possible direction; if no direction uphill is available, take a couple of

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120 Pennock, Supra note 48, at 154.
121 Pennock, Supra note 48, at 154.
122 Pennock, Supra note 48, at 154.
125 Dembski, Supra note 92.
steps to the left and try again." They may also just "Walk in a random direction." Surprisingly, when averaged over all terrains, neither search algorithm is better. Dembski tries to apply this to Darwinism by saying that because Darwinism is a random unaided process it fares no better at producing elaborate machines than any other algorithm. Any attempts to control the challenges faced by organisms, to favor evolution implies contingency. This is what Dembski calls the displacement problem. He uses the NFL theorems and the problem of displacement to suggest that the only reasonable explanation for the design we see in organisms is intelligence.

Jeff Shallit criticized Dembski’s book, *No Free Lunch*, for what he saw as mathematical difficulties, grandiose claims, equivocation, poor writing, misrepresentations, and poor scholarship. David Wolpert, mathematician and author of the original No Free Lunch (NFL) theorem, calls Dembski’s CSI "fatally informal and imprecise" and that NFL theorems do not even apply to evolution in nature because genomes do not search the same fixed fitness space but coevolve.

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127 Wolpert, *Supra* note 118.

128 Wolpert, *Supra* note 118.


130 Wolpert, *Supra* Note 114.
Several others have dismissed Dembski’s arguments. Allen Orr reminds us, “Organisms aren’t trying to match any ‘independently given pattern:’ evolution has no goal.” If complex structures, such as the eye, lead to more offspring, they may evolve; however, when they prove unnecessary, such as in caves, they may degenerate. Furthermore, recent evidence shows NFL theorems do not hold true, when two species evolve in response to one another (co-evolution). Which is most often the case for organisms; they are constantly challenged by rapidly evolving viruses, parasites, predators, and prey. As Milner and Maestro explain, “an increase in biological complexity does not represent a “free lunch”—it is bought and paid for, because random genetic variation is subjected to natural selection by the environment, which itself is already structured.” More discussion about Dembski by his critics takes place on the internet.


133 H. Allen Orr, Supra Note 118, at 45.

134 H. Allen Orr, Supra Note 118, at 45.

135 H. Allen Orr, Supra Note 118, at 45.

136 Milner, Supra note 108, at 80.

Irreducible Complexity

In his 1996 primer for intelligent design, *Darwin’s Black Box: The Biochemical Challenge to Evolution*, Michael Behe argues that neo-Darwinism is no longer adequate because of scientific advances that have occurred since Darwin’s death. Behe explains that the neo-Darwinian evolutionary mechanism of natural selection suggests random genetic mutations in an individual cause anatomical changes which are passed on to his or her progeny, and eventually a wider population, if they provide reproductive advantages or enhance the survival of the organisms. Over time, these accumulated changes lead to the creation of a new species. Behe, however, believes that some complex life forms exhibit “irreducible complexity” which cannot be explained by such a process. While Behe rejects the idea that natural selection led to the creation of new species, he does not propose a specific, systematic mechanism in its place.

Behe explains how some life forms with interacting parts do not function without all of those parts are in place to operate together similar to a mousetrap. As separate parts, they have no function or value to the survival of the organism just like a typical

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144 Behe, *supra* note 138, at 42.
mousetrap; therefore, they could not have developed under a natural selection mechanism \(^{145}\) since "natural selection can only act on systems that perform functions that help organisms survive."\(^{146}\) Behe believes that many complex organisms or biochemical processes cannot evolve under natural selection, when the parts are non-functional apart from each other and have to be assembled together before they can function.\(^{147}\) Behe defines this as irreducible complexity:

[By irreducibly complex I mean] a single system composed of several well-matched, interacting parts that contribute to the basic function, wherein the removal of any one of the parts causes the system to effectively cease functioning. An irreducibly complex system cannot be produced directly (that is, by continuously improving the initial function, which continues to work by the same mechanism) by slight, successive modifications of a precursor system, because any precursor to an irreducibly complex system that is missing a part is by definition nonfunctional.\(^{148}\)

Behe states that advances in biochemistry during the 1950s have allowed scientists to study organisms at the molecular level, and that the cell is an example of an irreducibly complex organism requiring all of its components to function.\(^{149}\) The best explanation for their origins, accordingly to Behe, is an intelligent designer,\(^{150}\) who created the first irreducibly complex organism, a bacterium cell, packed with genes that

\(^{145}\) Behe, supra note 138, at 46-47.


\(^{147}\) Behe, supra note 138, at 204-05 (suggesting cilium, the blood-clotting system, and intracellular transport systems as examples of complex systems inferring design).


\(^{149}\) Behe, supra note 138, at X.

\(^{150}\) Behe, supra note 138, at 193 ("The conclusion of intelligent design flows naturally from the data itself—not from sacred books or sectarian beliefs.").
would not become active for billions of years but were genetically predestined to lead to all subsequent life forms. Behe explains:

Suppose that nearly four billion years ago the designer made the first cell, already containing all of the irreducibly complex biochemical systems discussed here and many other. (One can postulate that the designs for systems that were to be used later, such as blood clotting, were present but not “turned on.” In present-day organisms plenty of genes are turned off for a while, sometimes for generations, to be turned on at a later time.)

Kenneth Miller calls Behe’s argument, that a designer could have packed all the genes for all the irreducibly complex systems needed for life into a primordial cell, absurd. Fuytura calls Behe’s explanation ludicrous and writes, “If this is true...then each divergent, duplicate hemoglobin requires us to postulate a special intervention by the omnipotent designer.”

According to Behe, we infer design of a component part if (1) its complexity is such that it could not have arisen spontaneously and (2) it is too interconnected and/or streamlined to function in a simpler form; if component parts satisfy these two criteria they are said to be "irreducibly complex." For if, removal of any part makes the organism nonfunctional and there is no identifiable "precursor" to the part in any other

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151 Kenneth R. Miller, Finding Darwin’s God: A Scientists Search for Common Ground Between God and Evolution 162 (Harper Perennial 1999)(quoting Behe, supra note 138, at 227-28)(In other words, the genetic code for all of the rest of the organisms that have ever and will ever exist was packed into the first bacterium).

152 Behe, supra note 138, at 228.

153 Kenneth Miller, Darwin’s Black Box, 16 Creat./Evol. 36 (1996).


155 Behe, supra note 138, at 194-96. The most famous example of an irreducibly complex system is the household mousetrap, which consists of a board, a spring, a lever arm and a latch. If the mousetrap evolved in a manner analogous to naturalistic evolution, it must have arisen from very simple, initially unconnected component parts (maybe a board, an unbent wire, etc.) to the more complex form. Behe believes this is unlikely, because the components by themselves are useless for trapping mice; only a complete mousetrap, constructed of the components arranged in a very specific manner, is useful for the intended purpose.
form, then, according to Behe, Darwin’s theory of natural selection must be wrong, and the only logical alternative is intelligent design.156 According to his view, finding an irreducibly complex biological system would present a "powerful challenge to Darwinian evolution. Since natural selection can only choose systems that are already working, then if a biological system cannot be produced gradually it would have to arise as an integrated unit, in one fell swoop, for natural selection to have anything to act on."157 Therefore, an irreducibly complex system with all the parts arranged purposely together may "better" be described as the act of some "unnamed intelligent agent."158 According to Behe, "life is too complex to have developed through evolution, implying a higher power must have had a hand."159 To illustrate this point further, Behe describes intelligent design as:

an elephant in the roomful of scientists who are trying to explain the development of life. The elephant is labeled "intelligent design." To a person who does not feel obligated to restrict his search to unintelligent causes, the straightforward conclusion is that many biochemical systems were designed. They were designed not by the laws of nature, not by chance and necessity; rather they were planned. The designer knew what the systems would look like when they were completed, then took steps to bring the systems about. Life on earth at its most fundamental level, in its most critical components, is the product of intelligent activity.160

156 Peter Irons, Disaster in Dover: The Trials (and Tribulations) of Intelligent Design, 68 Mont. L. Rev. 59, 69.


160 Behe, supra note 138, at 193.
Proponents of Intelligent Design report to be able to empirically detect evidence of design by identifying the function of a biological structure, examining the relationship between the function of the structure's parts and the structure's overall function, and determining whether a sufficient amount of "specified complexity" is seen in the organization of the structure.¹⁶¹ A structure is believed to be complex, because "the absence of any one of [their parts] would result in the complete loss of motor function."¹⁶² According to ID proponents, if they do not function, they have been proven to be irreducibly complex, and such a system could not have evolved directly through natural selection, so long as there is no apparent lesser function seen in more simplistic systems (in other words, nothing to select for at that earlier stage of development).¹⁶³

Behe cites several examples of supposed irreducibly complex systems from the realm of biology - including the human eye,¹⁶⁴ bacterial cilia and flagella,¹⁶⁵ the blood coagulation cascade,¹⁶⁶ antibodies,¹⁶⁷ and AMP biosynthesis¹⁶⁸— all of which appear to

¹⁶¹ Behe, supra note 138, at 193-194.
¹⁶³ William Dembski & Jonathon Wells, The Design of Life: Discovering Signs of Intelligence in Biological Systems 148 (Foundation for Thought and Ethics 2008)(Dembski concedes that not all parts are necessary, only those that make up a part of what he calls the "irreducible core.")
¹⁶⁴ Behe, supra note 138, at 39.
¹⁶⁵ Behe, supra note 138, at 51-73.
¹⁶⁸ Behe, supra note 138, at 140-61.
be designed. Behe believes that such complex biological mechanisms look designed because they are designed.

Behe cites the "acid-powered rotary engines that turn the whiplike flagella of certain bacteria" and intrinsically complicated mechanism of human blood clotting as examples of irreducibly complex systems. Behe maintains that it is highly unlikely that a bacterial flagellum, with over 50 proteins and enzymes, could be assembled sequentially by chance or that there would be a selective advantage to each addition. However, scientists have offered explanations of how both systems can be brought about by evolutionary forces and are therefore, not irreducibly complex as Behe suggests.

Russell Doolittle, a biochemist from the University of California at San Diego considered an expert in blood clotting, stated, “Contrary to claims about irreducible complexity, the entire ensemble of [clotting] proteins is not needed.” Behe answered his critics in 2007 with other arguments for intelligent design based on his study of sickle cells and the malaria parasites.

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171 DeWolf, Supra note 159, at 62.

172 Scott, Supra note 29, at 118.


174 Russell F. Doolittle, A Delicate Balance, Boston Review (Feb./Mar. 1997)(Doolittle referred to an experiment in which a gene for clotting factor was knocked out in one group of mice and a different gene was knocked out in a second group Doolittle remarked, “when these two lines of mice were crossed...[then] for all practical purposes, the mice lacking both genes were normal”).

175 Michael J. Behe, The Edge of Evolution: The Search for the Limits of Darwinism 320 (Free Press 2007).
Some evolutionists have attacked Behe’s criticisms of the evidence for natural selection, while other biochemists have accepted them. James Shapiro, a biochemist from the University of Chicago, acknowledged, "there are no detailed Darwinian accounts for the evolution of any fundamental biochemical or cellular system, only a variety of wishful speculations." Similarly, biochemist Franklin Harold published a monograph five years after Darwin’s Black Box admitting, "we must concede that there are presently no detailed Darwinian accounts of the evolution of any biochemical or cellular system, only a variety of wishful speculations" even though he opposes ID. There have also been others, which have cited Behe’s ideas in their own scientific publications. Behe’s concept of "irreducible complexity" is the linchpin on which ID theory depends for its claims of scientific legitimacy.

Critics, however, have criticized Behe for the logical and biological fallacy found in his arguments. Behe even states, "I quite agree that my argument against Darwinism does not add up to a logical proof," although he continues to believe that Darwinian paths to irreducible complexity are exceedingly unlikely. Robert Dorit claims to have

180 Irons, Supra note 153, at 69.
181 Pennock, Supra note 43, at 267-68.
182 Orr, Supra note 132, at 42.
found six major fallacies in Behe’s reasoning.\textsuperscript{183} For instance, Robert Pennock explains, if one removes a part (or parts) of a mousetrap it may no longer function as a mousetrap, but the other parts will still function for other purposes.\textsuperscript{184} In fact, Brown University Biology Professor Kenneth Miller even demonstrated, in the courtroom, that one could remove the catch and metal bar and still have a fully functional tie clip or paper clip.\textsuperscript{185} Alternatively, one could remove the wooden base, and the mousetrap would still work if it were attached to the floor.\textsuperscript{186} The point being that one might still have a functioning device even if one removes a part from the mousetrap.\textsuperscript{187} Even in nature, it has been shown that a function in complex organisms may evolve for one purpose, but eventually may come to serve another through the process of natural selection.\textsuperscript{188} In fact, the scientific evidence against irreducible complexity is overwhelming.\textsuperscript{189}

Opponents argue that elements of an irreducibly complex system could have separate individual purposes and have other functions when combined through natural

\textsuperscript{183} Robert Dorit, \textit{Molecular Evolution and Scientific Inquiry, Misperceived}, 85 Am. Sci. 474-75.

\textsuperscript{184} Id.


\textsuperscript{186} Keith Robison, Darwin's Black Box Irreducible Complexity or Irreproducible Irreducibility? http://www.talkorigins.org/faqs/behe/review.html (last visited May 5, 2010).

\textsuperscript{187} See \textit{Supra} notes 176-178.

\textsuperscript{188} See \textit{Supra} notes 176-178.

\textsuperscript{189} Pennock, \textit{Supra} note 43, at 263-272.
Kenneth Miller has suggested that the flagellum components originally had separate nonmotor functions, such as a proto-flagellum that injects a toxin as in the bubonic plague bacterium. In *Kitzmiller*, Judge Jones pointed to Kenneth Miller’s testimony about the Type-III Secretory System (T3SS) as one possible explanation for the evolution of the bacterial flagellum: "With regard to the bacterial flagellum, Dr. Miller pointed to peer-reviewed studies that identified a possible precursor to the bacterial flagellum, a subsystem that was fully functional, namely the Type-III Secretory System." However, there are biologists that believe the T3SS was not a precursor to the flagellum. The evolution of the human eye has also been explained in a similar incremental process. Behe has been criticized for a “failure to deal honestly with the evidence for evolution.” Jerry A. Coyne, an evolutionary biologist from the University of Chicago, addressed Behe’s argument for the eye, “Darwin…by surveying existing species to see if one could find functional but less complex eyes that were not only useful, but also could be strung together into a hypothetical sequence show how a

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190 Scott, *supra* note 29, 118.


192 *Kitzmiller*, 400 F. Supp. 2d at 707.

193 Id. at 740.


camera eye might evolve. If this could done—and it can—then the argument for irreducible complexity vanishes.‖

Behe challenged his critics by stating,

In Darwin’s Black Box (Behe 1996) I claimed that the bacterial flagellum was irreducibly complex and so required deliberate intelligent design. The flip side of this claim is that the flagellum can’t be produced by natural selection acting on random mutation, or any other unintelligent process. To falsify such a claim, a scientist could go into the laboratory, place a bacterial species lacking a flagellum under some selective pressure (for mobility, say), grow it for ten thousand generations, and see if a flagellum - or any equally complex system - was produced. If that happened, my claims would be neatly disproven.\footnote{Michael Behe, Philosophical Objections to Intelligent Design: Response to Critics, Discovery Institute, http://www.trueorigin.org/behe06.asp#b1 (accessed May 5, 2010).}

Strictly speaking, irreducible complexity would be considered unscientific because it cannot be falsified by experimentation.\footnote{David Crump, \textit{Natural Selection, Irreducible Complexity, and the Bacterial Flagellum: A Contrarian Approach to the Intelligent Design Debate}, 36 Pepp. L. Rev. 1, 10 (2008).} However, if we assume a bacterial flagellum developed through exaptation from a secretory organ, as Kenneth Miller proposes, we could attempt to “grow” a similar flagellum in the laboratory using the conditions believed to cause that exaptation.\footnote{Access Research Network Molecular Machines Museum, The Bacterial Flagellum, http://www.arn.org/docs/mm/flagellum_all.htm (last visited May 5, 2010) (describing the views of Michael Behe, including support for theories of irreducible complexity); Ian Musgrave, Evolution of the Bacterial Flagella, (Mar. 17, 2000), http://health.adelaide.edu.au/Pharm/Musgrave/essays/flagella.htm (providing a theory, instead, of evolution).} If successful, we may conclude that irreducible complexity theory is falsified. Nevertheless, proponents of ID could still argue that the flagellum was the product of an intelligent agent acting in the test tube.\footnote{Anne Marie Lofaso, \textit{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, 237 (2006).}

What is more, in creating the precise conditions we believe will lead to the formation of

\footnote{Jerry A. Coyne, \textit{The Case Against Intelligent Design: The Faith That Dare Not Speak Its Name}, New Republic, August 22, 2005.}
a flagellum, we will not have simulated the random means by which we believe the flagellum developed.\textsuperscript{202} Besides, there are many other potential complex systems, which could exist. Even if we were to discover the pathway leading to the formation of the bacterial flagellum, it does not mean that other examples are not irreducibly complex. In other words, this test does not falsify the actions of an intelligent agent.\textsuperscript{203} Still, Behe conceded that there were no peer-reviewed publications that showed complex molecular systems were intelligently designed.\textsuperscript{204} So, it must be assumed that ID's irreducible complexity is an argument of mere assertion, lacking in evidentiary support.\textsuperscript{205}

William Dembski\textsuperscript{206} believes Miller's depiction of irreducible complexity, as focusing on the non-functionality of sub-parts, is inaccurate, and that through irreducible complexity Behe is assessing the plausibility of the entire functional system to assemble in a step-wise fashion, regardless of whether the sub-parts can have functions outside

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\textsuperscript{202}Crump, Supra note 188, at 10.
\textsuperscript{204}Kitzmiller, 400 F. Supp. 2d at 745.
\textsuperscript{206}Judge Jones ruled that a pile of fifty-eight papers dumped upon the witness stand during Behe's cross-examination refuted the claim that "science would never find an evolutionary explanation for the immune system." Kitzmiller v. Dover Area Sch. Dist, 400 F. Supp. 2d 707, 741 (M.D. Pa. 2005) Judge Jones provided no reference for that claim. Behe merely requested a reasonable standard of evolutionary proof of "detailed rigorous models for the evolution of the immune system by random mutation and natural selection." Transcr. of Procs. Afternoon Sess. at 23 (Oct. 19, 2005), Kitzmiller, 400 F. Supp. 2d 707. (Dembski similarly felt Judge Jones was wrong to claim Behe had been refuted regarding the origin of the immune system).
\end{flushright}
of the final system.\textsuperscript{207} According to Dembski, Behe never argued that sub-parts could have no function outside of the final system in a irreducible complex system.\textsuperscript{208} However, it is important to note that Behe, under cross-examination in \textit{Kitzmiller},\textsuperscript{209} admitted "a defect in his view of irreducible complexity" because it focuses on "removing a part from an already-functioning system" rather than on explaining the process - as evolutionary biologists attempt to do - of "bringing together components to make a new system in the first place."\textsuperscript{210} Judge Jones also pointed out, in \textit{Kitzmiller}, that even though Behe promised to "'repair this defect in future work' ... he has failed to do so even four years after elucidating this defect."\textsuperscript{211} Behe recently admitted\textsuperscript{212} that a counterexample\textsuperscript{213} undermines his argument and that he hoped to revise his original definition.

Despite this, proponents of ID argue the "leap" involved in going from one functional sub-part to the entire functional system shows the level of irreducible


\textsuperscript{208} Behe, \textit{Supra} Note 138, at 40, 65-67.

\textsuperscript{209} \textit{Kitzmiller}, 400 F. Supp. 2d at 745.

\textsuperscript{210} \textit{Id.} at 739.

\textsuperscript{211} \textit{Id.}


\textsuperscript{213} Pennock, \textit{Supra} note 43, at 429.
complexity in a system. Scott Minnich explains that even if Miller’s scenario were true, it would not be enough to allow for a Darwinian explanation to the origin of the flagellum since there is a huge leap in complexity from a T3SS to a flagellum. However, Behe is wrong in assuming that anything that fails to support evolution necessarily supports intelligent design. Arguments against evolution are not automatically arguments for intelligent design. Some scientists consider this an “argument from ignorance” since an intelligent creator is used as an explanation when a natural explanation is lacking. The lack of an immediate evolutionary explanation for a single bacterial flagellum does not take away all credibility from the theory of evolution nor necessitate a leap to a supernatural designer. As an article in Nature Reviews Microbiology admits “the flagellar research community has scarcely begun to consider how these systems have evolved.”

Robert Pennock contends, in his book Tower of Babel: The Evidence Against the New Creationism, that Behe’s irreducible complexity is simply a rehashing of

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216 Behe, Supra note 207.


219 Monastersky, supra note 182.


221 Pennock, Supra note 43.
Reverend Paley’s watchmaker minus the reference to God. Pennock claims Behe adds no new science to the criticism of evolution and that intelligent design fails to "resolve recognized problems, paradoxes, and/or anomalies irresolvable on the basis of pre-existing scientific theories." Furthermore, Pennock asserts intelligent design is not empirically testable and leads to no predictions or retrodictions, which can be verified.

Another Biology Professor John Moore has stated, "explanations that involve supernatural forces ... can never be studied by the basic approaches of science, which are observation and experiment. We are here in the realm of belief, not rational science." Behe is very clear in stating, "By "intelligent design' I mean to imply design beyond the laws of nature." For this reason, Moore believes intelligent design more likely an old religious argument for the existence of God dating back to Thomas Aquinas in the thirteenth Century than any a new scientific argument.

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222 Behe, Supra Note 138, at 110-113; Id. at 263-272.


226 Behe, Supra note 203, at 33.

227 Kitzmiller, 400 F. Supp. 2d at 718.
Michael Behe is the only leader in the ID movement with an academic degree in biology.\textsuperscript{228} Despite being the most touted ID argument, Michael Behe has no scientific publications on ID or any description of ID research on either the Discovery Institute or his own university’s webpage.\textsuperscript{229} Neil Blackstone claims, “Behe…has indulged in some very poor scholarship. He has oversimplified evolutionary theory, made implausible assumptions, committed errors in logic, ignored the relevant literature, and neglected the proper methodology.”\textsuperscript{230} Behe even admitted to "sloppy prose" and said he did not mean to imply that irreducibly complex systems "by definition" could not evolve gradually.\textsuperscript{231} As a final note, Richard Lenski and his colleagues were able to demonstrate how complex features could be produced by the Darwinian mechanism.\textsuperscript{232}

Proponents of natural selection have argued that alleged irreducibility of such systems will be reduced by the advance of science, which will provide more reasonable explanations than design.\textsuperscript{233} Several of Behe’s irreducibly complex examples have been explained through alternative explanations.\textsuperscript{234} Francis Collins, leader of the “Human Genome Project,” has suggested that gene duplication may explain things like

\textsuperscript{228} A. Cornish-Bowden & ML Cárdenas, The Threat from Creationism to the Rational Teaching of Biology, 40 Biol. Res. 113-122 (2007).

\textsuperscript{229} Pennock, Supra note 48, at 149.

\textsuperscript{230} Blackstone, Supra note 211, 445-47.

\textsuperscript{231} Orr, Supra note, at 42.

\textsuperscript{232} Richard Lenski et. al., The Evolutionary Origin of Complex Features, 423 Nature 139-44 (2003).


the clotting system.\textsuperscript{235} Behe maintains that designed biological systems could have undergone gradual changes over time through natural selection and mutation.\textsuperscript{236} This is mostly to answer critics, who feel ID does not adequately explain such things as vestigial organs and pseudo-genes in which evolution seems more plausible. Accordingly, Behe concedes many of these structures are the evolution of a primitive structure, while ID explains the appearance of the “original model.”\textsuperscript{237} Behe and his ID proponents now say that irreducibly complex systems can in principle evolve, but they still feel biologists cannot reconstruct in convincing detail just how any such system did evolve.\textsuperscript{238}

\textbf{Other Peer-reviewed Articles}

\textbf{Using Protistan Examples to Dispel the Myths of Intelligent Design}

Michael Behe’s book \textit{The Edge of Evolution}\textsuperscript{239} published in 2007 discusses the eukaryotic cilium and chloroquine resistance in the apicomplexan parasite \textit{Plasmodium falciparum} both of which Behe cites as examples of irreducibly complexity. Others have criticized evolution based on the lack or irrelevance of transitional fossils,\textsuperscript{240} the sudden radiation of biological forms in the Cambrian,\textsuperscript{241} or that speciation has not been

\begin{itemize}
\item \textsuperscript{235} Francis Collins, The Language of God, 186-199 (Free Press 2006).
\item \textsuperscript{236} Michael J. Behe & DW Snoke, \textit{Simulating Evolution by Gene Duplication of Protein Features that Require Multiple Amino Acid Residues}, 13 Protein Sci. 2651-2664 (2004).
\item \textsuperscript{237} Behe, \textit{Supra} note 138.
\item \textsuperscript{238} Orr, \textit{Supra} note 132, at 43.
\item \textsuperscript{239} Behe, \textit{Supra} note 175 at 320.
\end{itemize}
observed or documented. Protistan biology, with its larger population sizes, shorter generation times, and easy laboratory manipulation, provides counterexamples to these arguments.

While much is made of bacteria dominating the planet before the Cambrian, many forget the fact that protists, which were more morphologically and genetically diverse than bacteria, had been evolving for approximately one billion years before multicellular organisms first appeared in the fossil record. At first it may appear as if Darwinian evolution could not account for the rapid radiation seen in the Cambrian, but a single innovation has been known to cause a greatly accelerated rate of evolution, giving rise to "explosive" radiation of forms. Morphologically complex protists and jellyfish are believed to existed before the Cambrian. The evolution of a triploblastic body would have allowed for a tremendous diversification of body types. Most of the Precambrian organisms are missing in the fossil record, or are represented by trace fossils. Some trace fossils from nearly 400 million years before the Cambrian, may

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244 Id.


indicate a highly diverse assemblage of protists. The current theory is that there was an explosive radiation of diverse protistan forms\textsuperscript{250}, which makes the array of body plans found in Cambrian metazoan pale in comparison. It also seems likely that if simple events made the radiation of the protists possible, then simple changes, not involving supernatural explanations, probably underlie the Cambrian explosion.

It is difficult to define what a “species” is,\textsuperscript{251} but generally, a species has some morphological or other physical criteria that make it distinguishable from another species.\textsuperscript{252} It seems reasonable that we have not seen more species in the last 150 years; given the fact that it takes many generations of genetic isolation under strong isolation pressures to produce a new species. Furthermore, the generation times of most multicellular organisms is measured in months or even years, so it is not surprising there are few examples that have been documented. In the 1960s, a new species of \textit{Amoeba proteus}, called xD amoebae, was discovered after a culture of strain D \textit{Amoeba proteus} became infected by the bacteria \textit{Legionella jeonii}.\textsuperscript{253} The new amoebae formed a symbiosis with the accompanying bacteria, such that antibiotics


\textsuperscript{251} Id.

\textsuperscript{252} Richard Mayden, \textit{On Biological Species, Species Concepts and Individuation In the Natural World} 3 Fish Fisheries 171-196 (2002).

designed to kill the bacteria would also kill the amoebae. This shows that symbiosis plays an important role in the evolution of eukaryotes even today.

The fossil record shows many detailed evolutionary branching points, which is contrary to Jonathon Wells’ assertion. Many protists produce morphologically complex fossilized structures out of silica or calcium carbonate. Through DNA analysis and observed ability to interbreed in living species, it has been shown that morphological details correspond well with taxon boundaries, so it makes sense that similar differences in the fossil examples represent differences between the organisms that made them. With the abundance and diversity of microfossils found, it would be surprising if the examples of protistan transition species did not exist.

Finally, in the book *The Edge of Evolution: The Search for the Limits of Darwinism*, Behe claims that drug resistance in the malarial parasite *Plasmodium falciparum* is too complex to have arisen through natural evolutionary processes. Chloroquine is a drug that has been used since the 1940s to treat malaria. The chloroquine forms a complex with Fe(II)-protoporphyrin IX disrupting the food vacuole of the parasite eventually killing it. In the 1950s, four species of *Plasmodium* were found to be resistant to chloroquine. A mutation in a gene coding for a 49-kDa protein,

\[ \text{Id.} \]

\[ \text{Wells, Supra note 237.} \]

\[ \text{Alexander R. Schmidt et al., } A \text{ Microworld in Triassic Amber 444 Nature 835 (2006).} \]

\[ \text{Michael J. Benton & Paul N. Pearson, } Speciation in the Fossil Record 16 Trends Ecol. Evol. 405-411 (2001).} \]

\[ \text{Behe, Supra note 236.} \]

\[ \text{John F. Hyde, Drug-Resistant Malaria—An Insight, 274 FEBS J. 4688-4698 (2007).} \]
known as \textit{P. falciparum} chloroquine-resistance transporter (PfCRT), has been found to convey a resistance to chloroquine.

Behe believed two mutations in \textit{pf} \textit{f} \textit{crt} were required in order to cause resistance.\textsuperscript{260} According to Behe, the likelihood of two simultaneous mutations needed to form a Chloroquine Complexity Cluster (CCC) would be in the neighborhood of $1 \times 10^{20}$.\textsuperscript{261} According to Behe,

\begin{quote}
On average, for humans to achieve a mutation like this by chance, we would need to wait a hundred million times ten million years. Since that is many times the age of the universe, it’s reasonable to conclude the following: No mutation that is of the same complexity as chloroquine resistance in malaria arose by Darwinian evolution in the line leading to humans in the past ten million years.\textsuperscript{262}
\end{quote}

There was already evidence to prove Behe’s conclusion wrong at the time \textit{The Edge of Evolution} was published.\textsuperscript{263} As opposed to two simultaneous mutations being necessary to convey resistance, it was shown that a single amino acid substitution was sufficient to convey resistance to chloroquine.\textsuperscript{264} Thus, the idea that two simultaneous mutations were necessary to produce chloroquine resistance was simply not true. In fact, since mixed infections involving more than one resistant strain would be fairly common in areas with a

\textsuperscript{260} Behe, Supra note 236.
\textsuperscript{261} \textit{Id}.
\textsuperscript{262} \textit{Id}.
\textsuperscript{263} Viswanathan Lakshmanan et al., \textit{A Critical Role for PfCRT K76T in Plasmodium falciparum Verapamil-Reversible Chloroquine Resistance}, 24 EMBO J. 2294-305 (2005).
high incidence of malaria, it would not be surprising if strains containing multiple protective mutations did not arise in relatively short periods of time.

Behe represents a credentialed scientist, who exhibits extraordinarily bad scholarship. Even though he is a professor of biochemistry, he has avoided peer-reviewed publications and rigorous research. Flaws in arguments have been pointed out by other scientists, yet he fails to acknowledge examples of step-wise drug resistance in *Plasmodium* published nearly a decade before his book.

**Intelligent Design: Fallacy Recapitulates Ontogeny**

Scientists claim intelligent design is another attempt by creationists to bypass previously failed attempts to teach creationism as part of science education in the United States. However, intelligent design is really a repeat of 17th and 18th century ideas in developmental biology. In 1694, Dutch inventor, Nicolas Hartsoeker, depicted preformationism (the unfolding and increase in size of an organism that pre-existed within germ cells) in a drawing of a miniature human within a sperm cell. In the 18th century, German physiologist, Friedrich

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269 *Id.*

270 *Id.*
Wolff, was able to show that development gave rise to new tissues and organs, but he still claimed an organizational force called *vis essentialis* accounted for his observations. ²⁷¹

Similarly, proponents of intelligent design believe an unexplained organizing force has lead to the diversity of life forms in the world. Irreducible complexity claims that the structures and functions of some biological structures and biochemical pathways could not have arisen through evolution, but only through an unknown force outside laws of nature. ²⁷²

In science, discovery means learning new things about the world and credibility means convincing others that those findings are correct. Science is based on testable hypotheses, which with proper analysis by the scientific community leads to credibility. ²⁷³ In this sense, irreducible complexity is a claim, whose credibility has yet to be established. ²⁷⁴

Many see falsifiability as a clear demarcation of what is science and faith. However, past examples were not so clear, such as the result of the 19th century Michelson-Morley experiment, ²⁷⁵ were argued well into the 20th century. ²⁷⁶ So, falsifiability is more of a goal in science. Yet, proponents of irreducible complexity feel quite content with their solution, so as not to challenge it.

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²⁷¹ *Id.*

²⁷² *Id.*

²⁷³ *Id.*

²⁷⁴ *Id.*

²⁷⁵ *Id.* (Refutation of invisible ether by 19th century physics.)

²⁷⁶ *Id.*
In science, one sometimes sacrifices their hypothesis for credibility. However, supporters of intelligent design seem to have given up credibility for their beliefs.277 Scientists have long since discredited controversial discovery claims, such as N-rays or polywater.278 Frederick Grinnell believes that maybe irreducible complexity should be taught in schools like another controversial claim, made in 6th century BCE by astronomers, that the world was flat.279

Evolution Is Intelligent Design

It has been argued that natural selection is multilevel and can work on ‘systems’ or whole groups of organisms.280 Computer codes, with ‘evolutionary algorithms’ that mimic the evolutionary process, have been used to help ‘design’ new programs.281 Cultural change is also an evolutionary process.282 An interdependent set of world views, institutions and technologies that form a socioecological ‘regime’ all embedded in an ecological context can define a culture.283

277 Id.
278 Id.
279 Id.
Robert Costanza contends evolution, working in multilevel systems, designs those systems to function well and survive.\textsuperscript{284} Furthermore, Costanza believes evolution is intelligent because it can learn from experience and improve.\textsuperscript{285} The result of this intelligent and adaptive learning process according to Costanza is design.\textsuperscript{286} Using random mutation, sexual reproduction, conscious creation of new cultural variants, and selection processes, evolution cuts down alternatives like a conscious designer.\textsuperscript{287} Only, natural selection does this without an all-seeing and all-knowing intelligent agent directing it.

\textit{Evolution: Reducible Complexity—The Case for Bacterial Flagella}

The argument over whether a bacterial flagellum could assemble in a systematic fashion factored into the 2005 trial in Dover, Pennsylvania over the teaching of intelligent design.\textsuperscript{288} Despite Judge Jones ruling in that case, there still remains scientific interest in the origin of the bacterial flagella. Pallen and Matzke inferred that “the flagellar rod-hook-filament complex has clearly evolved by multiple rounds of gene duplication and subsequent diversification, starting from just two proteins (a protoflagellin and a proto-rod/hook protein).”\textsuperscript{289} Liu and Ochman believe that the 24 ‘core’ flagellar genes ancestral to all flagellated bacteria arose through successive

\begin{itemize}
\item \textsuperscript{284} Costanza, \textit{Supra} note 278.
\item \textsuperscript{285} \textit{Id.}
\item \textsuperscript{286} \textit{Id.}
\item \textsuperscript{287} \textit{Id.}
\end{itemize}
duplications and diversifications from a single ancestor and that lateral gene transfer (LGT) played only a minor role.\textsuperscript{290} Matzke feels Liu and Ochman were mislead by faulty BLAST (Basic Local Alignment Search Tool)\textsuperscript{291} defaults and therefore misinterpreted homologies.\textsuperscript{292} Additionally, the conclusion that “proteins forming the flagellum, the rod, hook and filament proteins, originated in an order that mirrors the ‘inside-out’ flagellar assembly process,” is difficult to prove without rooted trees, which Liu and Ochman do not provide.\textsuperscript{293}

William Paley’s argument for design elaborated in his watch analogy seemed logical before Darwin’s theory of natural selection provided a naturalistic alternative to design for explaining adaptation. Darwinian explanations are even accepted by proponents of ID for adaptations seen as less than irreducibly complex.\textsuperscript{294} According to Doolittle and Zhaxybayeva, evolutionists do not need to take on the impossible task of figuring out every detail of flagellar evolution.\textsuperscript{295} Rather, evolutionists just need to show that such a development is possible with the processes and constituents we already know.\textsuperscript{296} Liu and Ochman’s step-by-step explanation, for a single-purpose complex


\textsuperscript{291} BLAST is a program in bioinformatics that is used to find statistically significant matches between two sequences (amino acid or DNA). Homology is similarity due to common ancestry. In proteins and DNA, this is typically sequence similarity.


\textsuperscript{293} Doolittle, \textit{Supra} note 285, at R511.

\textsuperscript{294} Id. at R512.

\textsuperscript{295} Id.

\textsuperscript{296} Id.
structure using only gene duplication and divergence with a single genomic lineage, seems burdensome and prone to misinterpretation by those who see evolution as purposive. Other explanations involving LGT, and the combination of parts with separate origins and other original functions could allow for the evolution of a complex structure without the need for a supernatural force.

**Belief Versus Acceptance: Why Do People Not Believe in Evolution?**

Evolution has been challenged in the USA with intelligent design being touted as viable scientific alternative and appeals being made to discuss the 'strengths and weaknesses' in evolution. The creationist community wants to distinguish between the old guard that wants to push creation-science and the new guard which is trying to distance itself for religion by advancing a wholly scientific approach, intelligent design.

In 1809, William Paley wrote that if we found a pocket watch on a heath we would ‘know’ there was a watchmaker. Conversely, the rock or stone beside the watch needs no maker. How then could a complex animal (e.g. a human) be the result of natural processes and not the intentional result of a designer? This is the basis of the intelligent design creationism.

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297 Id.

298 Id.


Given the counterintuitive nature of evolution along with the bias toward ‘creationist’ ideas, Williams contends the supernatural, designer-led interpretation becomes more likely. Williams writes, “Once established, this belief is difficult to counter and may be reinforced by friends, family or social attachments, e.g. to evangelical religious communities.”

How has intelligent design gained public acceptance? The intelligent design (ID) movement has introduced the ‘Wedge Strategy,’ which targets State education boards and the American public at large with a large political and public relations campaign. The ID movement proposes a scientific alternative to evolution. However, the movement has failed to produce any scientific data to support their claim let alone establish a research program. Despite this, public polls show interest for intelligent design, even though the scientific community rejects intelligent design.

Another problem is the use of design-oriented language in peer-reviewed, scientific journals. This design language only serves to perpetuate the intelligent-design creationist’s ‘inference to design.’ The use of design language by scientists to translate technical science for the lay audience can encourage and reinforce misconceptions.

For example, a paper, on the structure and function of the Müller cells, published by the

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302 Williams, Supra note 296, at 1257.

303 Id.


305 Id.

Proceedings of the National Academy of Sciences stated, “At the same time, the increasing refractive index together with their funnel shape at nearly constant light guiding capability…make them ingeniously designed light collectors.”

Even though the author was not trying to imply a designer, the creationist community seized upon this reference as ‘scientific evidence of design’.

Creationism is not going to disappear. Creationist misconceptions implanted or naturally occurring in primary age children are going to be difficult, if not impossible to change later. While we cannot prevent the publication of creationist books and comics aimed at children, scientists and science educators can prevent creationist ideas from being accepted as ‘factual’ and help prevent misconceptions from taking hold. Scientists must also avoid inappropriate or imprecise language in their publications from which ‘design’ might be inferred.

**Some Considerations about the Theory of Intelligent Design**

The so-called theory of intelligent design (ID) burst on the scene in 1991 under the leadership of Phillip Johnson, whose book *Darwin on Trial* laid out the ID position. ID focuses on the perceived failings of evolutionary theory to account for life’s complexity. Accordingly, the gradual process proposed by Darwinism could not

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309 Williams, *Supra* note 296, at 1261.

310 Id.


312 Id.
account for the complexity of living, natural beings.\textsuperscript{313} Therefore, proponents of ID believe that the existence of design seen in nature, through scientific analysis, points to a designer.\textsuperscript{314}

ID has become the subject of public discussion regarding the teaching of ID as an alternative to evolution in educational institutions.\textsuperscript{315} Opponents of ID claim examples of design are better explained by chance, or by laws that are not well described.\textsuperscript{316} Some feel ID is nothing more than an effort to dress antiquated attitudes and religious beliefs with the prestigious cloth of science.\textsuperscript{317} However, Carreño et al. believe, “there still remains a need for a deep consideration about the epistemological status and scientific validity of this theoretical construct.”\textsuperscript{318} Carreño et al. also feels ID could coexist with the theory of evolution by natural selection if natural selection were only to apply to microevolution.\textsuperscript{319}

According to Carreño et al., every time Dembski’s explanatory filter attributes design and the underlying causal history is known, it turns out that design is present.\textsuperscript{320}


\textsuperscript{314} Johnson, \textit{Supra} note 39.


\textsuperscript{318} Carreño, \textit{Supra} note 77, at 224.

\textsuperscript{319} Id.

\textsuperscript{320} Id.
Intelligent causation is characterized by choice, in that every time an “intelligent cause” acts, it chooses from a range of competing possibilities.\textsuperscript{321}

ID is a historical interpretation that uses supposed effects in the present to infer causal events in the past; a methodology like this cannot be regarded as scientific.\textsuperscript{322} Perhaps a better question is whether ID can be taken as a valid historical interpretation.\textsuperscript{323} Carreño et al. states, “there is a fundamental difference between the various forms of evolutionary theories that are postulated today in paleontology and biology and the theoretical approach of ID.”\textsuperscript{324} ID does not provide anything that could be empirically verified in the present; instead, it uses such concepts as “final cause,” “design,” “plan,” and “intelligent agent” to account for natural events, which does not make it a plausible epistemological model.\textsuperscript{325}

**Conclusion**

The intelligent design movement has a long and storied past. Its roots can be traced back to Greek and Rome times. Phillip Johnson initiated the modern day movement with the publication of *Darwin on Trial*.\textsuperscript{326} While the amount of supporting peer-reviewed articles is lacking, there is a steady stream of books and internet articles published by the leaders of the intelligent design movement. Some proponents of intelligent design, like William Dembski, publish a prolific amount of material on

\textsuperscript{321} Id.
\textsuperscript{322} Id.
\textsuperscript{323} Id.
\textsuperscript{324} Id.
\textsuperscript{325} Id.
\textsuperscript{326} Johnson, *Supra* note 39.
intelligent design. The key concepts behind intelligent design are the design inference, specified complexity, the explanatory filter, and irreducible complexity. Opponents of intelligent design have criticized each concept. There have been several commentaries written in peer-reviewed journals reviewing intelligent design. Overall, intelligent design is not accepted by the scientific community.

Proponents of intelligent design contend that there is a bias against intelligent design that prevents the publishing of articles on intelligent design in peer-reviewed journals. One editor wrote Michael Behe:

As you no doubt know, our journal has supported and demonstrated a strong evolutionary position from the very beginning, and believes that evolutionary explanations of all structures and phenomena of life are possible and inevitable. Hence a position such as yours...cannot be appropriate for our pages.

Jonathon Wells calls it a "Catch-23," he writes, "intelligent design is not scientific, so it can't be published in peer-reviewed scientific journals. How do we know it's not scientific? Because it isn't published in peer-reviewed scientific journals."

So whether intelligent design is not worthy of publication in peer-reviewed journals or it is being deliberately kept out of peer-reviewed journals, there are still very few peer-reviewed articles involving intelligent design.

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327 Wells, Supra note 22.


CHAPTER 4
KITZMILLER V DOVER DECISION

Introduction

Public high school teachers\(^1\) school board members,\(^2\) parents,\(^3\) the community\(^4\) and policymakers\(^5\) were clearly divided over the reading of a disclaimer in a high school classroom, which discredited evolution and offered intelligent design as an alternate theory. The plaintiffs, who were opposed to the reading of the disclaimer, believed that the disclaimer violated their rights under the Establishment Clause.\(^6\) Proponents of the intelligent design policy believe that disclaimers about the fallacies of evolution are an academic effort to "teach the controversy."\(^7\)

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\(^2\) Complaint at 1, Kitzmiller v. Dover Area Sch. Dist., No. 4:CV 04-2688 (M.D. Pa. Dec. 14, 2004), available at 2004 WL 3008270[hereinafter ACLU complaint](The Dover School Board passed by a 6-3 vote a resolution that it would make students aware of gaps and problems in Darwin's theory of evolution).

\(^3\) Kitzmiller v. Dover Area School District, 400 F. Supp. 2d 707, 708-710 (2005). (Eleven local parents, represented by the American Civil Liberties Union (ACLU) of Pennsylvania, filed suit against the school district and its board).

\(^4\) Jason Zengerle, Dover Soul, NEW REPUBLIC, Nov. 14, 2005, at 10; see also Robert Little, God's Not Scorned, and All's Quiet: Dover, Pa., Gets a Respite From the Spotlight Over Intelligent Design, BALTIMORE SUN, Nov. 11, 2005, at A1 (noting how intelligent design "divided this community, neighbor against neighbor").

\(^5\) Chris Mooney, The Republican War on Science 182-183 (2005)(Senator Rick Santorum (R-Pa.) has called ID a "legitimate scientific theory" and tried to work language from the ID movement into an amendment for the No Child Left Behind Act)(quoting from a Santorum op-ed in the Washington Times).

\(^6\) ACLU Complaint, supra note 2, at 49 (The ACLU asserts in the complaint it filed in Kitzmiller that the plaintiffs are entitled to "relief under 42 U.S.C. § 1983 because defendants, acting under the color of law, subjected plaintiffs to a deprivation of their rights under the Establishment Clause of the First Amendment of the Constitution of the United States, as applied to the states by the Fourteenth Amendment.

According to a joint statement released by the ACLU:

Constitutionally, schools may teach a variety of explanations about life on earth -- including religious ones -- in comparative religion classes. In science classes, however, teachers may only present genuinely scientific theories and scientific critiques of theories. It is unlawful for schools to teach religious explanations of life on earth -- such as creationism -- or refuse to teach evolution because it is inconsistent with a religious explanation.\(^8\)

A federal district court in *Kitzmiller v. Dover Area School District*\(^9\) held that the Dover Public School's policy of informing students studying evolutionary theory in science class that intelligent design is an alternative theory to explain the origins of life violates the Establishment Clause.\(^10\) Judge Jones rejected the school district's assertion that the disclaimer had a secular purpose of improving science education and encouraging students to exercise critical thinking skills.\(^11\) He called it “ludicrous” to assert the existence of a secular purpose in light of all the evidence revealing the origin and development of the ID Policy.\(^12\) He concluded that since ID is not science, “the conclusion is inescapable that the only real effect of the ID policy is the advancement of religion.”\(^13\)

Central to Judge Jones’ decision in *Kitzmiller* was the testimony from leading philosophers of science,\(^14\) biologists,\(^15\) and ID proponents.\(^16\) After evaluating


\(^10\) Id. at 765.

\(^11\) Id. at 762-763.

\(^12\) Id.

\(^13\) Id. at 764.

\(^14\) Id. at 719, 721, 735-36.
manuscripts of an ID textbook, which was virtually the same as a creation science text with "intelligent designer" substituted for God and "intelligent design “for” creation, and listening to all the testimony, the court decided that ID was not science and was instead a religiously based theory.\textsuperscript{17}

**The Lemon Test as it applies to the Dover School Board’s Disclaimer**


According to Superintendent Richard Nilsen, Bonsell began talking about “creationism” at a Board retreat on January 9, 2002.\textsuperscript{18} Alan Bonsell found it disgusting that children were being taught that humans evolved from apes in science class.\textsuperscript{19} He

\textsuperscript{15} Id. at 724-25, 727-29, 737-38, 740, 743-44. 

\textsuperscript{16} Id. at 718-23, 735-45. 

\textsuperscript{17} Id. at 735-746. 

\textsuperscript{18} Casey Brown testified that Bonsell mentioned the Bible and creationism, and felt “there should be a fair and balanced presentation within the curriculum.” (Trial Tr. vol. 7, C. Brown., 17-18, Sept. 29, 2005) 

believed the decline in Christian values was due to the absence of God in the classroom. When Bill Buckingham joined the board in 2003, Bonsell and Buckingham began talking about plans to teach creationism alongside evolution. During the March 26, 2003 Board retreat, Bonsell said to the other administrators and board members that he wanted a “50-50” balance between the teaching of creationism and that of evolution.

Bonsell and Buckingham complained about the teaching of “monkey to man” to the school district superintendent, Richard Nilsen. Buckingham complained about a list of things including a picture of Charles Darwin in the ninth-grade biology textbook. They decided to send assistant superintendent, Mike Baksa, to a Christian college-sponsored conference to find out more about teaching creationism. Bonsell talked with Baksa about creationist claims against evolution, such as gaps in the fossil record. Bonsell said he was concerned about the teaching of evolution and the biology textbook used at Dover because it presented Darwin’s ideas as fact and not a theory. (Trial Tr. vol. 26, Baksa Test., 62-64, Oct. 21, 2005, Trial Tr. vol. 35, Baksa Test., 55, November 2, 2005.)

20 Id.
21 Id. at 16.
22 Lebo, Supra note 19 at 16. See also Barrie Callahan said in her testimony that Bonsell wanted creationism taught 50/50 with evolution in biology class. (Callahan Test. 3:126-127); Bonsell testified that he did not recall saying he felt creationism “belonged in biology class alongside evolution,” although others testimony says he did. (Bonsell test. 32:75; Trial Tr. vol. 8, J. Brown Test., 50-51, Sept. 29, 2005).
23 Id.
24 Id.
25 Id.
26 Id. at 19.
2005). He wanted biology teachers to teach the claims, even though the scientific community did not support them.\textsuperscript{27}

In response to the rumors, Trudy Peterman, then principal of Dover High School, sent a memo to Nilsen on April 1, 2003 stating that she had heard from Science Department Chair, Bertha Spahr, that Baksa said on March 31, 2003, an unidentified Board member “wanted fifty percent of the topic of evolution to involve the teaching of Creationism.”\textsuperscript{28} In her testimony, Spahr confirmed the conversation with Baksa mentioned in Peterman’s memo. (Trial Tr. vol. 13, Spahr Test., 72-73, Oct. 6, 2005).

Baksa admitted to having the conversation with Spahr, in which he told her Bonsell wanted “a 50/50 split with Darwin and some alternative,” although he did not recall Bonsell identifying “creationism” as the “alternative” nor did he recall Bonsell mentioning “creationism” up until April 1, 2003. (Baksa Test. 35:53-56).

In his testimony, Jeff Brown said Bonsell told him he did not believe in evolution, that he wanted creationism taught side-by-side with evolution in biology class, and that taking prayer and Bible out of school was a mistake, back when he ran for the Board in 2001. (Trial Tr. vol. 8, Brown Test., 48-49, Sept. 29, 2005). What is more, Jeff Brown testified that Nilsen had complained to him that each Board President had a set of priorities and Bonsell’s priority was creationism. (Brown Test. 8:53). Bonsell not only wanted creationism taught in science class, but according to Baksa, he also wanted religion taught in social studies classes. (Baksa Test. 36:14-15, 17). He even gave

\textsuperscript{27} Id.

\textsuperscript{28} Id. at 20.
Baksa a book entitled *Myth of Separation*, so students could learn more about the Founding Fathers.\(^{29}\)

**Baksa Meets With Faculty**

Prior to the fall of 2003, Baska met with science teachers, Jen Miller, Rob Eshbach, and Bryan Rehm, to discuss Bonsell’s concerns about evolution, and Bonsell’s plan for creationism to be taught alongside evolution.\(^{30}\) Baksa told them Bonsell’s problem with the teaching of the origin of life and with macroevolution and speciation (how species change into other species). (Baksa Test. 35:66-68).

Bonsell eventually met with the teachers himself. (Trial Tr. vol. 12, J. Miller, 107-09, Oct. 6, 2005; Baksa Test. 35:68). No Dover administrator or Board member had ever met with biology teachers prior to the fall of 2003. (Trial Tr. vol. 36, Linker Test., 75, Nov. 3, 2005). Jen Miller, a senior biology teacher, explained that she only covered “change over time” in the chapter she taught on evolution and that she did not teach the origin of life, but rather the origin of species in her class.\(^{31}\) This was a relief for Bonsell, whose daughter would be taking biology that year, to know “origins of life” were not taught, because the concept of common ancestry offended his personal religious beliefs that God created man and other species in their current forms and that the earth was only thousands of years old. (Bonsell Test. 33:54-58, 115). Bonsell also told them they

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\(^{29}\) In an e-mail to one of the social studies teachers on Oct. 19, 2004, Baksa said: “all kidding aside, be careful what you ask for. I’ve been given a copy of *Myth of Separation* by David Barton to review from Board members. Social Studies curriculum is next year. Feel free to borrow my copy to get an idea where the board is coming from.” (Baksa Test. 36:14).

\(^{30}\) Lebo, *Supra* note 19 at 20.

\(^{31}\) *Id.*
could be accused of lying if they taught students something that contradicted their faith.\textsuperscript{32}

As a result of the meeting with Bonsell, biology teacher Robert Linker, who had previous explained creationism as being based on “Bibles, religion, [and] Biblical writings,” and was therefore illegal to discuss in public schools, stopped mentioning creationism altogether as well as his use of Discovery Channel videos on evolution due to the controversy surrounding it. (Linker Test. 36:83). Linker also testified that Jen Miller even stopped having students create an evolution time-line, which highlighted the development of species over millions of years. (Linker Test. 36:86-87). The Board’s alleged secular purpose of promoting critical thinking and improving science education actually had the opposite effect of causing science teachers to rethink their teaching of evolution and omit anything controversial.

**The Search for a Textbook Teaching an Alternative to Evolution**

For the next few months, board members spoke privately about introducing creationism into science class, and rarely revealed their religious motives in public.\textsuperscript{33} Unhappy with current biology book, Buckingham, acting as the Chair of the Curriculum Committee, and Bonsell, an \textit{ex officio} member began to look at purchasing a new biology book.\textsuperscript{34}

The Discovery Institute, an organization that advocates for intelligent design, called Buckingham twice before June 2004. Buckingham said he was seeking legal advice

\textsuperscript{32} \textit{Id.} at 21; see also Miller testified Bonsell was concerned students might have the impression “somebody is lying,” should teachers tell them something that conflicted with what their parents presented at home. (12:111 (J. Miller)).

\textsuperscript{33} \textit{Id.}

\textsuperscript{34} \textit{Id.}
about teaching ID and gaps in Darwin’s theory from Seth Cooper, an attorney with the Discovery Institute. (Trial Tr. vol. 29, Buckingham Test., 133-143, Oct. 27, 2005).

Buckingham received a DVD from the Discovery Institute called, *Icons of Evolution*, in which Jonathon Wells criticized many aspects of evolutionary theory, including natural selection.\textsuperscript{35} He also received a video entitled, *Unlocking the Mystery of Life*, in which creationist Dean Kenyon makes the case for intelligent design. (Buckingham Test. 29:130-131). He gave both of these videos and a book he received from the Discovery Institute to Superintendent Nilsen to present to the science teachers. (Trial Tr. vol. 25, Nilsen Test., 100-01, Oct. 21, 2005; Baksa Test. 26:114-15). After teachers watched the *Icons of Evolution* video, late in the 2003-2004 school year, a presentation was made by lawyers from the Discovery Institute in an executive session of the Board. (Trial Tr. vol. 4, B. Rehm Test., 48-49, Sept. 27; Bonsell Test. 33:111-12). Even though the teachers watched the video “Icons of Evolution” and probably felt it would not be appropriate, they agreed to watch it again and try to use it in their classrooms in order to get Buckingham’s approval to purchase the biology textbook. (Baksa Test. 35:93-94).

**Discussion Over Textbook Goes Public**

Two public meetings were held in June 2004 to discuss the biology textbook. The Board had approved the funds for the purchase of a new biology textbook. At the June 7 meeting, Callahan asked when the ninth-grade students would receive the new biology textbooks.\textsuperscript{36} Buckingham said the Board refused to approve the purchase of the new textbook, *Biology* written by Kenneth Miller, because it was “laced with

\textsuperscript{35} Id.

\textsuperscript{36} Id. at 22.
Darwinism,\(^{37}\) despite being recommended by the faculty and administration. (Callahan Test. 3:130-31; Buckingham Test. 29:33). In his testimony, Buckingham admitted the Board had delayed the approval of *Biology* because it did not provide any alternatives to evolution. (Buckingham Test. 29:33-34). Callahan responded, “Great. So this is about evolution?”\(^{38}\)

Buckingham said they would look for a book that would have a balance between creationism and evolution. (Trial Tr. vol. 30, Bernhard-Bubb Test., 96, Oct. 27, 2005; Trial Tr. vol. 31, Maldonado Test., 59-60, Oct. 28, 2005). Bonsell added there were only two theories that could be taught, creationism and evolution, and as long as both were taught, the District would have no problem. (Trial Tr. vol. 6, Rehm Test., 65, Sept. 28, 2005). Buckingham supported the idea of a biology book that included creationism. (Brown Test. 8:60-61; Trial Tr. vol. 7, Carol Brown Test., 33, Sept. 29, 2005; Trial Tr. vol. 3, Aralene Callahan Test., 137-138, Sept. 27, 2005; 30:89-90, 105-06, 110-11 (Bernhard-Bubb); Maldonado Test. 31:60, 66).

Jeff Brown waited for Bonsell to point out that teaching creationism was inappropriate in science class, but instead Bonsell and Noel Wenrich supported it, arguing it was possible to teach creationism without it being religion.\(^{39}\) Nilsen stated the district was looking for a textbook that presented “all options and theories.” (Nilsen Test. 25:119-20). As to the issue of separation of church and state, Buckingham testified to having said it was a myth and not something, he supported. (Callahan Test. 3:141-42;

\(^{37}\) Id. see also (Baksa Test. 35:76-78; 24:45-46 (Nilsen); Callahan Test. 3:135-36; 4:51-52 (B. Rehm); 6:62-63 C. Rehm; 7:25-26 C. Brown)).

\(^{38}\) Id.

\(^{39}\) Id. at 23; see also (8:60 (J. Brown); 7:33 C. Brown); 30:89-90, 105-06, 110-11 (Bernhard-Bubb); 31:66 (Maldonado); Callahan Test. 3:137-38).
C. Brown Test. 7:32-33; 31: Maldonado Test. 66-67). Buckingham argued, “It is inexcusable to have a book that says man descended from apes with nothing to counterbalance it.” (Bernhard-Bubb Test. 30:77-78). After the meeting, Buckingham added: “This country wasn’t founded on Muslim beliefs or evolution. This country was founded on Christianity and our students should be taught as such.” (Maldonado Test. 31:63).

At the June 14, 2004 meeting, the elementary school cafeteria was filled with people concerned after what they read in the newspaper concerning the teaching of creationism. Buckingham began with an apology that quickly turned into a declaration, “nowhere in the Constitution does it call for a separation of church and state.” Buckingham’s wife, Charlotte, read from the book of Genesis, said “evolution teaches nothing but lies,” told people they needed to become “born again,” and asked, “How can we teach anything else?” (Rehm Test. 4:55-56; Rehm Test. 6:71; Brown Test. 7:34-35; Trial Tr. vol. 8, Frederick Callahan Test., 104-05, Sept. 29, 2005; J. Brown Test 8:63; Bernhard-Bubb Test. 30:107-08; Maldonado Test. 31:76-77; Bonsell Test. 33:37-43; Buckingham Test. 29:82-83; J. Miller Test. 12:125; Spahr Test. 13:84). Charlotte Buckingham acknowledged making the speech in her deposition which included the reading of scripture, and making the case for the teaching of Genesis in high school. (Buckingham Dep. at 19-22, April 15, 2005). During Buckingham’s speech, board members murmured “Amen.” (Brown Test. 7:35). Additionally, Bill Buckingham accused “liberals in black robes” of “taking away the rights of Christians” and asked people “2000

40 Id. at 24.

41 Id.
years ago someone died on a cross. Can’t someone take a stand for him?” (J. Miller Test. 12:126; Spahr Test. 13:85; Bernhard-Bubb Test 30:105-07; Maldonado Test. 31; 75-76, 78-79; Buckingham Test. 29:71; Baksa Test. 35:81-82; Rehm Test 6:73; B. Rehm 4:54-55; Trial Tr. vol. 6, Beth Eveland Test., 96, Sept. 28, 2005; Brown Test. 7:26-27; J. Brown Test. 8:63; F. Callahan 8:105-06). With all the inherently religious statements made, Casey Brown felt like her fellow board members were hosting a tent revival.42

**Curriculum Committee Meets Science Teachers to Discuss Biology Textbook**

The Board Curriculum Committee met in June 2004 to discuss Buckingham’s concerns about the textbook *Biology*. (J. Miller Test. 12:114-15; Baksa Test. 35:82) Bertha Spahr said teachers had recommended the textbook *Biology*, because it was “the least offensive book we could find,” and they were trying to be sensitive to creationist views.43 Much of the meeting surrounded Buckingham’s concern over “origins of life,” which Jen Miller insisted teachers did not address. (J. Miller Test. 12:118-120).

Baska gave attendees a survey of biology books used in private religious schools, a profile of a biology textbook used at Bob Jones University, and a document called “Beyond the Evolution vs. Creation Debate,” which discussed the differences between “Young Earth Creationism (Creation Science),” “Progressive Creationism (Old Earth Creation),” “Evolutionary Creation (Theistic Creation),” “Deistic Evolution (Theistic Evolution),” and “Dysteleological Evolution (Atheistic Evolution).” It is important to point

42 *Id.*

43 *Id.*
out, that the examples given for “Progressive Creationism” were the “Intelligent Design Movement, Phillip Johnson, Michael Behe.”

Therefore, the Board Curriculum Committee knew ID was considered a form of creationism as early as June 2004. Given the courtroom testimony, Judge Jones concluded that the Committee wanted to introduce creationism into the science classroom.

Buckingham insisted that the teachers agree that there would never be another mural depicting evolution in the classrooms, and in exchange, he would support the purchase of the biology textbook. (Baksa Test. 36:56-57).

**Buckingham Contacts the Thomas More Law Center**

Richard Thompson of the Thomas More Law Center (TMLC) was looking for an intelligent design case his law firm could argue before the U.S. Supreme Court. Whenever an evolution controversy started somewhere in the country, Robert Muise, an attorney with the law firm, would visit the school board and try to persuade the board to adopt intelligent design. Muise would assure school boards that intelligent design was not a religious concept, and that it was based on sound empirical evidence. Nevertheless, he assured schools; they would be sued and in exchange for their participation, the Thomas More Law Center would defend them for free. “We’ll be your shield against such attacks,” Muise told them.

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44 *Kitzmiller*, 400 F. Supp. 2d at 149.

45 Lebo, *Supra* note 19 at 27.

46 *Id.*

47 *Id.*

48 *Id.* at 28.
At some point after the June board meetings, Buckingham spoke with Richard Thompson, President and Chief Counsel for the Thomas More Law Center. (Buckingham Test. 30:10-12). The TMLC attorneys had read about Dover’s creationism debate and offered their assistance; Buckingham accepted on the Board's behalf.\textsuperscript{50} Thompson told Buckingham of a textbook called \textit{Of Pandas and People},\textsuperscript{51} which talked about a so-called “scientific” form of creationism called intelligent design that could be used in place of \textit{Biology} in the science classroom. (Buckingham Test. 29: 107-108; Buckingham Test. 30:10-12, 15-16).

**Buckingham Pushes for Pandas to be Adopted as a Supplement to Biology**

The July 2004 school board meeting saw a shift in Bonsell and Buckingham’s conversation about creationism to intelligent design. Joe Maldonado recalls, “a whole lot less Christian and a lot more scientific sounding. They were no longer talking about taking a stand for Jesus. It was about taking a stand for our children’s education.”\textsuperscript{53} Publicly the board members spoke of improving education and challenging children to think critically, but Jeff and Casey Brown remembered them speaking of leading a Christian revolution in executive sessions.\textsuperscript{54}

\textsuperscript{49} \textit{Id.}

\textsuperscript{50} \textit{Id.} at 29.


\textsuperscript{52} Lebo, \textit{Supra} note 19 at 30; see also (Baksa Test. 35:96-98) (Baksa stated someone mentioned “intelligent design.” It essentially replaced the word creationism used by Buckingham earlier that month).

\textsuperscript{53} \textit{Id.}

\textsuperscript{54} \textit{Id.} at 33.
A new edition of *Biology* by Kenneth Miller had been published in 2004, and the Board decided to postpone the decision of purchasing the new edition until July 12, 2004 so they could review the changes made in the 2004 edition. (J. Miller Test. 12:127; Spahr Test. 13:30).

Buckingham suggested adopting *Pandas* as a supplemental textbook to the 2004 edition of *Biology*. (Brown Test. 7:52-53; J. Brown Test. 8:64). Jeff Brown picked up *Of Pandas and People: The Central Question of Biological Origins*, which was written by creationists Percival Davis and Dean H. Kenyon and published by the Texas-based Foundation for Thought and Ethics, from Harkins'; she told him she wanted the District to purchase the book. (J. Brown Test. 8:65). Touted as the first pro-intelligent design textbook, it was released in 1989, two years after the Supreme Court's blow to creation science in *Edwards v. Aquillard*.55

At the August 2, 2004 meeting, Buckingham threatened to block the purchase of *Biology* unless the other board members agreed to buy *Pandas*.56 Initially the vote to purchase *Pandas* failed with eight members locked in a 4-4 tie. (J. Brown Test. 8:68; Buckingham Test. 29:105-06). However, after Buckingham stated he had lined up five votes in favor of *Pandas* and assured the other members he would lend his votes to approving the purchase of *Biology*, Yingling changed her vote so students would have their copies of *Biology* in time for the new school year. (J. Brown Test. 8:68-69). Buckingham testified to having said, “if he didn’t get his book, the district would not get the biology book.” (Buckingham Test. 29:106).

55 *Id.* at 33.

56 *Id.*
School District’s Attorney Warns of Lawsuit

Steve Russell, the district’s regular attorney, sent an e-mail on August 26, 2004 warning Dover officials of the mistake they were making in their religious pursuit.\textsuperscript{57} Russell told them that they had already spoken openly of their intentions to get God in science class.\textsuperscript{58} He told them that if they persisted with their intelligent design policy; they would most likely be sued and they would lose.\textsuperscript{59} Russell told Nilsen that he spoke to Richard Thompson of the TMLC and that “[t]hey refer to the creationism issue as ‘intelligent design.’”\textsuperscript{60} Even though the Board was aware of the e-mail, they chose to do nothing and this further suggests the Board knew ID was considered a form of creationism.\textsuperscript{61}

Teachers Use Pandas as a Reference

Buckingham wanted Pandas used along with the standard biology textbook, but Spahr felt that ID was essentially creationism and was concerned about using Pandas. (J. Miller Test. 12:135; Buckingham Test. 29:104-05). Nonetheless, the teachers allowed Pandas to be used as a reference text in the classroom. (Buckingham Test. 29:111; J. Miller Test. 12:136; Spahr Test. 13:88). According to Baska, this did not mean that the teachers supported having Pandas in the classroom, rather it was simply a compromise with the Board with the hope “maybe this will go away again,” as Jen Miller said. (Baksa Test. 35:120; J. Miller Test. 12:136).

\textsuperscript{57} Id. at 34.

\textsuperscript{58} Id.

\textsuperscript{59} Id.

\textsuperscript{60} Kitzmiller, 400 F. Supp. 2d at 70.

\textsuperscript{61} Lebo, Supra note 19 at 34.
Baksa told the court that he had researched *Pandas* on the Institute for Creation Research website, which states that *Pandas* “contains interpretations of classic evidences in harmony with the creation model.” (Baksa Test. 35:113-14). He testified that he knew this when he researched *Pandas*; however, his credibility came into question when on re-direct he contradicted his testimony by saying he had never read the webpage. (Baksa Test. 35:114-15).

**Sixty Copies of *Pandas* are Donated**

At the October 4, 2004 Board meeting, Superintendent Nilsen announced that an anonymous donor had donated sixty copies of *Pandas*.62 The public wanted to know where the books came from, but the donor would remain anonymous until the trial. (Buckingham Test. 30:47; Bonsell Test. 33:20). At trial it was revealed, that Buckingham had asked for donations to purchase the textbooks at his church, the Harmony Grove Community Church, and as a result he received $850. (Buckingham 30:38-40). A check in the amount of $850 indorsed to Donald Bonsell, Alan’s father, was drawn from Buckingham’s account with the notation “Of Pandas and People” written on the check. (Buckingham Test 30:46-47). Bonsell’s father purchased the books with the money he gave him. (Bonsell Test. 33:131-32). Bonsell and Buckingham went to great extents not to reveal the source of the donated books containing a creationist alternative to evolution including being untruthful at their January 3, 2005 depositions. When asked about this in court, Bonsell testified, “He [Donald Bonsell] agreed to—he said that he would take it, I guess, off the table or

62 *Id.* at 44.
whatever, because of seeing what was going on, and with Mrs. Callahan complaining at the Board meetings not using funds or whatever.” (Bonsell Test. 33:129).

Bertha Spahr found a catalogue as she unpacked her books, and *Pandas* was listed as “creation science.” (Spahr 13:94-5). This evidence along with Bonsell and Buckingham’s failed attempt to conceal the identity of the donor, further supports the belief that the Board was trying to hide the obvious religious intent behind the ID Policy.

**Board Curriculum Committee’s Proposed Curriculum Change**

The Board instructed Baksa in September 2004 to prepare a statement, which read: “Students will be made aware of gaps in Darwin’s theory and of other theories of evolution.” (Baksa Test. 35:122). Without the science teachers present, the Board Curriculum Committee met to discuss changing the biology curriculum on October 7, 2004. (Baksa Test. 35:124). The Board Curriculum Committee voted to adopt, Bonsell’s alternative: “Students will be made aware of gaps/problems in Darwin’s theory and of other theories of evolution, including but not limited to intelligent design.” (Baksa Test. 35:125). The Board Curriculum Committee also called for *Pandas* to be cited as a reference text. (Baksa 35:125). The proposed changes were passed 6-3 by the Board on October 18, 2004.

“The normal procedures were not followed at all in making this change.” (Brown Test. 7:79). Normally, curriculum changes were addressed a year before they were implemented, but the biology curriculum change took place during the 2004-05 school year in which it was effective. (Brown Test. 7:78-79). Standard practice required two meetings a month to be held; one for planning and the other for voting on items for consideration. However, in the case of the biology curriculum change it appeared and was voted on at the same meeting without the typical first meeting for consideration.
The District Curriculum Committee usually meet to discuss any proposed curriculum change, but the Board overruled Nilsen’s suggestion for such a meeting. (Brown Test. 7:72-73; Nilsen 26:8-10). Although the District Curriculum Committee was contacted and while one member requested a meeting and another opposed; there is nothing to suggest the Board acted upon the requests. (Brown Test. 7:80-82; Baksa Test. 35:7-8). Finally, the Board decide not to include the teachers in the process of drafting the curriculum change. (Brown Test. 7:82-83).

At trial, witnesses for the defense testified that the Board’s unorthodox procedures occurred in part because the topic had been discussed for six months prior to the vote and the Board was about to lose Wenrich and Cleaver, who had participated in those discussions. (Nilsen Test. 26:10-12; Bonsell 33:113-114). Although the record does not show any prior discussion of ID, it is worth noting that Buckingham wanted the Board to vote on October 18, 2004, because he felt he had enough votes to pass the resolution from the October 7, 2004 meeting. (Buckingham Test. 29:113-16).

Spahr and Miller openly objected to the curriculum change. (J. Miller Test. 13:41-42; Spahr Test. 13:88-93). In fact, Spahr went so far as to say the agreement to mention “flaws/problems with Darwin’s theory," the omission of the teaching of origins, and the use of Pandas as a reference text, were all compromises made with the Board Curriculum Committee in what was “a long and tiresome process.” (Spahr Test. 13:91-92). Spahr also testified that the decision was made without any input from teachers or the District Curriculum Committee, and no administrator or Board member disagreed with the change. (Spahr Test. 13:91-93; Baksa 35:126). Spahr concluded with a
warning telling the Board that ID was creationism and therefore could not legally be taught. (Nilsen Test. 24:102; Baksa Test. 35:14-15). Baksa added that the teachers neither supported Pandas nor the curriculum change, and only went along with it, so that the Board would purchase Biology. (Baksa Test 35:20-21, 119-20)

ID was not mentioned at the October 18, 2004 meeting nor was there any discussion on how ID would improve science education, and no justification was given by the Board for the change in curriculum. (Nilsen Test. 26:21; Baksa Test. 35:127-38; Brown Test. 8:36; J. Brown Test. 8:76; J. Miller Test. 12:139-40; Spahr Test. 13:102; Cleaver Test. 32:25-26, 40; Buckingham Test. 30:23-25; Trial Tr. vol. 31, Heather Geesey Test., 182-83, Oct. 28, 2005; Harkins Test. 34:124-26; Eveland Test. 6:105-06). Several Board members also testified that they did not understand the basis of the curriculum change, nor did they possess the background in science to evaluate ID sufficiently. (Geesey Test. 31:175, 181-82; Cleaver Test. 32:49-50; Harkins Test. 34:117-18, 124-25). For example, Geesey admitted, in her testimony, to not understanding the basis of the curriculum change and deferring to Bonsell and Buckingham on multiple occasions; however, she still voted in favor of it. (Geesey Test. 31:154-55, 161-62, 168, 181-82, 184-87, 190; Buckingham Test. 29:11-12; Buckingham Dep. 1:59-61, January 3, 2005; Harkins Test. 34:48-49; Bonsell Test. 33:112-13; Nilsen Test. 26:21). Buckingham even admitted, he had no way to telling whether ID was good science at his deposition, still he voted for the curriculum change. (Buckingham Test. 30:32-33). Not only did Cleaver not know what the letters “ID” stood for, she voted for the change based on Bonsell’s word despite objections from teachers like Spahr, who said Pandas was not a good science book. (Cleaver Test. 32:23-25, 45-46). What is
more, the Board never heard from any person, outside of the District science teachers, with scientific expertise before making the decision to change the curriculum. (Buckingham Test. 29:109). Not only did the Board ignore the testimony of its own District’s science teachers, they never even contacted the NAS, the AAAS, the National Science Teachers’ Association, the National Association of Biology Teachers, or any other scientific organization to find out more about ID before voting. (Bonsell Test. 33:113; Buckingham Test. 30:24-27). In fact, the only organizations consulted prior to the decision were the Discovery Institute and TMLC, which was for the purpose of soliciting legal advice. (Bonsell Test. 33:111-12; Buckingham Test. 29:130, 137-43, 30:10-14).

Despite the passage of the resolution, both Superintendent Nilsen and Assistant Superintendent Baksa opposed the curriculum change. (Baksa Test. 35:126). After voting against the proposed curriculum change, both Casey and Jeff Brown resigned. Wenrich resigned at the next meeting following the vote after previous attempts to postpone the decision and allow for the community to properly debate the issue had failed. It appears obvious that Bonsell and Buckingham, the main architects of the ID Policy, persuaded the other Board members to vote in favor of the curriculum change in spite of the opposition by science teachers and administration. (Geesey Test. 31:154-68).

On November 19, 2004, the School District issued a press release announcing that the District's new policy was to "treat intelligent design as a bona fide scientific theory competing with the scientific theory of evolution.\textsuperscript{63} The release went on to explain that

\textsuperscript{63} ACLU complaint, \textit{Supra} note 2 at 40.
an effort was being made to create a "balanced" science curriculum, and copies of *Pandas* would be made available for students. Furthermore, an explanatory statement would be read prior to teaching any chapters related to evolution.

**Disclaimer to be Read to Students**

After the vote, Baksa was asked to prepare a statement to be read to students in science classes before the unit on evolution. There were several revisions in the draft Baksa and science teacher Jen Miller wrote such as the removal of “dominant scientific theory,” from the description of Darwin’s theory, or the removal of the word “yet” from the statement “there are gaps in Darwin’s theory for which there is yet no evidence,” so instead the sentence read “there are gaps in Darwin’s theory for which there is no evidence.” (Baksa Test. 36:22-24, 26-28) Jen Miller even suggested that a “significant amount of evidence [supporting Darwin’s theory]” should be added to the statement; however, Baksa removed it fearing the Board would not approve it. (Baksa 36:24-26).

The final version read:

The Pennsylvania Academic Standards require students to learn about Darwin’s Theory of Evolution and eventually to take a standardized test of which evolution is a part.

Because Darwin’s Theory is a theory, it continues to be tested as new evidence is discovered. The Theory is not a fact. Gaps in the Theory exist for which there is no evidence. A theory is defined as a well-tested explanation that unifies a broad range of observations.

Intelligent Design is an explanation of the origin of life that differs from Darwin’s view. The reference book, *Of Pandas and People*, is available for students who might be interested in gaining an understanding of what Intelligent Design actually involves.

64 *Id.*

65 *Id.*
With respect to any theory, students are encouraged to keep an open mind. The school leaves the discussion of the Origins of Life to individual students and their families. As a Standards-driven district, class instruction focuses upon preparing students to achieve proficiency on Standards-based assessments.66

However, Dover High School science teachers refused to read the statement.67 They felt that reading the statement violated Pennsylvania's professional standards and practices code for teachers.68 The teachers sent a memo to the Board on January 6, 2005 asking that they be released from reading the statement to their classes. (Linker Test. 36:97).

The memo read as follows:

You have indicated that students may ‘opt-out’ of this portion [the statement read to students at the beginning of the biology evolution unit] of the class and that they will be excused and monitored by an administrator. We respectfully exercise our right to ‘opt-out’ of the statement portion of the class. We will relinquish the classroom to an administrator and we will monitor our own students. This request is based upon our considered opinion that reading the statement violates our responsibilities as professional educators as set forth in the Code of Professional Practice and Conduct for Educators.[]

INTELLIGENT DESIGN IS NOT SCIENCE
INTELLIGENT DESIGN IS NOT BIOLOGY
INTELLIGENT DESIGN IS NOT AN ACCEPTED SCIENTIFIC THEORY

I believe that if I as the classroom teacher read the required statement, my students will inevitably (and understandably) believe that Intelligent Design is a valid scientific theory, perhaps on par with the theory of evolution. That is not true. To refer the students to ‘Of Pandas and People’ as if it is a scientific resource breaches my ethical obligation to provide them with

66 Kitzmiller, 400 F. Supp. 2d at 124.


scientific knowledge that is supported by recognized scientific proof or theory.\textsuperscript{69}

Teachers felt that what they were being asked to do amounted to "teaching intelligent design, a theory that was inherently religious and not scientific."\textsuperscript{70} One teacher envisioned "the first question students will ask is, 'Well, who's the designer. Do you mean God?'"\textsuperscript{71}

As result of teachers’ unwillingness to read the statement, administrators were forced to read the statement to ninth graders in January 2005 and again in June 2005. (Nilsen Test. 25:56-57; Baksa Test. 35:38). The Board also sent out a newsletter to the Dover community in February 2005 with the help of the TMLC,\textsuperscript{72} and even invited Professor Behe to make a presentation on ID to the Dover citizens on April 23, 2005. (Joint Stip. of Fact ¶ 11).

\textbf{Plaintiff’s Argument}

The ACLU argued, on behalf of the plaintiff’s, that both the October 18, 2004 school board resolution and the November 19, 2004 press release “facially and as applied violate the Establishment Clause.”\textsuperscript{73} Instead of a secular purpose described by the defendants, the purpose of the policy is to “advance and endorse the specific religious viewpoint and beliefs encompassed by the assertion or argument of intelligent

\textsuperscript{69} Kitzmiller, 400 F. Supp. 2d at 121.

\textsuperscript{70} Neela Banerjee, An Alternative to Evolution Splits a Pennsylvania Town, N.Y. TIMES, Jan. 16, 2005, § 1 (citing a November 2004 CBS poll).

\textsuperscript{71} Id.

\textsuperscript{72} Id. at 127.

\textsuperscript{73} ACLU complaint, Supra note 2 at 50.
design." Moreover, the policy "conveys a governmental message that students should subscribe to the religious views reflected in the assertion or argument of intelligent design." The effect of this endorsement and promotion of religious views makes plaintiffs feel "harm, intimidated, and distressed." Finally, the result of the intelligent design policy is an "excessive entanglement of government and religion, coerced religious instruction, and an endorsement by the state of religion over non-religion and of one religious viewpoint over others." Additionally, the policy causes "excessive entanglement of government and religion because . . . the Dover Area School District will have to monitor the classroom behavior of its teachers to prevent them from identifying God as the 'intelligent agent' or 'designer' upon student questioning."  

The plaintiffs made a compelling argument as to the damage the Board's ID Policy caused to their children, families, and themselves. In their argument, the plaintiffs claimed that ID being an inherently religious concept interfered with their rights to teach their children about religion with its inclusion in the science curriculum. (Trial Tr. vol. 3, Tammy Kitzmiller Test., 118-19, Sept. 27, 2005; B. Callahan Test. 4:13-15; Rehm Test. 6:77-78; Eveland Test. 6:106; Trial Tr. vol. 16, Steven Stough Test., 26, 30, Oct. 14, 2005; Trial Tr. vol. 17, Joel Leib Test., 147-48, Oct. 14, 2005). Additionally the plaintiffs testified to conflict at home and within the community due to the actions of the Board.

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74 Id.
75 Id.
76 Id.
77 Id. at 52.
78 Id. at 52.
(Rehm Test. 6:77-78; Trial Tr. vol. 6, Julie Smith Test., 38-39, Sept. 28, 2005; Leib Test. 17:146-47).

Casey Brown also testified that, after voting against the curriculum change on October, 18, 2004, Buckingham called her an atheist and Bonsell told her she would go to hell. (C. Brown Test. 7:94-95; 8:32). Similarly, Angie Yingling felt coerced into voting for the curriculum change after being accused of being an atheist and un-Christian. (Trial Tr. vol. 15, Cynthia Sneath Test., 95-97, Oct. 12, 2005).

The Defendants’ Argument

The defendants essentially argued that intelligent design was a scientific theory, and therefore it was added it to the Dover High School biology curriculum to improve science education. The defense argued that because of its secular purpose, the court should discount evidence of board members' religious aims as being only a secondary or incidental religious purpose for the intelligent design policy. Ultimately, the court had to determine whether the Board's secular purposes were genuine. In doing so, the court followed the precedent established in Stone to determine if the School District's asserted secular purposes for altering the biology curriculum could be reconciled with the content of the policy adopted by the Board. This required determining what

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80 Id. see also Edwards v. Aguillard, 482 U.S. 578, 593-94 (1987)(referencing Stone which addressed the possibility of valid secular uses even for inherently religious Ten Commandments).


intelligent design is, what the Board members knew about it, and what they reasonably understood it to be.\textsuperscript{83}

Is Intelligent Design Science?

Since the 16\textsuperscript{th} and 17\textsuperscript{th} centuries, science has been limited to the search for natural causes to explain natural phenomena. (Trial Tr. vol. 9, John Haught Test., 19-22, Sept. 30, 2005; Trial Tr. vol. 5, Robert Pennock Test., 25-29, Sept. 28, 2005; Trial Tr. vol. 1, Kenneth Miller Test., 62, Sept. 26, 2005). Science is based on empirical evidence, which is testable, rather than succumbing to ecclesiastical authority or philosophical coherence to determine a scientific idea's worth. (Pennock Test. 5:28; Haught Test. 9:21-22; Miller Test. 1:63). Science avoids theological or "ultimate" explanations and does not look for the "meaning" and "purpose" in the world. (Haught Test. 9:21; Miller Test. 1:64, 87). Ultimately, supernatural explanations are not part of science not that they are without merit. (Miller Test. 3:103; Haught Test. 9:19-20). The scientific method requires testable, natural explanations about the natural world; philosophers sometimes refer to it as "methodological naturalism." (Pennock Test. 5:23, 29-30). Methodological naturalism requires scientists to find explanations based upon what we can observe, test, replicate, and verify. (Miller Test. 1:59-64, 2:41-43; Pennock Test. 5:8, 23-30).

The National Academy of Sciences (NAS), the "most prestigious" scientific association in the country, agrees that science is limited to empirical, observable and ultimately testable data: "Science is a particular way of knowing about the world. In science, explanations are restricted to those that can be inferred from the confirmable

\textsuperscript{83} Katskee, \textit{Supra} note 79 (Without asking whether intelligent design is science, the court would never have been able to conduct the proper analysis required under the effect and endorsement tests. For instance, if intelligent design were genuine science, as the School District was contending, one could argue that the effect of teaching it would be to enhance biology lessons rather than to advance religion).
data – the results obtained through observations and experiments that can be substantiated by other scientists. Anything that can be observed or measured is amenable to scientific investigation. Explanations that cannot be based upon empirical evidence are not part of science.\(84\) (Miller Test. 1:94, 160-61; Trial Tr. vol. 14, Brian Alters Test., 72, Oct. 12, 2005; Trial Tr. vol. 37, Scott Minnich Test., 31, Nov. 3, 2005). According to Dr. Miller’s testimony, not only are "natural" explanations essential to science, but also the attribution of unsolved problems to causes and forces that lie outside the natural world is a "science stopper," because once you attribute a cause to an untestable supernatural force, that cannot be disproven, there is no reason to continue seeking natural explanations. (Miller Test. 1:63, 3:14-15; Pennock Test. 5:29-31).

ID is based on supernatural causation instead of accepting or seeking a natural causation. (Trial Tr. vol. 17, Kevin Padian Test., 96, Oct. 12, 2005; Miller Test. 2:35-36; Alters Test. 14:62; Pennock Test. 5:107). Pandas further reinforces this by stating: “Darwinists object to the view of intelligent design because it does not give a natural cause explanation of how the various forms of life started in the first place. Intelligent design means that various forms of life began abruptly, through an intelligent agency, with their distinctive features already intact – fish with fins and scales, birds with feathers, beaks, and wings, etc.”\(85\) The expert witnesses’ own testimony does not refute that ID suggests animals did not evolve through natural means but were instead created by a supernatural designer. (Behe Test. 21:96-100 (“implausible that the designer is a

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\(84\) National Academy of Sciences, Teaching About Evolution and the Nature of Science, 27 (National Academy Press 1998).[hereinafter referred to as exhibit p-649].

\(85\) Davis & Kenyon, Supra note 51 at 99-100.
natural entity”\(^86\); Trial Tr. vol. 28, Steven Fuller Test., 21-22, Oct. 24, 2005 ("... ID’s rejection of naturalism and commitment to supernaturalism..."); Minnich Test. 38:95-96 (ID does not exclude the possibility of a supernatural designer, including deities).

Fuller admitted that ID requires science to "change the ground rules"\(^87\) and according to Behe broaden the definition of science to allow for ideas such as ID and astrology. (Fuller Test. 28:26; Behe Test. 21:37-42). Finally, defense expert Professor Minnich stated that for ID to be considered science, the ground rules of science have to be broadened to allow for supernatural forces. (Minnich Test. 38:97).

The intelligent design movement agrees the rules must change for ID to prosper. One such member of the movement, William Dembski, even argues that the rules must be overturned instead of science being ruled by methodological naturalism. (Pennock Test. 5:32-37) Dembski states, "Indeed, entire fields of inquiry, including especially in the human sciences, will need to be rethought from the ground up in terms of intelligent design."\(^88\)

The Discovery Institute, a home for the ID movement whose Center for the Renewal of Science and Culture (CRSC) developed the Wedge Document, even states as "Governing Goals" to "defeat scientific materialism and its destructive moral, cultural and political legacies" and "replace materialistic explanations with the theistic

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\(^{87}\) It is worth noting, that in both *Edwards* and *McLean*, the Supreme Court viewed such changes to the rules of science to allow for supernatural causation as inherently religious. *Edwards v. Aguillard*, 482 U.S. at 591-92; *McLean v. Arkansas Board of Education*, 529 F. Supp. at 1267.

understanding that nature and human beings are created by God." The Wedge Document also states in its "Five Year Strategic Plan Summary" that the movement’s goal is to replace science as currently practiced with "theistic and Christian science."

Furthermore, it is worth noting, that every major scientific association has concluded that ID is not science. (Miller Test. 1:98-99; Alters Test. 14:75-78; Minnich Test. 37:25). The NAS had this to say about ID:

Creationism, intelligent design, and other claims of supernatural intervention in the origin of life or of species are not science because they are not testable by the methods of science. These claims subordinate observed data to statements based on authority, revelation, or religious belief. Documentation offered in support of these claims is typically limited to the special publications of their advocates. These publications do not offer hypotheses subject to change in light of new data, new interpretations, or demonstration of error. This contrasts with science, where any hypothesis or theory always remains subject to the possibility of rejection or modification in the light of new knowledge.

The American Association for the Advancement of Science (AAAS), the largest organization of scientists in this country, added the ID movement "has not proposed a scientific means of testing its claims" and that "the lack of scientific warrant for so-called 'intelligent design theory' makes it improper to include as part of science education."

Again, it is worth noting, that not one expert witness could identify one major scientific

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89 See also the Discovery Institute's "Wedge Document," which outlines ID's strategy for replacing science in its current form with a theistic form of science (i.e., ID)). Johnson uses the example of a wedge splitting a log as analogous to intelligent design liberate science from "atheistic naturalism." http://www.antievolution.org/features/wedge.html [hereinafter referred to as Exhibit p-140].

90 Id. at 4.


association, society or organization that endorsed ID as science. Defense experts were forced to concede that ID is at best “fringe science” which has gained no acceptance in the scientific community. (Behe Test. 21:37-38; Fuller Dep. at 98-101, June 21, 2005; Fuller Test. 28:47; Minnich Dep. at 89, May 26, 2005).

It is clear that ID fails to achieve the essential ground rules limiting science to testable, natural explanations. (Miller Test. 3:101-03; Alters Test. 14:62). After all, science cannot be defined differently for Dover students than for the general scientific community as a whole.

ID is based upon a false dichotomy,\(^{93}\) that being if evolutionary theory is invalid, ID is valid. (Pennock Test. 5:41). ID proponents support design by trying to negate evolution, for example Behe’s argues that "irreducibly complex" systems cannot be produced through Darwinian, or any natural, mechanisms. (Pennock Test. 5:38-41; Miller Test. 1:39, 2:15, 2:35-37, 3:96; Padian Test. 16:72-73; Forrest Test. 10:148). Here again, this argument is built upon a false dichotomy, that arguments against evolution are not arguments for design. Furthermore, experts testified that just because scientists cannot explain today how biological systems evolved does not mean that they cannot, and will not, be able to explain in the future. (Miller Test. 2:36-37). Dr. Miller also noted that just because scientists cannot explain every evolutionary detail, it does not undermine the validity of evolution as a scientific theory, as no theory in science is fully understood. (Miller Test. 3:102).

\[^{93}\text{This is not a new argument. The term "contrived dualism" was used in McLean, by creationists in the 1980's to support "creation science." The court realized the "fallacious pedagogy of the two model approach" then and that "[i]n efforts to establish ‘evidence’ in support of creation science, the defendants relied upon the same false premise as the two model approach . . . all evidence which criticized evolutionary theory was proof in support of creation science." McLean, 529 F. Supp. at 1267, 1269.}\]
As Minnich points out, irreducible complexity "is not a test of intelligent design; it's a test of evolution." (Miller Test. 2:15; Minnich 38:82) Professor Behe says a precursor "missing a part is by definition nonfunctional," but what he really means is that it will not function in the same way as when all the parts are present. For example, if any part is removed from the bacterial flagellum it may stop acting as a rotary motor, but what Behe fails to include is that the flagellum may function in some other way, for example as a secretory system. (Behe 19:88-95). In nature, exaptation offers an explanation as to how systems with multiple parts can evolve through natural means. Exaptation means that a subject system had a different, selectable function prior to experiencing a change or addition that resulted in its present function (Padian Test. 16:146-48). Dr. Padian cited the mammalian middle ear bones, which evolved from jawbones as an example. (Padian Test. 17:6-17). What is more, the NAS has rejected Professor Behe's claim of irreducible complexity by stating:

[S]tructures and processes that are claimed to be 'irreducibly' complex typically are not on closer inspection. For example, it is incorrect to assume that a complex structure or biochemical process can function only if all its components are present and functioning as we see them today. Complex biochemical systems can be built up from simpler systems through natural selection. Thus, the 'history' of a protein can be traced through simpler organisms . . . The evolution of complex molecular systems can occur in several ways. Natural selection can bring together parts of a system for one function at one time and then, at a later time, recombine those parts with other systems of components to produce a system that has a different function. Genes can be duplicated, altered, and then amplified through natural selection. The complex biochemical cascade resulting in blood clotting has been explained in this fashion.94

Unlike ID, irreducible complexity is refutable and can be tested by showing that there are functioning intermediate structures that could have evolved into irreducibly complex

94 Exhibit p-192, Supra note 91 at 22.
systems. (Miller Test. 2:15-16). It is important to make clear, that even though irreducible complexity is testable that does not mean ID is testable. (Miller Test. 2:15; Pennock Test. 5:39). The examples of irreducible complexity Professor Behe uses include: (1) the bacterial flagellum; (2) the blood-clotting cascade; and (3) the immune system. In each case, Dr. Miller was able to present evidence, based upon peer-reviewed studies, that they are not in fact irreducibly complex.95

To offer a valid hypothesis as to the origin of the bacterial flagellum, Dr. Miller referred to peer-reviewed studies indentifying a possible precursor to the bacterial flagellum called a Type-III Secretory System. (Miller Test. 2:8-20). Professor Minnich, an expert for the defense, did not refute Miller’s testimony rather he admitted, "we're looking at the function of these systems and how they could have been derived one from the other. And it's a legitimate scientific inquiry." (Minnich Test. 38:12-16). Importantly, none of the research involves ID. (Minnich Test. 38:12-16).

As far as the blood-clotting cascade, Dr. Miller pointed out that scientists have known the blood-clotting casade was not irreducibly complex as far back as 1969 when peer-reviewed studies showed that dolphins' and whales' blood clots despite missing a part of the cascade, this that was later confirmed by molecular testing in 1998.96 (Miller Test. 1:122-29). Studies that are more recent show that in puffer fish, blood clots despite the cascade missing not only one, but three parts. (Miller Test. 1:128-29). Other scientists have refuted Behe’s assertion in peer-reviewed journals maybe that is why

96 Umeko Semba et. al., Whale Hageman Factor (Factor XII): Prevented Production Due to Pseudogene Conversion, 90, 31-37, Thromb Res. (1998).
Behe redefined the blood-clotting system so as to avoid peer-reviewed scientific evidence that falsifies his argument as was revealed upon cross-examination. (Behe Test. 20:26-28, 22:112-25).

Professor Behe wrote, in *Darwin’s Black Box*, that there were no natural explanations for the immune system, and that it was impossible for it to originate through natural causes. (Miller 2:26-27). Dr. Miller produced various peer-reviewed studies taken from between 1996 and 2002 which refuted Behe’s claim of irreducible complexity and supported an evolutionary hypothesis for the origin of the immune system. (Miller Test. 2:31). Even upon cross-examination, when he was presented with 58 peer-reviewed publications, 9 textbooks, and several chapters involving the evolution of the immune system, Behe stood by his 1996 claim, that there would never be an evolutionary explanation for the immune system, stating there still is not sufficient evidence of evolution, and that it was not “good enough.” (Behe Test. 23:19). Judge Jones found this to be an unreasonable burden of proof for the theory of evolution.

Furthermore, Judge Jones found that there was sufficient evidence in peer-reviewed papers to refute Behe’s claim for irreducible complexity not to mention its rejection by the scientific community at large. (Padian Test. 17:45-46; Miller Test. 3:99). Nonetheless, even if irreducible complexity was not rejected, it still does not support ID after all it is merely a test for evolution, not design. (Miller Test. 2:15, 2:35-40; Fuller Test. 28:63-66).

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Professors Behe and Minnich testified that design can be inferred in nature, when one sees the “purposeful arrangement of parts.” They maintained that their confidence in design is quantitative and it grows stronger with more parts interacting in an intricate arrangement. Furthermore, they said the examples of design in biology are overwhelming. What is more, nothing other than an intelligent cause has been shown to yield the design seen in life. (Behe Test. 18:90-91, 109-10; Minnich 37:50). Behe and Minnich’s argument is essentially Reverend William Paley’s argument sans the identity of the designer. (Miller Test. 1:6- 7; Minnich Test. 38:44, 57). This inductive argument is not scientific according to Miller. (Miller Test. 2:40 (Miller); 3:99).

The inference about the “purposeful arrangement of parts” is based upon human examples of design such as the design of human artifacts and objects and according to Behe it can be used to determine biological design. (Behe 18:116-17, 23:50). However, human artifacts are non-replicable; they do not undergo genetic recombination, are not driven by natural selection, and do not live or reproduce over time. (Miller 1:131-33; Behe Test. 23:57-59). What is more, with human artifacts, we know the designer’s identity and the mechanism of design, since we have seen that humans can make such things. (Miller Test. 1:131-33; Behe Test. 23:63; Pennock Test. 5:55- 58). While Professors Behe and Minnich conceded that in the case of human artifacts and objects, we know the identity and capacities of the human designer, but he insisted we do not know the attributes for the designer of biological life. (Minnich Test. 38:44-47, Behe Test. 23:61-73). In response to all these examples of incongruence, all Professor Behe’s could say was that inference still works in science fiction movies. (Behe Test. 23:73).
The only similarity Judge Jones saw between biological systems and human artifacts is their complex appearance, i.e. if it looks complex or designed, it must have been designed. (Behe Test. 23:73). In spite of the assertion that there is a quantitative aspect to the inference, on cross-examination Behe and Minnich admitted there is no quantitative criteria for determining the degree of complexity or number of parts other than a natural process. (Behe Test. 23:50; Minnich Test. 38:59).

Since science requires testable hypotheses based upon natural explanations, the positive argument for ID is not considered science, because it is dependent upon forces acting outside of the natural world, that we cannot see, replicate, control or test. (Miller Test. 3:101-03). It is not to say that such forces do not exist, simply that they are not testable by scientific means and therefore do not qualify as science. (Miller Test. 3:101-02).

Most notable about ID is the complete absence of peer-reviewed publications supporting the theory. Miller notes peer-review is a way for scientists to share their empirical research with other experts in the field, subjecting their hypotheses to study, testing, and criticism. (Miller 1:66-69). Furthermore, peer review helps to ensure that research papers are scientifically accurate. (Miller Test. 1:39-40). The process involves the submission of a manuscript to a scientific journal in the field, where journal editors then solicit other experts in the field to write critical reviews determining whether the scientist followed proper research procedures, used up-to-date methods, considered and cited relevant literature and basically used sound science.

According to Drs. Padian and Forrest, recent literature reviews of scientific and medical-electronic databases turned up no studies supporting a biological concept of ID.
(Padian Test. 17:42-43; Forrest Test. 11:32-33). Even Professor Behe admitted on cross-examination that: "There are no peer reviewed articles by anyone advocating for intelligent design supported by pertinent experiments or calculations which provide detailed rigorous accounts of how intelligent design of any biological system occurred." (Behe Test. 22:22-23). What is more, Behe admitted that there are no peer-reviewed papers supporting his claims that the bacterial flagellum, the blood-clotting cascade, and the immune system were intelligently designed. (Behe Test. 21:61-62 (complex molecular systems), Behe Test. 23:4-5 (immune system), and Behe Test. 22:124-25 (blood-clotting cascade). Nor are there any peer-reviewed articles supporting Professor Behe's argument of “irreducible complexity.”98 (Behe Test. 21:62, 22:124-25). Additionally ID lacks scientific research and testing. (Fuller Test. 28:114-15; Behe Test. 18:22-23, 105-06).

In Judge Jones opinion, ID has no place in a science curriculum. Moreover, the ID movement has tried to avoid the scientific scrutiny by encouraging schools to “teach the controversy” [involving evolution] rather than ID itself.99 However, this seems like a ploy to supplant evolutionary theory with ID. More importantly, Judge Jones felt that a reasonable, objective observer would determine, after reviewing the record in the case and the narrative, ID to be a theological argument not science.100

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98 Michael Behe and Minnich, Simulating Evolution by Gene Duplication of Protein Features that Require Multiple Amino Acid Residues, 13, 2651-2664, Protein Sci. (2004).[hereinafter referred to as Exhibit p-721](The one article referenced by Behe and Minnich does not mention either irreducible complexity or ID. Furthermore, Behe conceded that study did not rule out evolutionary mechanisms and might even support them if a biologically realistic population size were used. (Behe Test. 22:41-45)).


100 Id.
Judge Jones found ID is not science based on three different criteria: (1) ID violates the centuries-old ground rules of science by invoking and permitting supernatural causation; (2) the argument of irreducible complexity contains the same flawed and illogical contrived dualism that doomed creation science in the 1980's; and (3) ID's negative attacks on evolution have been refuted by the scientific community. What is more, ID is not science because it has failed to publish in peer-reviewed journals, engage in research and testing, and gain acceptance in the scientific community.\textsuperscript{101}

It was important for the court to ask whether intelligent design is science, because otherwise it would have entirely ignored the School District's proffered defenses for its curriculum change under the purpose, effect, and endorsement tests, all of which were premised on the claim that intelligent design is a genuine scientific theory.\textsuperscript{102} Without a thorough examination by the court of the defendants' claims and a reasoned explanation why they were inadequate under the Establishment Clause, the Dover school board could have claimed that the court never took it, or its arguments, seriously and thus they were not afforded due process.\textsuperscript{103} This would make the court an illegitimate arbiter for the dispute having not provided the defendants with a full and fair hearing.\textsuperscript{104} However, this was not the case and after a six-week trial during which the


\textsuperscript{102} Katskee, Supra note 79 at 123.

\textsuperscript{103} Id.

\textsuperscript{104} Id.
court allowed both sides to present all their evidence, a 139-page opinion\textsuperscript{105} was produced, by Judge Jones, addressing every argument that the Board members, their expert witnesses, and their attorneys had to offer.\textsuperscript{106}

**Judge Jones’ Opinion**

Based on the evidence presented in the case, Judge Jones found that despite the stated secular purpose of the Board, to improve science education and exercise critical thinking skills; the curriculum change amounted to nothing more than a sham.\textsuperscript{107} Judge Jones noted that while the Court has asked courts to be “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.”\textsuperscript{108} To support his argument, Judge Jones noted that the Board contacted no scientists or scientific organizations, nor did they consider the opinions of the science teachers. Instead, the Board relied on the legal advice of two inherently religious organizations, the Discovery Institute and the TMLC. What is even more damaging to the defendants’ argument, of improving the science curriculum, is that most if not all of the Board members, who voted for the curriculum change, have no idea what ID precisely is.

The court enjoined the policy’s implementation finding that the ID policy violated the Establishment Clause.\textsuperscript{109} Judge Jones chose to adopt a "belt and suspenders"\textsuperscript{110}

\begin{footnotes}
\item[106] Katskee, Supra note 79 at 123.
\item[107] Kitzmiller, 400 F. Supp. 2d at 762-63.
\item[108] Edwards, 482 U.S. at 586-87 (citing Wallace, 472 U.S. at 64)(Powell, J., concurring); Id. at 75 (O’Connor, J., concurring in judgement).
\item[109] Kitzmiller, 400 F. Supp. 2d at 766. (The court also noted that the policy violated the freedom of worship provision of the Pennsylvania Constitution, Pa. Const. art. 1, 3.).
\end{footnotes}
approach, allowing him to use both the endorsement test, which prevents government acts from showing preference for religion or a particular religious belief, and the Lemon test which forbids government-sponsored messages lacking a secular purpose, having a primary effect of advancing or inhibiting religion, or creating an excessive entanglement of the government with religion.

Through the endorsement test, the court examined whether an objective observer would know that intelligent design and the “teaching about gaps in evolutionary theory” are strategies endorsing a religious viewpoint. The similarity between ID and creationism plus the "long history of Fundamentalism's attack on the scientific theory of evolution" revealed the true religious nature of ID. The court determined that a reasonable observer would realize intelligent design was essentially religious viewpoint after hearing the history of the ID movement. Then the court looked at whether an objective student would view the Dover School Board’s disclaimer as an official endorsement of religion. The court determined that an objective student would find that the disclaimer wrongly singled out the theory of evolution, presented an alternative to evolution that was religious in nature, and encouraged students to read the intelligent

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110 Kitzmiller, 400 F. Supp. 2d at 714 n.4.

111 Id. at 714 (citing Lynch v. Donnelly, 465 U.S. 668, 690 (1984) (O'Connor, J., concurring)).


113 Kitzmiller, 400 F. Supp. 2d at 746 (citing Lemon, 403 U.S. at 612-13).

114 Id. at 714-23.

115 Id. at 717.

116 Id. at 718.

117 Id. at 22.

118 Id. at 723-29.
design text. Based on this the court felt the disclaimer would be construed as an official endorsement of religion to an objective student. Lastly, the court asked whether an objective citizen of Dover would think the disclaimer was an endorsement of religion. Based on the plethora of letters and editorials to the local newspapers and the community’s reaction to school board meetings in which creationism was discussed, the court determined that an objective citizen of Dover would view the disclaimer as an endorsement of religion. Therefore, it was obvious to Judge Jones, that the ID policy met the endorsement test by conveying a religious viewpoint to both the high school students who heard the disclaimer and also with parents who received a newsletter describing the board’s plan.

When applying the purpose prong of the Lemon Test, Judge Jones found through the testimony pertaining to the legislative history behind the disclaimer the defendants' clear intention was to advance religion. This was evident based on various Board members’ public support for the teaching creationism, along with their criticism for evolution on religious grounds.

The court found that intelligent design is not science because it is based on supernatural causation, not accepted by the scientific community, nor supported by

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119 Id.
120 Id. at 724.
121 Id. at 729-735.
122 Id. at 734
123 Id. at 724, 729-34.
124 Id. at 747.
125 Id. at 751.
peer-reviewed research, or any research or testing of its own.\textsuperscript{126} Therefore, under the effects prong, Judge Jones found that "since ID is not science ... the only real effect of the ID Policy is the advancement of religion."\textsuperscript{127}

**Significance of the Case**

Regardless of the fact that the *Kitzmiller* ruling was never appealed to a higher court and is not binding precedent outside of the parties directly involved in the lawsuit, its outcome can serve as a warning that litigation may not be worth the time and money.\textsuperscript{128} Of its importance in judicial review, the court stated:

> [T]he Court is confident that no other tribunal in the United States is in a better position than are we to tramp into this controversial area. Finally, we will offer our conclusion on whether ID is science not just because it is essential to our holding that an Establishment Clause violation has occurred in this case, but also in the hope that it may prevent the obvious waste of judicial and other resources which would be occasioned by a subsequent trial involving the precise question which is before us.\textsuperscript{129}

Judge Jones’ “fervent hope” was that his opinion "could serve as a primer for school boards and other people who were considering this [issue]"\textsuperscript{130} and he added that he wished to prevent such "litigation [being] replicated someplace else."\textsuperscript{131} It was Judge Jones’ intention that his ruling would influence outcomes of other school boards:

\textsuperscript{126} *Id.* at 735; see also Laurie Goodstein, Intelligent Design Might be Meeting its Maker, N.Y. Times, Dec. 4, 2005, at 1, 4.

\textsuperscript{127} *Id.* at 764.

\textsuperscript{128} Jodi Rudoren, *Ohio Expected to Rein in Class Linked to Intelligent Design*, N.Y. TIMES, Feb. 14, 2006, at A12 (describing a reversal in Ohio as "signaling a sea change across the country against intelligent design"). The article also describes events in California, Indiana, and Wisconsin in reaction to the *Kitzmiller* ruling. *Id.* See also Laurie Goodstein, *Schools Nationwide Study Impact of Evolution Ruling*, N.Y. TIMES, Dec. 22, 2005, at A20.

\textsuperscript{129} *Kitzmiller*, 400 F. Supp. 2d at 735.


I wrote the opinion in a comprehensive way because I knew that the dispute was possibly going to be replicated someplace else. And what I wanted to do was make the opinion sort of a primer that people could read. . . . I thought that if other school boards and other boards of education could read it, they would possibly be more enlightened about what the dispute was all about.\footnote{NewsHour: Documentary Explores Key Case on ‘Intelligent Design’ (PBS television broadcast Nov. 13, 2007) (transcript available at http://www.pbs.org/newshour/bb/education/july-dec07/evolution_11-13.html) (quoting Judge John E. Jones III).}

Kitzmiller shows that the debate over intelligent design has spread to the board rooms of public schools, and has affected communities that they serve.\footnote{Lisa Anderson, \textit{Darwin’s Theory Evolves into Culture War: Kansas Curriculum Is Focal Point of Wider Struggle Across Nation}, Chi. Trib., May 22, 2005, 1, at 1 (reporting that in the first few months of 2005, “the issue of evolution has sparked at least 21 instances of controversy on the local and/or state level in at least 18 states”).} Additional litigation seems inevitable as government agencies debate the issues raised by intelligent design. Although it can be argued that Kitzmiller did not involve the actual teaching of intelligent design, future cases surely will.\footnote{For example, a lawsuit challenging the teaching of intelligent design in California public schools was filed on January 11, 2006. Complaint, Hurst v. Newman, No. 06-00012 (E.D. Cal. filed Jan. 11, 2006), available at http://ncse.com/creationism/legal/hurst-v-newman-2006; see also Henry Weinstein, 1st Suit in State to Attack “Intelligent Design” Filed, L.A. Times, Jan. 11, 2006, at A1. The parties settled the case six days after the complaint was filed, however, and the California school dropped the class as a result of the settlement. See Ann Simmons, \textit{In Lebec, “Intelligent Design” Class Is History}, L.A. Times, Jan. 18, 2006, at B1.} However, for now the only case to explore the constitutionality of intelligent design, thus far, is the \textit{Kitzmiller v. Dover}.\footnote{Kitzmiller v. Dover Area School District, 400 F. Supp. 2d 707, 712 (2005).}
CHAPTER 5
SUMMARY, CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

The primary units of analysis for this study were investigations of the constitutionality of teaching intelligent design in public schools in the case law. Additionally, scholarly commentary concerning intelligent design and its history was used as a source of analysis. The literature review of this study provided a basis from which to interpret intelligent design and the intelligent design movement as well as past establishment clause jurisprudence.

On September 26, 2005, a federal district court in Pennsylvania became the first in the nation to assess the constitutionality of teaching intelligent design in public schools. The district court applied a “belt and suspenders” approach utilizing both the endorsement test, and the test established in *Lemon v. Kurtzman*, which forbids government-sponsored messages that lack a secular purpose, have a primary effect of advancing or inhibiting religion, or create an excessive entanglement of the government with religion. Despite the prevalent use of these tests, the Supreme Court has yet to pronounce an unambiguous, uniform Establishment Clause test that is malleable enough to consistently be applied to diverse factual situations. In the interim, the *Kitzmiller* opinion shows that existing tools can serve us well if properly used.

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4 *Kitzmiller*, 400 F. Supp. 2d at 746 (citing Lemon, 403 U.S. at 612-13).

Considerable attention was focused on *Kitzmiller v. Dover*\(^6\) because everyone knew other communities would look to the court's decision to determine whether they might lawfully follow the path set by the Dover Area School District. The Thomas More Law Center, which provided legal counsel for the defendants in *Kitzmiller*, viewed the case as a culture war, in which it became necessary to defend the religious freedom of Christians.\(^7\) The impact of Christianity on the teaching of evolution can be seen throughout the country,\(^8\) not to mention its longstanding history in legal litigation.

Furthermore, Barbara Forrest testified, in *Kitzmiller*, about a Discovery Institute statement called the Wedge Document, which "outlines the ID movement's plan to promote mainstream acceptance of ID creationism and, subsequently, the teaching of ID in public school science classes."\(^9\) The Discovery Institute is a Seattle-based think tank that promotes the writings of intelligent design proponents.\(^10\) When speaking

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\(^{6}\) *Kitzmiller*, 400 F. Supp. 2d at 746.


\(^{8}\) Jodi Wilgoren, *Kansas Board Approves Challenges to Evolution*, N.Y. TIMES, Nov. 9, 2005, at 14. (In Kansas, new science standards redefine science to include supernatural explanations; the standards in Minnesota, New Mexico, and Pennsylvania require "critical analysis" of evolution.) See also Edward J. Larson, *Trial and Error: The American Controversy Over Creation and Evolution* 203 (3d ed. 2003) (quoting a news broadcast describing the "ridicule" that Kansas's new standard promoted from non-Fundamentalists). (A school district in Georgia attached stickers to the front of biology books that read much like the Board's statement in *Kitzmiller*.)


\(^{10}\) The CSC website defines itself as follows: "The Center for Science and Culture is a Discovery Institute program that encourages schools to improve science education by teaching students more fully about the theory of evolution, as well as supporting the work of scholars who challenge various aspects of neo-Darwinian theory and scholars who are working on the scientific theory known as intelligent design." The Discovery Institute, Top Questions, available at http://www.discovery.org/csc/topQuestions.php (last visited Sept. 20, 2010).
amongst each other, to potential donors, and or to sympathetic audiences, such as the Dover school board, movement leaders acknowledge that intelligent design (ID) is nothing more than a strain of Christian religious doctrine translated into scientific-sounding terminology.\(^{11}\)

The question of whether ID is science was essential to Judge Jones’ decision in *Kitzmiller*. If ID is a legitimate scientific theory, as the defendants in *Kitzmiller* claimed, it might well have belonged in the science curriculum. What is more, the religious motives of the Dover board members who adopted the ID policy become irrelevant, as do the religious beliefs of ID proponents. That is why, when the Discovery Institute markets intelligent design, to school officials concerned about the legality, or to the general public, the movement's leaders vehemently deny the religious connection, and instead claim that they are presenting a thoroughly secular, scientific alternative to evolution.\(^{12}\) After all, if they were to admit that intelligent design is simply a sectarian

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\(^{11}\) Phillip E. Johnson, Third-Party Science, 2 Books & Culture, May-June 1996, at 30, republished as Phillip E. Johnson, Starting a Conversation About Evolution, at http://www.arn.org/docs/johnson/ratzsch.htm (Aug. 31, 2006) (Phillip Johnson describes intelligent design as "theistic realism," which he in turn defines as meaning "that we affirm that God is objectively real as Creator, and that the reality of God is tangibly recorded in evidence accessible to science, particularly in biology."); Discovery Institute Center for Renewal of Science and Culture, The Wedge, 53, at http://www.seattleweekly.com/news/0605/discovery-wedge.php#intro ("the foundational belief behind the intelligent design movement and the reason that [the movement has] rejected the theory of evolution" is the movement's adherence to "the proposition that human beings are created in the image of God [as] one of the bedrock principles on which western civilization was built."); William A. Dembski, Signs of Intelligence: A Primer on the Discernment of Intelligent Design, Touchstone, July-Aug. 1999, at 76, 84 (Dembski claims "intelligent design is just the Logos theology of John's Gospel restated in the idiom of information theory.")

motive masquerading as science; intelligent design would face the same fate that befell creation science after Edwards v. Aguillard.\textsuperscript{13}

In the end, the Kitzmiller court ruled in favor of the plaintiffs and permanently enjoined the Dover School Board from pursuing the ID policy.\textsuperscript{14} However, perhaps more significantly, Judge Jones ruled, "ID is a religious view, a mere re-labeling of creationism, and not a scientific theory."\textsuperscript{15} Jones justified why he felt it "incumbent upon the Court"\textsuperscript{16} to ask "whether ID is science"\textsuperscript{17} and why it was "essential to [the court's] holding that an Establishment Clause violation has occurred in this case"\textsuperscript{18} in terms of "preventing the obvious waste of judicial and other resources which would be occasioned by a subsequent trial involving the precise question which is before us."\textsuperscript{19}

Kitzmiller's analysis caused irreparable damage to the ID movement's chances of constitutionally teaching ID in public schools. Even though Kitzmiller may have ruined any hopes of ID supplanting or rivaling evolution in the nation's public schools, it will definitely not be the end of the ID movement. Nevertheless, the court in Kitzmiller created a thorough and logical roadmap ensuing courts will have difficulty resisting.


\textsuperscript{14} Kitzmiller, 400 F. Supp. 2d at 766.

\textsuperscript{15} Id. at 707, 726.

\textsuperscript{16} Id. at 734.

\textsuperscript{17} Id. at 735.

\textsuperscript{18} Id.

\textsuperscript{19} Id.
Summary

This study looked at the Establishment Clause jurisprudence, and specifically examined the *Kitzmiller v. Dover* decision. First, the study examined the relevant Supreme Court Establishment Clause cases leading up to the *Kitzmiller* decision. Second, this research examined the storied history of the Intelligent Design movement through a detailed literature review. Third, the study examined the pivotal case of *Kitzmiller v. Dover*, which was the first case to address the teaching of Intelligent Design in public schools. Finally, this study provided recommendations for ways to introduce Intelligent Design into the public school system without violating the Establishment Clause.

Conclusions

Intelligent Design (ID) proponents have argued for the inclusion of Intelligent Design in public school science curricula stating that it offers a valid secular criticism of the existing scientific dogma, thereby satisfying *Lemon's second prong.* However, the addition of Intelligent Design to the science curricula "implicitly legitimates a clearly religious belief." The literature shows that Intelligent Design is nothing more than a "repackaging" of creationism. Critics have pointed out flaws in Intelligent Design’s foundational arguments such as the explanatory filter, complex specified information,

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and irreducible complexity.\textsuperscript{23} Although proponents of Intelligent Design have produced a plethora of self-published literature,\textsuperscript{24} there is a general lack of peer-reviewed journals in science supporting Intelligent Design.\textsuperscript{25} The mere fact that Intelligent Design posits a “supernatural creator” alone eliminates it from scientific discussion and implies a religious connotation.\textsuperscript{26}

The federal court in the middle district court of Pennsylvania ruled that Intelligent Design was a violation of the Establishment Clause.\textsuperscript{27} Furthermore, the Supreme Court has found similar cases involving “creation-science” to be a violation of the Establishment Clause.\textsuperscript{28} In fact, the Intelligent Design movement’s origin dates back to the pivotal case of Edwards v. Aguillard,\textsuperscript{29} in which the Louisiana Balanced Treatment


\textsuperscript{25} Kitzmiller, 400 F. Supp. 2d at 744. (expert testimony revealing the lack of peer-review journals supporting Intelligent Design)

\textsuperscript{26} David R. Bauer, Note: Resolving the Controversy Over “Teaching the Controversy”: The Constitutionality of Teaching Intelligent Design in Public Schools, 75 Fordham L. Rev. 1019, 1022 (2006).

\textsuperscript{27} Kitzmiller 400 F.Supp.2d at 808.


\textsuperscript{29} Edwards, 482 U.S. 578 (1987). (striking down Louisiana law forbidding public schools to teach evolution without also teaching creation science).
Act was struck down. Since that time, various leaders affiliated with the Intelligent Design movement have characterized Intelligent Design in ways that can be construed as religious in nature and expert witnesses have even testified to the non-scientific nature of Intelligent Design. This means, that under its current operationalized form, Intelligent Design violates the Establishment Clause and is therefore unconstitutional. In order for Intelligent Design to begin to be considered constitutionally acceptable in public schools, it must distance itself from its religious trappings and fundamentalist roots. Even though Intelligent Design may never be seen as science, it may find acceptance in other disciplines, such as philosophy, which is more accepting of different epistemological views.

While it may be true that critical analysis is a valid secular purpose of scientific education, it is also true that critiques of Darwinian evolution can be presented without the religious trappings that accompany Intelligent Design. It is important to note, that the alleged flaws of evolutionary theory are quite separate from ID's supernatural causation. Therefore, while a state agency may have a valid secular purpose for exposing students to scientific criticism of Darwinist evolution, there is no secular justification for Intelligent Design's inference of supernatural agency.

Moreover, there has been no showing that schools do not already sufficiently cover the nature and process of science. What is more, even if the purpose of introducing

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31 Much of the criticism leveled at evolution by Intelligent Design theorists has been resolved by naturalistic explanations, making supernatural explanations unnecessary.

ID was to discuss alternatives to evolution, it would be a poor choice because it would convey to students that there is a significant scientific dispute about the subject, which there is not.\(^{33}\)

Historically, the *Lemon* and the endorsement tests have provided protection against religion-based attacks on public school science programs. The United States Supreme Court has struck down anti-evolution statutes and balanced treatment acts enacted by states, holding that both tactics violated the Establishment Clause. Following the precedent set by the Court, the lower federal courts have struck down disclaimer resolutions and intelligent design programs. In spite of these setbacks, Christian fundamentalists continue to discredit the theory of evolution, and their success in the swaying public opinion presents a challenge to biology teachers across the country. Even though teachers cannot discuss the religious overtones of design theory, teachers can defend evolution against the erroneous arguments presented by design theorists.

**Implications**

The threat of civil-liberties lawsuits would be enough reason for ID opponents to reject the teaching of ID in public schools; however, there are serious pedagogical problems with the teaching of ID. Some critics of ID fear that including ID in a science curriculum irreparably damages the quality of a student’s education. They argue that students cannot appreciate the scientific method if they are also taught that science

\(^{33}\) *Id.* at 760.
allows for unproven assumptions about supernatural causation. What is more, students are unlikely to become successful scientists if they are taught to discount, one of the primary building blocks of modern scientific inquiry, evolutionary theory. Pundits have repeatedly commented on the poor state of America's science education compared to other countries. How can we expect to close this gap if we continue to dilute the value of our science education with religious dogma? As one spectator noted after Kitzmiller, "in the United States at a time when only forty percent of Americans believe in evolution, only thirteen percent know what a molecule is, twenty percent think the sun goes around the earth, and fifty percent think man lived at the same time as dinosaurs, at best what could be taught in any school is 'mediocre design.'"

There are those concerned about the political implications of including ID in a science curriculum. For example, will the ID controversy teach students-and future voters-that they are free to ignore the lessons of scientists whenever these lessons

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34 Andrew Jacobs, Georgia Takes on ‘Evolution’ as ‘Monkeys to Man’ Idea, N.Y. Times, Jan. 30, 2004, at A13 (quoting Dr. Francisco J. Ayala) ("Creation is not science, so it should not be taught in science class." Dr. Ayala further noted that "[w]e don't teach astrology instead of astronomy or witchcraft practices instead of medicine.").


36 Sam Harris, Letter to a Christian Nation 62, 70 (2006)(quoting statement from the National Academy of Sciences)("[H]igh school students in the United States test below those of every European and Asian nation in their understanding of science and math.").

37 Barbara Forrest & Paul R. Gross, Creationism's Trojan Horse: The Wedge of Intelligent Design 9-10 (2004) (claiming that the strategy of ID proponents to substitute "theistic science" for natural science constitutes "a threat to the integrity of education and in the end the ability of the public to judge scientific and technological claims," and is aimed "at a vast, mostly science-innocent populace and at public officials and lawmakers who depend on it for votes").

conflict with their faith. According to journalist Bill Moyers, a science curriculum incorporating ID leads, “to a politics of delusion-a politics in which the citizenry cavalierly ignores the warnings of scientists because they are confident that whatever happens is all part of a larger divine plan.”

**Recommendations**

After *Edwards*, it became clear that public schools could not teach "creation science" in science classes; however, it did not prohibit the teaching of “creation science” in comparative religion or philosophy classes so long as it is not favored as religious truth. Intelligent Design might also be discussed in such forums without violating the Establishment Clause.

Equally, Creation science and, through default by association, ID cannot be promoted as science in school sponsored assemblies, extra-curricular activities, or by school sponsored outside speakers. However, this does not prohibit ID from being discussed by non-curriculum related groups that meet during non-curricular time under

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41 *Edwards*, 482 U.S. at 593.

42 *Id.* at 606-08 (Powell, J., concurring).

43 ACLU of N.J. v. *Black Horse Pike Reg'A Bd. of Educ.*, 84 F.3d 1471, 1482-84 (3d Cir. 1996) (holding school sponsored prayer at graduation ceremony was a violation of First Amendment).


45 *Doe v. Porter*, 188 F. Supp. 2d 904, 909-11 (E.D. Tenn. 2002) (holding bible study session taught by visiting students once a week in elementary school was a violation of Establishment Clause).
the equal access doctrine. For example, proponents of ID can even promote their ideas through private speech activities and clubs.

ID could even be taught in comparative religion or philosophy courses so long as it is not favored. Perhaps, that is the more appropriate forum, because if ID is discussed in the science curriculum, it is likely that the activity would be found unconstitutional.

Even though Intelligent Design may not be taught as a scientific theory, similar religious ideas could be presented as part of the social sciences or humanities curriculum. Social studies teachers could discuss ID without raising constitutional concerns. Social studies teachers could use Intelligent Design as an example of the current and historical controversy over competing theories of human origin, as a part of a survey of religions or religious views, or to show the development of science as a discipline. It is quite possible that, "any critical thinking advantages that could be gained by teaching intelligent design ... can probably be gained by teaching about religion in social science classes and discussing the various relationships between religious and scientific ways of thinking in that context."

What is more, the instruction

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47 Id.
48 Edwards, 482 U.S. 578; Kitzmiller, 400 F. Supp. 2d at 707.
49 Kitzmiller, 400 F. Supp. 2d at 707.
50 Jay D. Wexler, Darwin, Design, and Disestablishment: Teaching the Evolution Controversy in Public Schools, 56 Vand. L. Rev. 751, 787 (2003). ("History teachers could teach about the history of the opposition to evolution ... ; civics teachers could teach about the ongoing controversy over origins ... ; [and] philosophy teachers could teach about the epistemological claims of science and religion ... .")
51 Id. at 848.
offered in a social studies class would not be seen as a presentation of the merits of Intelligent Design, but rather simply offer a description of ID.\(^{52}\)

While the Supreme Court has found religion-based public school science curricula to be in violation of the Establishment Clause, the Court has suggested, on at least two occasions, that religious topics could be taught in the context of history courses without violating the First Amendment.\(^{53}\) When analyzed under the three Establishment Clause tests, courses in the social sciences seem to focus on the behavior of human beings and as such, the discussion of religious causal-analytic systems may be permitted a limited role in discussing how such systems motivate individuals or groups.\(^{54}\)

So even though the exclusion of ID from the science curriculum may be justified or even mandated under the Constitution,\(^{55}\) it does not prohibit the teaching of ID in other classes such as social studies, comparative religions, humanities, or philosophy. If ID is presented in a way that conforms to the Supreme Court's condition, "presented objectively as part of a secular program of education," it will pass the purpose prong of the \emph{Lemon} test. A proposed secular purpose to teaching ID in social sciences could be to discuss the important influence religious doctrine and organizations have had on

\(^{52}\) \textit{Id}. at 793 (explaining that teachers may describe the content of religious theories of human origin as long as they do not share their personal views).

\(^{53}\) \textit{Abington Sch. Dist. v. Schempp}, 374 U.S. 203, 225 (1963) (stating that "it certainly may be said that the Bible is worthy of study for its literary and historic qualities. Nothing we have said here indicates that such study of the Bible or of religion, when presented objectively as part of a secular program of education, may not be effected consistently with the First Amendment."); \textit{Epperson v. Arkansas}, 393 U.S. 97, 106 (1968) (noting that "study of religions and of the Bible from a literary and historic viewpoint, presented objectively as part of a secular program of education, need not collide with the First Amendment's prohibition ... ").


human society. Indeed, Justice Clark noted in *Schempp*, "it might well be said that one's education is not complete without a study of ... the history of religion and its relationship to the advancement of civilization." Therefore, the presentation of religious ideas in the context of a social sciences course would not necessarily have the primary effect of advancing or inhibiting religion. It is at least reasonable to believe that Intelligent Design could be presented in a history course under the guise of major cultural phenomena in Twenty-First Century America - without violating the First Amendment.

Additionally, Justices Clark and Fortas have suggested that the inclusion of religious ideas might be permissible in the context of humanities classes, using literature and comparative religion as examples. Students are less likely to see the presentation of religious ideas as an endorsement of a particular religion in a humanities setting versus a social studies class. Then the question becomes whether religious ideas could presented in humanities courses such that do not advance religion.

In *Schempp*, Justice Clark suggested that the discussion of religious topics might be acceptable in the context of the study of comparative religions. Comparative religion courses provide such a broad survey and critical analysis of different religions that they convey no advantage or disadvantage to particular religion. Surely, the fundamentalist beliefs underlying “creation science” or ID could be discussed within a comparative religion class without fear of violating the Establishment Clause.

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56 *Schempp*, 374 U.S. at 225.

57 *Epperson*, 393 U.S. at 106; *Schempp*, 374 U.S. at 225.

58 *Schempp*, 374 U.S. at 225 (stating that "In addition, it might well be said that one's education is not complete without a study of comparative religion... . Nothing we have said here indicates that such study of the Bible or of religion, when presented objectively as part of a secular program of education, may not be effected consistently with the First Amendment.").
One might also be able to view the Christian Bible for its literary qualities in public schools as Justices Clark and Fortas have suggested.\textsuperscript{59} Whether such a presentation complies with the Establishment Clause likely depends on the particular manner in which literature is evaluated in a given course. By subjecting a religious text to historical and rhetorical criticism, emphasizing the relation of the text to historical events, or by evaluating the grammatical, syntactic and structural merits of such a text, it is possible that the Biblical account of Genesis might pass the \textit{Lemon} test in an English literature class.\textsuperscript{60} However, it would have to be evaluated purely on its literary value as opposed to its moral or philosophical value in order to not be seen as a violation of the Establishment Clause. In other words, the Bible or another religious text must be presented in public schools as merely a work of literature, written by mortal men. Any other connotation (aside from its influence on history, literature, art, and so on) could be seen as an undue advantage to religion, and therefore a violation of the Establishment Clause.

Although never specifically mentioned by the Supreme Court, philosophy with its ambiguous epistemological and metaphysical views seems like quite a natural fit for Intelligent Design. Many of the traditional western philosophers like Plato and Aristotle have suggested the existence of a natural creator just like in ID.\textsuperscript{61} Even Thomas

\begin{itemize}
\item \textit{Epperson}, 393 U.S. at 106; \textit{Schempp}, 374 U.S. at 225.
\item Schuneman, \textit{Supra} note 56.
\item See e.g. Plato's \textit{Timaeus}, expressing that "everything that becomes or is created must....be created by some cause, for without a cause nothing can be created. The work of the creator, whenever he looks to the unchangeable and fashions the form and nature of his work after an unchangeable pattern, must necessarily be made fair and perfect; but when he looks to the created only, and used a created pattern, it is not fair or perfect." Plato, \textit{Timaeus} 3
\end{itemize}

Aquinas wrote of God’s existence and the idea of design in *Summa Theologiae*. Therefore, the discussion of Intelligent Design seems quite appropriate fodder for a philosophy class. For example, philosophy courses could present the dualism and Intelligent Design as a legitimate system with which to understand observed phenomena.

Even though Intelligent Design cannot be presented in a science classroom as science, it does not mean that it could not necessarily be taught in public schools if there was truly a secular purpose. It was clearly determined in *Kitzmiller*, that the motives of the Dover School Board were to inject religion into the school’s curriculum and the science classroom was not the appropriate forum for the discussion of ID. Proponents of ID would be better served by distancing themselves from religious zealots, and look at introducing ID in subjects other than science for ID is not science.

**Recommendations for Further Research**

The *Kitzmiller* opinion may have stuck a severe blow to the Intelligent Design movement, but the pendulum is sure to swing back. The decision in *Kitzmiller* makes it risky for any school board to consider adding ID to its science curriculum without almost certainty of costly lawsuits. However, this does not mean that other school boards have

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62 Thomas Aquinas, Aquinas’s Shorter Summa: Saint Thomas’s Own Concise Version of His Summa Theologica (Sophia Institute Press 2002)

63 Schuneman, *Supra* note 56.

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

65 *Kitzmiller*, 400 F. Supp. 2d at 707.
not considered teaching Intelligent Design.\textsuperscript{66} As after the decision in \textit{Edwards},\textsuperscript{67} where the Intelligent Design movement was formed out of the necessity, there is bound to be a re-packaging of Intelligent Design to meet the muster of the Establishment Clause. The recent trends have been to discredit evolution by trying to persuade school boards to “teach the controversy.” The has also been a rise in textbook disclaimers stating “evolution is only a theory.”\textsuperscript{68} The courts will have to remain vigilant because there are no signs that the Intelligent Design movement is going away soon.

Further study in the following areas may help schools better understand the future challenges they may face from the Intelligent Design movement.

- Investigate whether alternatives to teaching Intelligent Design in science class, such as teaching ID in social studies or philosophy classes, are truly viable and whether they are being implemented.
- Investigate how institutions of higher learning are addressing the teaching of controversial subjects such as Intelligent Design.
- Analyze the impact the ruling in \textit{Kitzmiller} had on state science curriculum concerning the teaching of alternatives to evolution.
- Analyze the role demographics play in the determination of school curriculum especially in regard to evolution.
- Examine the effect of the changing state science standards on the performance of students entering college.


\textsuperscript{67} \textit{Edwards}, 482 U.S. 578 (“creation science” was found to be a violation of the Establishment Clause).

LIST OF REFERENCES


Gophnaa, Uri., Eliora Z. Rona and Dan Graur, Bacterial Type III Secretion Systems Are Ancient and Evolved by Multiple Horizontal-Transfer Events, 312 Gene 151 (2003).


Graham, Kristin J. The Supreme Court Comes Full Circle: Coercion as the Touchstone of an Establishment Clause Violation, 42 Buff. L. Rev. 147, 148 (1994).


Peter Irons, Disaster in Dover: The Trials (and Tribulations) of Intelligent Design, 68 Mont. L. Rev. 59, 69.


Kristof, Nicholas D. The Hubris of the Humanities, N.Y. Times, Dec. 6, 2005, at A27


Little, Robert. God’s Not Scorned, and All’s Quiet: Dover, Pa., Gets a Respite From the Spotlight Over Intelligent Design, BALT. SUN, Nov. 11, 2005, at A1


Mayden, Richard *On Biological Species, Species Concepts and Individuation In the Natural World* 3 Fish Fisheries 171-196 (2002).


PBS, Judgement Day: Intelligent Design on Trial (PBS television broadcast Nov., 2007)


Plato, Timaeus 3 Available at http://www.activemind.com/Mysterious/Topics/Atlantis/timaeus_and_critias.html.


BIOGRAPHICAL SKETCH

Adam Hayashi was born in Illinois but spent time growing up in many places over the years. During his last year in high school, Adam decided it would benefit him to enroll directly into college courses and took the opportunity to go to Ripon College and forgo his senior year of high school. He eventually earned a Bachelor of Science degree from Texas A&M University in wildlife and fisheries science. From there he applied to the University of North Texas where he pursued his passion for music; however, that passion quickly turned to the sciences once again and he graduated with his master’s degree in physiology. In 2000, he accepted a teaching position at Central Florida Community College, now the College of Central Florida. Since that time, he has gone from an Associate professor in the science department to currently holding the position of Campus Dean of Instruction for the college’s satellite campus in Citrus County. He is married to Alicia and they have two beautiful sons together and are expecting a daughter in March 2011.