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Featuring

***15 PIERCING THE VEIL OF INTELLIGENT DESIGN: WHY COURTS SHOULD BEWARE
CREATIONISM'S SECULAR DISGUISE**

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It has often and confidently been asserted, that man's origin can never be known: but ignorance more frequently begets confidence than does knowledge: it is those who know little, and not those who know much, who so positively assert that this or that problem will never be solved by science. [\[FN1\]](#)

I. Introduction

In 1867, commenting on Charles Darwin's new theory of evolution, Harvard University biologist Louis Agassiz said, "I trust to outlive this mania." [\[FN2\]](#) He failed to survive either the science of biological evolution or the dispute over its place in the classroom. The most important aspect of that debate today may be the presence of creationism in public schools. The Supreme Court last addressed this matter, seemingly decisively, in *Edwards v. Aguillard* in 1987. [\[FN3\]](#) But this conflict will have no more difficulty outliving the logic of *Edwards* than it did surviving Agassiz. This is particularly true because in the aftermath of *Edwards* some creationists, framing an allegedly new doctrine of 'intelligent design' (ID), have begun implementing a conscious, sophisticated strategy to exploit scientific tools and terminology against evolutionary biology and to avoid the trappings of overt religion. This effort is being undertaken to exploit apparent loopholes in *Edwards* to propagate their ideas and, ultimately, to teach religion in public school classrooms.

Courts faced with this challenge to evolution education must be equally sophisticated. The anti-evolution movement itself is evolving and becoming more sophisticated, and courts may find themselves unequipped to deal with ID. As one tool for dealing with this subtler attack on the prohibition against teaching religion in government classrooms, courts must be prepared to pierce the veil with which ID attempts to cover its religious ideology. More importantly, they must be prepared to objectively determine whether a purportedly scientific doctrine is really religious in nature, and to stand up for government's legitimate authority to endorse objective science, even when that science conflicts with the beliefs of religious persons. [\[FN4\]](#)

Part I of this article explains ID, its terminology, and its development in response to legal challenges. Part II discusses the existing case law regarding creation doctrines in public school classrooms, case law which prompted the development of intelligent *16 design as a new strategy to evade precedent. Because the ID movement remains a religious movement, we conclude in Part III that a proper Establishment Clause analysis continues to bar the teaching

of ID-style creationism in the public school classroom. In particular, an objective approach, which relies less on legislative intent and more on the substance of a promulgated doctrine, bars the teaching of ID even when its proponents carefully avoid public religious statements. Finally, part IV addresses whether the state may apply this analysis in an effort to remain neutral with regard to "ontological naturalism." Although in some cases the government must remain neutral, we conclude that the government may endorse legitimate science-including evolution-and that the Establishment Clause forbids public schools from teaching ID.

II. Defining Intelligent Design

A. Intelligent Design's Ancestors

Creationism has been defined as "the rejection of biological evolution in favor of special creation, where the latter is understood to be supernatural." [\[FN5\]](#) ID is a sophisticated variant of creationism, with similar proponents and goals but significantly different methodology. ID developed as an attempt to reinforce creationism in its conflict with secular science, and to overcome the barriers between religious creationism and secular public education which were erected by cases such as *Edwards*. Its doctrinally-motivated advocates consciously strive to employ scientific rather than religious phraseology, in hopes that the legal reasoning that defeated creation science will fail to perceive ID as a variant of creationism. This analysis presumes that ID is a scientifically bankrupt attempt to introduce religious views into public education. Since the refutation of intelligent design requires a detailed understanding of the scientific disciplines misrepresented by its proponents, a detailed proof of this assumption is beyond the scope of this paper. [\[FN6\]](#) It is, however, appropriate to note the religious background and underlying motivations of ID; this will be addressed in greater detail below. To begin, a simple introduction to the basic premises of ID is necessary to examine the differences between it, secular science, and explicitly religious doctrine.

The earliest articulation of what would eventually become the ID movement may have been in the writings of the Anglican theologian and educator William Paley. [\[FN7\]](#) In his work *Natural Theology*, Paley proposed a famous example: imagine a man crossing a heath and finding a watch on the ground; he would immediately assume the existence of a watchmaker, on the basis of the complexity, functionality, ¹⁷ beauty, or intricacy of the watch. Likewise, Paley argued, the apparent complexity, functionality, beauty, and intricacy of nature is a testament that there is a Divine Watchmaker:

[It would not] weaken the conclusion, that we had never seen a watch made; that we had never known an artist capable of making one; that we were altogether incapable of executing such a piece of workman-ship ourselves, or of understanding in what manner it was performed; all this being no more than what is true of some exquisite remains of ancient art, of some lost arts, and, to the generality of mankind, of the more curious productions of modern manufacture. Does one man in a million know how oval frames are turned? Ignorance of this kind exalts our opinion of the unseen and unknown artist's skill, if he be unseen and unknown, but raises no doubt in our minds of the existence and agency of such an artist, at some former time, and in some place or other. [\[FN8\]](#)

Paley's argument lives on in the debate between biologists and creationists today, as in the title of Richard Dawkins' famous defense of naturalistic evolution, *The Blind Watchmaker*. [\[FN9\]](#) Paley's explicitly religious language, however, has fallen out of favor with the modern ID movement.

The center of the developing ID movement today is the Discovery Institute. [\[FN10\]](#) In particular, the Institute's Center for Science and Culture has devoted significant resources to promoting ID. [\[FN11\]](#) The Discovery Institute's fellows include many of the chief architects and defenders of intelligent design, including William Dembski, Michael Behe, Jonathan Wells, and Francis Beckwith. [\[FN12\]](#) According to the Discovery Institute, "[t]he theory of intelligent design holds 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." [\[FN13\]](#) The Institute and its authors generally avoid explicit religiosity in their public writings, and frame their arguments in secular language. Their stated intent is not to promote creationism, but to promote ID as a science and to critique secular biological evolution in scientific terms. The Institute carefully tries

to distinguish ID from outright creationism:

Creationism is focused on defending a literal reading of the Genesis account, usually including the creation of the earth by the Biblical God a few thousand years ago. Unlike creationism, the scientific theory of intelligent design is agnostic regarding the source of design and has no commitment to defending Genesis, the Bible or any other sacred text. Instead, intelligent design theory is an effort to empirically detect whether the "apparent design" in nature observed by biologists is genuine design (the product of an organizing intelligence) or is simply the product of chance and mechanical natural laws. [\[FN14\]](#)

This is a sharply limited characterization of 'creationism,' which is not always explicitly predicated on Genesis or Christian dogma. [\[FN15\]](#) Many scholars associated with the Discovery Institute are less circumspect when addressing friendly audiences, however. [\[FN16\]](#)

***18** The careful (and deceptive) differentiation of creationism from intelligent design is a hallmark of serious ID advocacy. ID's proponents distance themselves not only from literal defenses of Genesis, as the Discovery Institute does above, but also from the religious culture that usually accompanies creationism. [\[FN17\]](#) Nevertheless, the intelligent design movement is creationist at its core. Doctrinal promoters such as the Discovery Institute are eager to claim that ID is not religious, yet they admit that modern creationism is generally consanguineous with ID. Jay Richards, a past director of the Discovery Institute's Center for Science and Culture, admitted, "[a]n argument for design has theological implications as does an argument against design. Anybody who supports creationism is going to like a design argument." [\[FN18\]](#) ID theorists often claim, for apparently strategic reasons, that the movement is entirely divorced from creationism, but there are profound practical, material, and ideological similarities between creation science as defeated in Edwards and ID, despite the lack of apparent religious language in the latter.

Classic creationism clings to a literal interpretation of the Biblical creation story: a creative divine force brought forth the physical universe and all extant biological forms ex nihilo, without millions of years of evolution or the common descent of all modern species from more primitive ancestral forms. "Old Earth" creationists accept scientific evidence for an ancient earth, while "Young Earth" creationists believe that the earth and all its life were created during six days only some thousands of years ago. ID proponents tend to (but do not all) accept that the earth is ancient, and do not generally claim that the earth was created in the literal week of Genesis. [\[FN19\]](#) Nor do ID proponents generally defend other outlandish creationist claims, such as that dinosaurs and man lived contemporaneously. [\[FN20\]](#) These differences tend to make ID more palatable to modern audiences, but do not suffice to make ID anything other than a variety of creationism.

Most importantly, supporters of the movement often disclaim the religious nature of the theory, claiming that "the scientific theory of intelligent design is agnostic regarding the source of design"; the doctrine makes no overt predictions or claims as to the nature of the Designer. [\[FN21\]](#) ID publicly disclaims any religious motivation, yet it "holds 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." [\[FN22\]](#)

Yet ultimately the Designer in ID theory must be supernatural in nature, since a core tenet of the theory is that life could not arise through natural processes. At some point, even if removed by a proposed natural Designer in order for life to have developed on earth, ID demands a supernatural Creator acting outside the laws of nature to generate those structures and processes that design advocates argue cannot result from natural processes. [\[FN23\]](#) Both classical creationism and intelligent design therefore share the premise that a supernatural Entity created life according to a particular purpose and design. Because this is the central conflict-whether life ***19** originated through undirected natural processes, or by conscious intent-issues such as the age of the earth or the literal truth of Genesis are not enough to distinguish old creationism from new ID. In reality, the most significant difference between the theories is that ID avoids making any claim as to the exact nature of the Creative Divinity, or the nature, extent, and timing of Its activity, limiting itself to the supposition that a Being created and guided the development of life in such a way as to be ascertainable by scientific inquiry. Thus, while ID sometimes claims to be largely compatible with the science of evolution, it

fundamentally conflicts with science in that it denies for ideological reasons the existence, and discourages the investigation of, observable and testable natural processes.

The reason this proposition conflicts with science itself can be understood only by looking at the nature of the scientific enterprise and the purposes of scientific explanations. Evolutionary science explains natural phenomena in comprehensible terms of natural, predictable laws, making it a significant and useful addition to the canon of scientific knowledge. Creationist theories, by contrast, posit a type of ipse dixit argument for the origin of species-"because God said so." While this explanation may satisfy on some metaphysical level, it is not a scientific explanation because it could be equally applied to any state of affairs, and because it can make no predictions. Saying that a giraffe has a long neck because God decided it should be that way is not a scientific explanation because, even if the giraffe had a short neck, the same explanation would suffice; the theory is therefore independent of observed facts. Evolution explains why the giraffe's neck is long, in terms of its history and environment, and makes the prediction that fossil evidence will reveal a series of forms leading toward the modern form of the giraffe. Like classic creationism, intelligent design freezes the discussion and asserts that divine intervention is responsible for any biological process or origin the history of which is not perfectly understood at present. In essence, it consists of the argument from amazement: "I cannot believe that this remarkable phenomenon is the result of natural processes, therefore it cannot be." While ID may differ from the older creationism in its vocabulary and tactics, it does not differ in ways relevant for scientific purposes-or for purposes of the First Amendment.

B. Intelligent Design's Goals

One of the clearest articulations of the goals and methods of intelligent design advocacy comes from the movement's institutional bastion, the Discovery Institute. In 1999, a policy statement now referred to as "The Wedge Document," authored by Institute staff, was released reportedly without the Institute's permission or knowledge; [\[FN24\]](#) it does not appear that the statement was intended for public *20 consumption. [\[FN25\]](#) The document, purportedly in its full text, is now available from the Discovery Institute as part of a longer document that attempts to minimize its impact and explain some of its more controversial passages. [\[FN26\]](#) The document explains the "Wedge Strategy," a series of short- and long-term goals and tactics to be employed in an effort to help ID "reverse the stifling dominance of the materialist worldview, and to replace it with a science consonant with Christian and theistic convictions." [\[FN27\]](#)

The Wedge Document rewards readers with a clear sense of how the Discovery Institute and its supporters see the doctrine of intelligent design. The most compelling part of the document is its timeline of the goals of the Discovery Institute's Wedge Strategy:

Governing Goals

- . To defeat scientific materialism and its destructive moral, cultural and political legacies.
- . To replace materialistic explanations with the theistic understanding that nature and human beings are created by God.

Five Year Goals

- . To see intelligent design theory as an accepted alternative in the sciences and scientific research being done from the perspective of design theory.
- . To see the beginning of the influence of design theory in spheres other than natural science.
- . To see major new debates in education, life issues, legal and personal responsibility pushed to the front of the national agenda.

Twenty Year Goals

- . To see intelligent design theory as the dominant perspective in science.
- . To see design theory application in specific fields, including molecular biology, biochemistry, paleontology, physics and cosmology in the natural sciences, psychology, ethics, politics, theology and philosophy in the humanities; to see its influence in the fine arts.

. To see design theory permeate our religious, cultural, moral and political life. [\[FN28\]](#)

Note that this list of goals calls for increasing acceptance of ID theories, but does not include developing a scientifically articulated theory of intelligent design, performing actual research to seek verification of the doctrine, or refining the theory to conform to evidence and experimental results. The strategy does call for "One hundred scientific, academic and technical articles by our fellows," but apparently assigns this goal the same weight and prominence as "Thirty published books on design and its cultural implications (sex, gender issues, medicine, law, and religion)." [\[FN29\]](#) One of the five-year objectives of the Wedge Strategy, under the heading "Spiritual & cultural renewal," reads: "Major Christian denomination(s) defend(s) traditional doctrine of creation & repudiate(s) Darwinism. [sic]" [\[FN30\]](#) The clear implication of the Wedge Document is that *21 ID is a tool for attacking secular culture and intended to supplant secular science with Christian creationism, but not a bona fide research program. The focus of the Wedge Strategy is cultural and political, not scientific, and it badly undercuts the relentless claims of ID advocates that the theory is not religious in nature.

The Wedge Strategy proceeds under the implicit assumption that the doctrine of intelligent design is the truth; whether objective science supports its allegations is an irrelevant consideration. It does not make any provision for actually conducting independent research—the goals focus on increasing the dominance of the doctrine, rather than on testing its validity. The intended methods for evangelizing for intelligent design ignore scientific research in favor of media strategies, with goals like "Significant coverage in national media," including "Cover story on major news magazine such as Time or Newsweek." [\[FN31\]](#) A reader of the strategy might ask, then, given the vastly greater emphasis ID advocates give to political, legal, and rhetorical tactics, what scientific arguments have been advanced to support these claims of ID's scientific reliability? There are few, and they are roundly rejected by the scientific community. The two most visible arguments are the concepts of the "explanatory filter" and "irreducible complexity."

C. Intelligent Design's Tools

1. The Explanatory Filter

ID's arguments against evolution are often phrased in sophisticated language. One of the most prolific and influential ID advocates is William Dembski, until recently in residence at the Baylor University Institute for Faith and Learning, where he was a controversial figure. [\[FN32\]](#) Dembski was recently named as the director of the Southern Baptist Theological Seminary's Center for Science and Theology. [\[FN33\]](#) Along with biochemist Michael Behe, Dembski is one of the leading lights of the ID movement. His flagship thesis is "the explanatory filter," a philosophical and rhetorical tool that is meant to reveal the existence of design in complex systems, including biological systems. [\[FN34\]](#) "Roughly speaking," explains Dembski, "the filter asks three questions and in the following order: (1) Does a law explain it? (2) Does chance explain it? (3) Does design explain it?" [\[FN35\]](#)

To illustrate the validity of the Filter, Dembski applies it to the facts of *Mochary v. Caputo*, a dispute over an electoral process in New Jersey. [\[FN36\]](#) Nicholas Caputo, a county clerk, was alleged to have used an improper process to give his party advantageous ballot positions. [\[FN37\]](#) Dembski applies the Filter by providing the reasoning he alleges the court should have followed to reach a conclusion. [\[FN38\]](#) *Mochary* involved the placement of candidates' names on an election ballot, where the placements were *22 supposed to be assigned by a random lottery. Yet the clerk's party won the drawings forty out of forty-one times, which could either have been the result of (1) a particular process (law) that resulted in nonrandom drawings, (2) purely random outcomes of a fair process, or (3) the result of design in the form of an intentional outcome. [\[FN39\]](#) Dembski argues that only the last option is realistic under the circumstances, since the court discarded the first on the clerk's testimony that he had, indeed, randomized the drawings. [\[FN40\]](#) Combined with the low probability of producing an identical result in forty-one consecutive drawings (approximately one in fifty billion), Dembski concludes that the final outcome was the result of design, rather than chance, and analogizes this example to the more complex field of biology. [\[FN41\]](#) He concludes by noting that in the face of his Filter, evolutionary theories that place the development of life in the chance category of his Filter "have but one purpose: to block the

conclusion that the proper mode of explanation for life is design." [\[FN42\]](#)

There are fundamental problems with the Filter. Most importantly, it is based on a misrepresentation of evolution. Evolution is the study of replicators (organisms that reproduce) and of descent with modification. Evolution does not claim that organisms originate through a random process. Rather, it claims that organisms originate through a process of non-random selection of variations (which variations might be random, such as genetic mutations). Natural selection of mutations, among other evolutionary processes, preserves beneficial mutations while tending to weed out detrimental ones. This selection process is therefore not random, but is dictated by the organism's environment. Consider, as a simple example, random mutations A, B, and C, where the environment selects options A and C for extinction. The preservation of the B mutation is not the result of a random process, because the environment has eliminated A and C for non-random reasons. Dembski's characterization of evolution ignores one of its most important features-the process of natural selection-and thus creates a straw man that he can easily knock down.

Further, the Filter is inherently impossible to effectively apply; the first step requires the elimination of all potentially natural causes, even those that are currently unknown. This is because the Filter attempts to resolve questions into a particular outcome; the Filter does not end by saying an otherwise inexplicable event has an unknown cause, but rather a designed cause. This is nothing more than the argument from amazement again, arguing that since the scientific explanation of an event seems unlikely or is not completely understood, none must exist. The directional nature of the Filter prevents it from being a useful or applicable tool, and, bars the Filter from performing any explanatory work. It does not appear that any productive science uses the Filter to detect design, despite Dembski's assertions. Thus his argument is a modern recapitulation of Paley's watchmaker parable, designed to advance particular religious, political, and even legal goals, but adding nothing to science.

*23 2. Irreducible Complexity

The second pillar of intelligent design is the dubious concept of "irreducible complexity." Irreducible complexity is the primary contribution of Michael Behe, professor of biochemistry at Lehigh University. Irreducible complexity suggests that some natural systems, such as the eye, are complex interdependent collections of sub-components such that the system would not function if any piece of it were removed. [\[FN43\]](#) Since nothing less than the whole system would be an advantage to an organism, it is argued, such a system could not have evolved gradually according to mainstream evolutionary theory. [\[FN44\]](#)

There are several flaws with Behe's assertion that irreducibly complex systems constitute a legitimate challenge to evolutionary theory. Among the most obvious is the fact that complicated systems can in fact confer an evolutionary advantage on organisms even when they are not "complete." The example of the eyeball, as Richard Dawkins explains, in fact militates against the creationist argument. [\[FN45\]](#) As Dawkins notes, "[w]hen we speak of 'the' eye . . . we are not doing justice to the problem," because different creatures have eyes of "radically different" forms and based on distinct principles. [\[FN46\]](#) Even the crudest "eye"-a light-sensitive patch of cells by which an organism can discern the approach of a predator, or of prey, or of a mate, can confer an evolutionary advantage on an organism. Natural selection in any environment in which sight would convey a reproductive or survival advantage would, of course, favor those organisms with eyes of greater perceptive power, gradually moving organisms in the direction of greater complexity. Indeed, a more thorough review of biological evidence leads to the conclusion that "eyes evolve easily and fast, at the drop of a hat." [\[FN47\]](#)

The failure of the eye example is unsurprising, however, on a closer examination of the notion of "irreducible complexity." The notion is really yet another statement of incredulity, indistinguishable in its essentials from the "explanatory filter." At a high level of abstraction, both consist of nothing deeper than the statement that living things are too complicated to be the result of evolution. But this is precisely what biological science has spent almost a century and a half disproving. The gradual process of natural selection among random variations in replicating organisms, together with other evolutionary processes, has indeed built up sophisticated, startlingly complicated biological systems.

It is unsurprising, therefore, to find that to date, the notion of irreducible complexity has not been used in peer-reviewed scientific journals to advance our knowledge of the natural world. The argument from irreducible complexity to unevolvability is roundly rejected by biologists and peer-reviewed literature. [\[FN48\]](#)

*24 D. Intelligent Design's Protective Camouflage

As part of their attempt to portray ID as a non-religious scientific alternative, ID proponents try to separate themselves as much as possible from traditional, explicitly religious creationism. [\[FN49\]](#) Many traditional creationists do not always agree with this separation, however. When the Ohio Board of Education debated lesson plans incorporating ID criticisms of evolutionary theory, evangelical Christians mobilized in support of the design language. [\[FN50\]](#) Their motivations were not in doubt: "ID doesn't identify who the designer is," said one proponent during a television appearance.

That's a hugely important question, but a separate and separable one. I don't want to mention any names here, but let me give you a hint. He's the subject of a new movie by a guy named Mel Gibson. At least the evolutionists can't keep you out of the movie theaters. [\[FN51\]](#)

Leading ID proponents are also often quoted as revealing explicitly religious motives for their advocacy, most often when speaking to friendly audiences. Jonathan Wells, a Senior Fellow at the Center for Science and Culture and the author of several pro-intelligent design books and articles, directly attributed his hostility towards evolutionary theory to the teachings of the Unification Church of the Reverend Sun Myung Moon:

[Reverend Moon's] words, my studies, and my prayers convinced me that I should devote my life to destroying Darwinism, just as many of my fellow Unificationists had already devoted their lives to destroying Marxism. When [Reverend Moon] chose me (along with about a dozen other seminary graduates) to enter a Ph.D. program in 1978, I welcomed the opportunity to prepare myself for battle. [\[FN52\]](#)

As Dr. Wells's comment shows, ID's supporters draw from a more religiously diverse demographic than traditional creationism, which in recent decades has been an almost entirely fundamentalist Protestant movement. [\[FN53\]](#) As one commentator puts it, "ID advocates understand that much of their support comes from people who look to the Bible for details about the early history of the earth, and those advocates aren't [sic] about to antagonize them." [\[FN54\]](#) Similarly, Dembski's work in ID is supported and advanced by religious organizations. Like many ID advocates, he publishes through InterVarsity Press, "a publisher of Christian books and Bible studies." [\[FN55\]](#) A cursory examination also reveals sectarian underpinnings to ID's chief institutional supporter. The Discovery Institute has renovated its Center for Science & Culture more than once, in the process downplaying implicitly religious imagery. Originally the "Center for the Renewal of Science and Culture" (emphasis added), the name and logo have been repeatedly redesigned to minimize overtly Christian elements. The original logo [*25](#) featured God reaching out to Adam, the famous centerpiece of the Sistine Chapel; this was later updated to remove Adam and replace his image with a DNA double helix. The graphic's latest change removes the religious imagery altogether, replacing it with "a planetary nebula (the MyCn 18 Hourglass Nebula, photographed by the Hubble Space Telescope), which presumably was selected because it happens to resemble a human eye." [\[FN56\]](#) Some time after the latest changes to the banner were made, the loaded term "Renewal" was removed from the Center's title. [\[FN57\]](#) None of these changes coincide with any alterations in the Center's mission statement or objectives; the changes are apparently purely cosmetic, intended to minimize the Center's religious image.

The lack of readily visible religious content to the intelligent design movement can be attributed to a conscious effort to evade the language of the Edwards ruling. Professor H. Wayne House openly urges advocates of ID to employ this technique to evade the restriction imposed by the Establishment Clause cases:

Any reference to a young earth, flood geology, fixation of species, or the like, immediately sends signals of Biblical creationism, while discussion of such mathematical and scientific views of probability or information theory removes the discussion from the traditional mode. Perception is nine-tenths of the problem. [\[FN58\]](#)

House calls for advocates introducing pro-ID legislation to disassociate themselves from explicit references to the Bible

and Christianity for tactical reasons, [\[FN59\]](#) in order to minimize the "problem" faced by those seeking to undermine evolution education. Assuming ID adherents scrupulously avoid such references so as to minimize this "problem," the Edwards majority's approach would fail to detect the religious elements of a school's attempt to teach ID. It would take a more objective approach, such as that proposed by Justice Powell's concurrence, to conclude that religious belief is intelligent design's "reason for existence" [\[FN60\]](#) even in the absence of such references.

Intelligent design comes no closer to actual, testable, verified science than these problematic pseudoscientific approaches. While ID's proponents use scientific language and concepts, their arguments are roundly rejected by secular scientists. [\[FN61\]](#) Nevertheless they are generally scrupulously free, at first glance, of religious terminology. The blatant Biblical literalism that failed in Louisiana with Edwards has been replaced by a more subtle version intentionally structured to avoid the decision in Edwards. To follow the development of the movement, and propose an effective methodology for courts to weed out religiously motivated pseudoscience, it is necessary to first parse the logic of the cases that provoked the transformative schism between creationism and intelligent design.

*26 III. CREATIONISM AND THE LAW

A. Creationism in the Courts

1. Epperson v. State of Arkansas

The Supreme Court laid the foundation for analyzing the issues of creationism and science education in *Epperson v. State of Arkansas*. [\[FN62\]](#) *Epperson* arose from a 1928 statute modeled on the Tennessee law made famous by *Scopes v. State of Tennessee*, [\[FN63\]](#) and which read in part, "[i]t shall be unlawful for any teacher or other instructor in any University, College, Normal, Public School, or other institution of the State . . . to teach the theory or doctrine that mankind ascended or descended from a lower order of animals." [\[FN64\]](#) Notwithstanding this statute, the Little Rock school board adopted textbooks containing evolutionary materials for the 1965-66 school year. [\[FN65\]](#) This created a "literal dilemma" for Susan Epperson, a recently hired biology teacher: teaching the materials prescribed by the school board would be a criminal offense, resulting in her termination and a fine of up to \$500. [\[FN66\]](#)

Epperson filed suit seeking an injunction to prevent the state from terminating her for violating the statute, which she sought to have declared void. By the time the case reached the Supreme Court, the parties seemed primarily concerned with the vagueness of the statute. [\[FN67\]](#) The Court declined to address the case on these grounds, finding instead that the statute violated the First Amendment. [\[FN68\]](#) Its fundamentally religious nature was obvious to the Court, even though its language was relatively neutral compared to its Tennessee forebear, which appealed to "the Divine Creation of man as taught in the Bible." [\[FN69\]](#) Arkansas adopted its statute one year after the final resolution of the *Scopes* case, and as the Court speculated in *Epperson*, "perhaps the sensational publicity attendant upon the *Scopes* trial induced Arkansas to adopt less explicit language." [\[FN70\]](#) The Arkansas statute was "adopted by popular initiative," and the Court looked to examples of the nature of that initiative to determine the purpose and intent of the law. [\[FN71\]](#) The Court cited a variety of materials published in the local press in support of the statute in 1928, including the following: "THE BIBLE OR ATHEISM, WHICH? 'All atheists favor evolution. If you agree with atheism vote against Act No. 1. If you agree with the Bible vote for Act No. 1.'" [\[FN72\]](#) The public papers were also full of letters condemning evolution, the Court noted:

Letters from the public expressed the fear that teaching of evolution would be "subversive of Christianity," and that it would cause school children "to disrespect the Bible." One letter read: "The cosmogony taught by (evolution) runs contrary to that of Moses and Jesus, and as such is nothing, if anything at all, but atheism. Now let the mothers and fathers of our state that are trying to raise their children in the Christian *27 faith arise in their might and vote for this anti-evolution bill that will take it out of our tax supported schools. When they have saved the children, they have saved the state." [\[FN73\]](#)

The Court's willingness to look at materials expressing the origin of the Arkansas law helped the Court to see its

essentially religious nature. The Court concluded that a state may not prohibit the teaching of a scientific theory in order to accommodate religious dogma: "Arkansas' law selects from the body of knowledge a particular segment which it proscribes for the sole reason that it is deemed to conflict with a particular religious doctrine; that is, with a particular interpretation of the Book of Genesis by a particular religious group." [\[FN74\]](#) This attempt "to blot out a particular theory" in the service of its religious opponents violated the Establishment Clause. [\[FN75\]](#)

Epperson stands for the proposition that states cannot bar their teachers from presenting evolutionary theory because it conflicts with religious teaching. What Epperson did not clearly address was whether a state can oppose the teaching of evolution by mandating that teachers in public schools give equal time to competing pseudoscientific doctrines. It would be more than a decade before a federal court decisively addressed a so-called "balanced treatment" statute.

2. McLean v. Arkansas Board of Education

Arkansas became a battleground between science and creationism again in 1982 with *McLean v. Arkansas Board of Education*, in which a district court struck down the "Balanced Treatment for Creation-Science and Evolution-Science Act," referred to as "Act 590." [\[FN76\]](#) The court noted that the first sentence of the Act summed up its purpose: "Public schools within this State shall give balanced treatment to creation-science and to evolution-science." [\[FN77\]](#) Section 4(a) of the Act defined creation science in a way that is surprisingly similar to some articulations of modern intelligent design doctrine:

"Creation-science" means the scientific evidences for creation and inferences from those scientific evidences. Creation-science includes the scientific evidences and related inferences that indicate: (1) Sudden creation of the universe, energy, and life from nothing; (2) The insufficiency of mutation and natural selection in bringing about development of all living kinds from a single organism; (3) Changes only within fixed limits of originally created kinds of plants and animals; (4) Separate ancestry for man and apes; (5) Explanation of the earth's geology by catastrophism, including the occurrence of a worldwide flood; and (6) A relatively recent inception of the earth and living kinds. [\[FN78\]](#)

Two months after the Act was passed, a variety of plaintiffs filed suit challenging its constitutionality. [\[FN79\]](#)

***28** The *McLean* opinion provides a concise history of what the court called "Fundamentalism," with an emphasis on fundamentalist hostility to evolution. [\[FN80\]](#) The court referred to the breed of creationism at issue as "scientific creationism," and traced its support and development to two central organizations, the Institute for Creation Research and the Creation Research Society. [\[FN81\]](#) The court quoted trial exhibits from leading proponents of creation science to illustrate their perspective: "Evolution is thus not only anti-Biblical and anti-Christian, but it is utterly unscientific and impossible as well. But it has served effectively as the pseudo-scientific basis of atheism, agnosticism, socialism, fascism, and numerous other false and dangerous philosophies over the past century." [\[FN82\]](#) This perspective informed and motivated the defenders of the equal-time statute; one expert witness for the Arkansas Board of Education stated in a deposition that his own dedication to creation science stemmed from "the moral perspective of the Fourth Commandment." [\[FN83\]](#)

Armed with this evidence of the explicitly Christian motivations of the Act's authors and defenders, the *McLean* plaintiffs filed suit under 28 U.S.C. § 1983, alleging that the Act was an establishment of religion, that it impermissibly violated students' and teachers' First Amendment right to academic freedom, and that the terms of the statute were impermissibly vague. [\[FN84\]](#) The court focused on the first challenge, and ruled the Act unconstitutional after applying the *Lemon* Test. [\[FN85\]](#) The court did not find a secular legislative purpose; the purpose of the legislature was explicitly religious. Moreover, after discussing the scientific merits of the theory, the court found that scientific creationism was not actually science and that the primary purpose of the Act was therefore religious. Act 590 therefore failed the first two prongs of the *Lemon* test. [\[FN86\]](#)

The court's analysis is particularly relevant to the current efforts of intelligent design activists for two reasons. First,

the court's analysis showed a willingness and ability to inquire as to the motives and backgrounds of religious activists that will be necessary to honestly and completely address intelligent design legislation and political machinations. Second, the court's characterization of the scientific merit of "creation science" frames the development of intelligent design as it attempts to shed identifiably religious language in order to defeat constitutional challenges.

The McLean court was able to examine the background, motives, and intentions of Act 590's supporters and author primarily because so little effort was made to disguise these factors. The Act's defenders were open and strident in their arguments that evolution was anti-Christian and that their goal was to introduce a religious perspective into scientific education. Act 590 was written by Paul Ellwanger, a layperson in both science and religion, who believed that the study of evolution was tied to "Nazism, racism and abortion." [\[FN87\]](#) The court cited Ellwanger's letters to various legislators, introduced as attachments to his deposition, to demonstrate both his belief that the Act was a "religious crusade" and that he felt the need "to conceal this fact." [\[FN88\]](#) *29 Ellwanger wrote to a Florida state senator that their Christian motives should be covert:

It would be very wise, if not actually essential, that all of us who are engaged in this legislative effort be careful not to present our position and our work in a religious framework. For example, in written communications that might somehow be shared with those other persons whom we may be trying to convince, it would be well to exclude our own personal testimony and/or witness for Christ, but rather, if we are so moved, to give that testimony on a separate attached note. [\[FN89\]](#)

This evidence was almost superfluous in McLean itself, as the Act and its goals were very obviously sectarian in nature. As will be discussed later, however, intelligent design requires a much more careful approach to analyzing motives and intentions, and evidence such as Ellwanger's letters show where such evidence could come from. The court's analysis shows how to treat such evidence-as relevant legislative history or other evidence as to the application of the Lemon test or other constitutional analysis. This application is simple and self-evident, but the McLean court performed particularly well and provides an excellent framework for future, more difficult analyses.

The second important factor in McLean is that court's analysis of the differences between creation science and secular science. The McLean court posited five essential characteristics of science, drawn from the testimony of various expert witnesses:

- (1) It is guided by natural law;
- (2) It has to be explanatory by reference to natural law;
- (3) It is testable against the empirical world;
- (4) Its conclusions are tentative, i.e., are not necessarily the final word; and
- (5) It is falsifiable. [\[FN90\]](#)

The court found that the doctrine of "sudden creation 'from nothing'" was not science "because it depends upon a supernatural intervention which is not guided by natural law. It is not explanatory by reference to natural law, is not testable and is not falsifiable." [\[FN91\]](#) The court attacked the Act's supporters' methodology, rather than their conclusions. It pointed out that the anti-evolution movement had not presented its ideas in peer-reviewed scientific journals, or otherwise attempted to engage the scientific community in a discussion of the evidence; moreover, the theories presented as an alternative to evolution were sessile, or dogmatically resistant to change in the face of contrary evidence. [\[FN92\]](#)

The McLean court found in the end that Act 590 was a blatant violation of the Establishment Clause. "Since creation science is not science, the conclusion is inescapable that the only real effect of Act 590 is the advancement of religion." [\[FN93\]](#) The *30 lack of a valid secular legislative purpose was solidly established by the evidence at hand, and the court accordingly found that the Act ran afoul of the first two Lemon prongs. The analysis that lead to this conclusion is clear and useful in modern litigation, but never reached higher courts to set solid precedent. For that, we must turn to the Supreme Court's decision in *Edwards v. Aguillard*.

3. Edwards v. Aguillard

The most important case for understanding the origins of ID is *Edwards v. Aguillard*. [\[FN94\]](#) Edwards dealt specifically with a Louisiana statute, the "Balanced Treatment for Creation-Science and Evolution-Science in Public School Instruction" Act, [\[FN95\]](#) the putative purpose of which was "protecting academic freedom" by requiring that neither scientific evolution nor creation science be taught without also teaching the other. [\[FN96\]](#) The Court, however, found this justification unpersuasive and disingenuous. Ruling that the Lemon test requires that a law be passed for a secular purpose that is "sincere and not a sham," [\[FN97\]](#) the Court reviewed the legislative history to determine that "the purpose of the legislative sponsor, Senator Bill Keith, was to narrow the science curriculum" [\[FN98\]](#) in the service of a religious doctrine. The Court did, however, take pains to note that "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." [\[FN99\]](#)

These statements are the elements of Edwards that ID proponents seek to exploit. As there is nothing preventing government-run schools from teaching legitimate scientific debate, portraying ID as a genuine scientific enterprise becomes the key to promulgating ID in the government's classrooms. As it stands, Edwards is vulnerable against a school board choosing to teach a sophisticated form of ID, and claiming that it is science rather than religion. This is because the Court's methodology first requires demonstrating that the challenged pedagogy is religious rather than legitimately scientific, and ID is built around evading that determination. Thus the most important question under Edwards is, how should a court determine whether ID is, in fact, a religious doctrine? Resting on the extensive legislative history, the Edwards majority had no difficulty determining that "the term 'creation science' in the Arkansas law 'embodie[d] the religious belief that a supernatural creator was responsible for the creation of humankind.'" [\[FN100\]](#) This position was unambiguously revealed by the statements of the law's sponsors. "Senator Keith's leading expert on creation science testified at the legislative hearings that the theory of creation science included belief in the existence of a supernatural creator." [\[FN101\]](#) The act's chief sponsor was attempting to advance not only religion in general, but a particular dogma. Senator Keith "explained during the legislative hearings that his *31 disdain for the theory of evolution resulted from the support that evolution supplied to views contrary to his own religious beliefs." [\[FN102\]](#) Such a bold statement revealed that the Act violated the Establishment Clause, which the Court declared forbids states from tailoring curricula to fit "the principles or prohibitions of any religious sect or dogma." [\[FN103\]](#)

Justice Powell concurred, relying on the precedent that "concepts concerning God or a supreme being of some sort are manifestly religious These concepts do not shed that religiosity merely because they are presented as a philosophy or as a science." [\[FN104\]](#) The concurrence also demonstrates some of the analysis Powell used to reach a finding of the statute's religious nature, which is instructive. Powell noted, following the legislative history, that creation scientists are largely affiliated with one or both of two institutions, the Institute for Creation Research and the Creation Research Society. [\[FN105\]](#) He then used evidence in the record to find that each institution has a clearly and overwhelmingly religious character, possessing in one case an explicitly religious statement of faith and in the other requiring its affiliates to subscribe to a statement of faith in the literal truth of the Bible. [\[FN106\]](#) The concurrence noted that under the Lemon test a sufficient secular motive may render a religious cause irrelevant, even if it exists, [\[FN107\]](#) but at the same time, a clear and overwhelming religious motivation will overcome a statement of secular purpose. [\[FN108\]](#)

While these findings build a strong wall against overt attempts to inject religious dogma into public education, the Edwards majority may not be strong precedent against future attacks on evolution education by informed and dedicated activists. The Edwards majority relied heavily on a rich and telling legislative history, full of religious statements by the act's supporters. Indeed, Justice Scalia's dissent criticized the Court for invalidating the law "on the basis of [legislative] motivation alone." [\[FN109\]](#) But Edwards also holds that "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." [\[FN110\]](#) The ID movement, which was organizing and gaining prominence at the time of Edwards, thus

saw an opportunity in both the decision's reliance on religious legislative history and the statement that a "variety of scientific theories" could be taught. [\[FN111\]](#) By excluding overt religiosity from public discussions of ID, and by portraying it as just another scientific theory, ID's proponents hope to scale the wall separating church and state.

B. Creationism Evolves

Anti-evolutionists reacted quickly to Edwards in a way some have described as the evolution of creationism itself. [\[FN112\]](#) The type of creationism addressed directly in Edwards, was itself a modification of earlier, more direct Genesis-based creation *32 dogma. [\[FN113\]](#) Lessons from the Scopes Monkey Trial were incorporated in later efforts; by the time the Arkansas statute overturned in Epperson was challenged, changes in the way evolution was challenged in schools were already well underway and accelerating. The Court itself noticed this change:

[The Epperson statute's] antecedent, Tennessee's "monkey law," candidly stated its purpose: to make it unlawful "to teach any theory that denies the story of Divine creation of man as taught in the Bible, and to teach instead that man has descended from a lower order of animals." Perhaps the sensational publicity attendant upon the Scopes trial induced Arkansas to adopt less explicit language. It eliminated Tennessee's reference to the "story of the Divine Creation of man" as taught in the Bible, but 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. [\[FN114\]](#)

But while the surface language had evolved, the supporting rhetoric had not. Defenders still spoke in religious terms, and this led to the Epperson statute's eventual defeat. [\[FN115\]](#) The next step therefore was to avoid religious rhetoric as much as possible.

ID was almost immediately introduced to replace "balanced-treatment" standards like the Louisiana statute. Some original efforts were modeled partially after those statutes, in that they purported to enhance academic freedom by injecting antievolutionary doctrine into the classroom.

For instance, Roger DeHart, a science teacher in northwest Washington state, is an intelligent design advocate. He introduced intelligent design concepts into his classroom instruction in 1988, the school year immediately following the Supreme Court's invalidation of balanced treatment acts. Requiring students to take sides on the evolution versus intelligent design debate, DeHart taught biology this way for ten years . . . DeHart is confident that intelligent design is not a violation of the Establishment Clause, pointing to his denial of religious motivation. Thus, DeHart continues to teach intelligent design in virtually the same fashion as he did in 1988. [\[FN116\]](#)

DeHart was eventually challenged by a student, and required by the school board to purge his curriculum of much of the contemporary ID materials. [\[FN117\]](#) He continued to present elements of ID theory, however, such as Michael Behe's "irreducible complexity" proposal. [\[FN118\]](#) DeHart had clearly identified the Achilles' heel of Edwards, its reliance on the legislative history of overt religious motivations. By stripping all of the overt religious talk from the doctrine, ID advocates lost no time in attacking evolution in the classroom. Individual teachers and advocates like DeHart could continue to push the tenets of creationism, albeit by redacting clearly religious elements until the doctrine was little more than an attack on naturalistic science.

ID gained a more sophisticated route into public discourse shortly afterwards, with the 1989 publication of *Of Pandas And People: The Central Question of Biological Origins*. [\[FN119\]](#) By 1995, this textbook, which presented intelligent design as a *33 scientific alternative to naturalistic evolution, was being touted as a valuable resource for anti-evolutionist school boards and activists. [\[FN120\]](#) Although the book continued to misrepresent evolution in the same ways Dembski does, [\[FN121\]](#) and made similarly religious arguments, the text embodied the development of antievolutionism since Edwards by including an explicit disclaimer of religious motivation. [\[FN122\]](#)

The developing ID educational proposals, textbook standards, and statutes post-Edwards follow the same trend, suppressing overtly religious justifications in favor of a critique that seems, at least to laymen, to be scientific in nature. In effect, the legislative history that informed the Edwards majority is being replaced by what proponents hope will be

a public image of religious neutrality. The questions, then, are what tests would allow a court to determine whether ID is religion, rather than science, and would teaching it violate the Establishment Clause if those tests were actively applied?

IV. PIERCING THE VEIL OF ID WITH EDWARDS

A. Testing the Constitutionality of Intelligent Design

When confronted with a supposedly scientific theory such as ID, the Court should actively attempt to determine whether the core teachings and motivations are religious in nature. This is not a simple or straightforward task, and there are significant drawbacks to asking courts to peer into the motivations of legislators, to rely upon those legislators' statements as accurate descriptions of their motivations, or to assess the claims of apparently scientific theories. But in the face of ID's active attempt to disguise religion as science for the purposes of changing the course of public education, faithfulness to the First Amendment requires courts to undertake this task.

There are at least three ways to do so. First is the option employed by the Edwards majority: to look for evidence of legislative motivation in the act being tested. It is not difficult at this stage to find evidence of the religious nature of ID, despite its proponents' efforts. But if there were no testimony or amici curiae pointing out this religious nature, or if the court were to find the legislative motivation an improper subject for judicial inquiry, or if ID proponents were successful in covering their religious motivation, this option would fail. The second and third options are more objective: they seek to reveal the religious nature of ID on the basis of the doctrine itself, rather than in the motivations of legislators or proponents. The second option was employed by Justice Powell in his Edwards concurrence: to hold that any attempt to explain natural phenomena by reference to a supernatural cause is a religious ^{*34} doctrine regardless of any legislative history or stated legislative purpose. This "objective" approach is a useful and instructive line of reasoning for courts to follow in analyzing ID. It is also less problematic than the third option, which asks courts to assess the scientific legitimacy of an allegedly scientific doctrine. There are serious drawbacks to a strong judicial inquiry into science, but this tactic is not necessarily improper, and it has already been successfully employed by the courts in McLean, as well as in cases not involving evolution. [\[FN123\]](#) But requiring judges to become experts in science to some degree makes this a less attractive option than Justice Powell's standard.

B. Objectively Assessing Religious Content

The simplest evidence of the religious nature of a doctrine such as creation science or ID is the presence of religious dogma, either in a statute itself or in the public explanations of it. The statute in Edwards evinces clear signs of such dogma, and the majority relied on those signs to invalidate the law. The majority found that the supposed secular purpose of the statute in question was a sham. Without a valid secular motive, and motivated by transparently religious considerations, the statute failed the Lemon test. [\[FN124\]](#) ID proponents, however, are trying to develop a superficially secular rationale for ID, so as to blunt the edges of Edwards. [\[FN125\]](#)

Justice Powell's objective approach, on the other hand, relies on the principle that "concepts concerning God or a supreme being of some sort are manifestly religious These concepts do not shed that religiosity merely because they are presented as a philosophy or as a science." [\[FN126\]](#) Without relying solely on the legislative history, Justice Powell found that "from the face of the statute, a purpose to advance a religious belief is apparent." [\[FN127\]](#) Powell supported this more objective approach by reference to the fact that creation scientists are largely affiliated with the Institute for Creation Research and/or the Creation Research Society. [\[FN128\]](#) He then used information to find that each institution has a clearly and overwhelmingly religious character, possessing in one case an explicitly religious statement of faith and in the other a requirement that its affiliates subscribe to a statement of faith in the literal truth of the Bible. [\[FN129\]](#)

Justice Powell's approach makes finding a violation of the Establishment Clause less dependent on subjective motivations, and therefore more dependable and relatively simple. By employing it, the religious purpose underlying ID

becomes obvious; the basic premise of ID is that evolution fails because it does not recognize the signs of a Creator in all forms of life. While ID advocates may disclaim the religious nature of this precept, it does promote the notion of a supreme Being. Defining "religion" is a surprisingly difficult task, [\[FN130\]](#) but a complete definition is not *35 necessary here. It is at least clear that a doctrine that makes the claim that a supernatural Creator exists is a religious doctrine, as is any doctrine "aris[ing] from a sense of the inadequacy of reason as a means of relating the individual to the universe." [\[FN131\]](#) ID implicitly makes both of these claims, and is therefore a religious doctrine even if its supporters claim otherwise. [\[FN132\]](#)

Since the sort of information relied upon by the Edwards majority may not be available to courts in future cases, courts may be forced to depend on amici curiae to provide critical information on the background and nature of the ID movement. Of course, where available, courts should use this information. But Justice Powell's approach permits a court, even in the absence of religious statements by legislators, to find that such laws tend to establish religion. At least one district court has recently done so to good effect, characterizing disclaimers attached to biology textbooks as violating the entanglement and primary effect prongs of Lemon in the absence of clear information about the rulemakers' motives. [\[FN133\]](#)

Powell's concurrence immediately continues, however, by noting that under the Lemon test a sufficient secular motive may render a religious motivation irrelevant, even if it exists. [\[FN134\]](#) Practically, then, an effective challenge to an ID law would have to include a showing that the secular justification was pretextual. This would make the test roughly analogous to the standard applied in *Daubert v. Merrell Dow Pharmaceuticals, Inc.* [\[FN135\]](#) Without such a showing, pro-ID legislators could defend a challenged statute on the grounds that it supported a valid scientific theory, even if they could be shown to have partly sectarian motives. Ideally, rather than getting mired in the question of legislative "motives"-a matter which is complicated for many reasons-courts ought to employ the more commonsense approach we have proposed: a doctrine such as ID, that posits supernatural explanations of biological phenomena, is a religious doctrine, and may not be taught in government schools, regardless of the motivations of the legislators who add such material to the curriculum.

C. Objectively Assessing Scientific Validity

I. Consensus Science

A third alternative would be a variant of the objective approach, whereby the court would independently assess the scientific validity of ID's claims. This is problematic, as it is difficult to imagine courts effectively doing so in every case, since judges cannot be expected to be scientific experts. Still, it is necessary for courts at least to examine the facial validity of some pseudoscientific claims; [\[FN136\]](#) if litigants' pretensions to scientific objectivity are accepted uncritically, then it would be easy to *36 evade the Establishment Clause. [\[FN137\]](#)

The need for some judicial inquiry into scientific validity may require some scientific education on the part of judges, many of whom demonstrate a drastic if unsurprising ignorance of science. It was disturbing to observe that, Justice Scalia, in his Edwards dissent, seemed prepared to adopt an astonishing mischaracterization of the scientific process perpetrated by the supporters of the statute: "The evidence for evolution is far less compelling than we have been led to believe. Evolution is not a scientific 'fact,' since it cannot actually be observed in a laboratory. Rather, evolution is merely a scientific theory or 'guess.'" [\[FN138\]](#) While Justice Scalia is at first glance only reciting statements made in support of the bill in the legislature, he glosses over the extreme and fundamental error therein. A "theory" in scientific terminology is not a fact which has yet to be proven, let alone a "guess," but rather "a set of statements or principles devised to explain a group of facts or phenomena, especially one that has been repeatedly tested or is widely accepted and can be used to make predictions about natural phenomena." [\[FN139\]](#) Scalia reiterated this error in a more serious fashion later in his dissent, which rejected the amicus brief submitted by a number of Nobel laureates disputing the claim that creationism was a valid scientific theory, and relied instead on affidavits submitted to the district court by "two

scientists, a philosopher, a theologian, and an educator, whose academic credentials [struck Scalia as] rather impressive." [\[FN140\]](#) Scalia seemed ready to rely on these affidavits for a number of questionable claims, including that "evolution is misrepresented as proven fact." [\[FN141\]](#)

This is troubling because judges are sometimes willing to uncritically accept the testimony of creationist advocates that their critiques are scientific rather than religious. Seven judges on the Fifth Circuit Court of Appeals joined a dissent accepting the claims of the Edwards litigants that creation science, a much more obviously religious doctrine than ID, represented legitimate science. These judges would have held that even if the legislature was motivated by a religious purpose, the "fact" that creationism is a scientific theory would cleanse the law of any Establishment Clause violation:

Let it be conceded, for purposes of argument, that many of those who worked to get this legislation passed did so with a religious motive Today we strike down a statute balanced and fair on its face because of our perception of the reason why it got the votes to pass: one to prevent the closing of children's minds to religious doctrine by misrepresenting it as in conflict with established scientific laws. [\[FN142\]](#)

This argument shows the weakness of the approach of the Edwards majority. It is certainly a reasonable argument that, if a legislature adopts a valid, secular law, but does so for at least partly religious reasons, these reasons cannot alone render an otherwise valid law unconstitutional. The Edwards majority's approach is brittle: on one hand, in the absence of legislative history revealing religious motivations, an ID *37 law might be held constitutional. On the other hand, if a court accepted that ID is a scientific enterprise, and thus that teaching it is a legitimate secular purpose, it might consider it improper to delve into legislative "motivations" at all.

Following the third approach might require courts to rely on testimony or amicus input from established academics and scientists, and such input has accepted in cases such as McLean. But identifying truly objective scientists may be difficult. If the pretenses of ID proponents to scientific legitimacy should be taken skeptically, their allegations that they are being censored by the scientific establishment for political and ideological reasons should also not be dismissed without question. [\[FN143\]](#) Certain benchmarks of objectivity could be extracted from the scientific establishment, however, such as the presence of peer-reviewed publications and independent research. [\[FN144\]](#)

The first and clearest, but perhaps least useful, piece of evidence for such a court to consider would be the scientific consensus that there is no serious debate among objective scientists as to the occurrence of evolution or the claims of intelligent design. Such a showing is not difficult. There is no shortage of peer-reviewed literature describing the accuracy, reliability, and predictive nature of evolutionary theory. [\[FN145\]](#)

Intelligent design supporters and theorists concede that their view is a "minority" one, but in doing so they understate the point. In fact, although the scientific community might disagree on some of the details, it overwhelmingly agrees that the basic theory of evolution is correct and indeed that it is the central and unifying concept in all of biology. The same community holds a near-complete consensus that intelligent design is not good science and therefore an unimportant theory in the field. Perhaps the most salient fact regarding this last consensus is that articles advocating intelligent design theory in peer-reviewed scientific journals appear to be nonexistent. [\[FN146\]](#)

But since many sciences start out as heresies, the mere fact that biologists overwhelmingly believe in evolution is not alone sufficient. Rather, the production of positive research-actual experimental results in peer-reviewed publications-is crucial to keeping this analysis from becoming an argumentum ad verecundium in the eyes of laypersons.

Evolutionary theory is well supported by an enormous body of peer-reviewed publications, reflecting the extraordinarily productive and testable successes of the theory. [\[FN147\]](#) ID, by contrast, has very little peer-reviewed literature to support its radical claims. Creationists of all stripes have a standard response to claims that their research has not been accepted by peer-reviewed scientific publications. This, advocates argue, is only because orthodox scientists censor intelligent design as politically unacceptable heterodoxy: "Many creationists publish extensively but most all are closet creationists, and it is almost unknown for an outspoken creationist to publish in leading journals. *38 Their papers

are rejected by a 'referee process' which is often actually a board of censors." [\[FN148\]](#) Jerry Bergman, writing for the creationist *Creation Ex Nihilo Technical Journal*, argues that information on such censorship is difficult as evolutionists suppress information on the subject:

Many librarians even classify creationist books as religion and anti-creationist books as science. Rectifying this problem has been made more difficult by journals on censorship censoring creationist articles on censorship. [Empirical] studies on censorship of creationist books that found that American libraries have on their shelves thousands of anti-creationist books yet few pro-creationist works, were sent to the American Library Association journal on censorship. Yet, the journal did not even display the courtesy of rejecting the article. [\[FN149\]](#)

The response of mainstream scientists, of course, would be that creationist and intelligent design literature is rhetorical and religious in nature, constituting issue advocacy rather than objective scientific inquiry, and as such are inappropriate in forums dedicated to objective science. Scientific validity should not be a matter of he-said she-said, of course. To ensure that mainstream scientific literature does not become the sole arbiter of what is and what is not valid science, it is important to assess the scientific merits of a theory via objective criteria such as predictive and explanatory value.

2. Objective Criteria

It is somewhat difficult to compare mainstream evolutionary theory and intelligent design, since the latter has not articulated a definite, testable theory. Evolutionary theory has accumulated a staggering body of scholarly and practical research, deeply probing the validity of everything from the modern synthesis of Darwinian theory and genetics to the use of the fossil record to confirm evolutionary predictions. [\[FN150\]](#)

Intelligent design has difficulty making testable predictions. The only clear prediction made by the basic hypothesis is that the designer, who is presumed to exist, can be detected (but never identified) by scientific methods. [\[FN151\]](#) If this is a testable prediction, then it is a test that intelligent design has failed; the entire movement is dedicated to providing scientific proof that the designer exists, but has yet to produce any results beyond rhetorical, political, and legal advocacy. William Dembski, when pressed on whether intelligent design makes testable predictions, has responded by exempting his theory from the need to do so:

But what about the predictive power of intelligent design? To require prediction fundamentally misconstrues design. To require prediction of design is to put design in the same boat as natural laws, locating their explanatory power in an extrapolation *39 from past experience. This is to commit a category mistake. To be sure, designers, like natural laws, can behave predictably (designers often institute policies that end up being rigidly obeyed). Yet unlike natural laws, which are universal and uniform, designers are also innovators. Innovation, the emergence to true novelty, eschews predictability. Designers are inventors. We cannot predict what an inventor would do short of becoming that inventor. Intelligent design offers a radically different problematic for science than a mechanistic science wedded solely to undirected natural causes. Yes, intelligent design concedes predictability. But this represents no concession to Darwinism, for which the minimal predictive power that it has can readily be assimilated to a design-theoretic framework. [\[FN152\]](#)

Intelligent design's best response to its inability to offer a testable prediction is that it cannot do so because the Designer, as an innovative Being, "eschews predictability." Courts, when presented with the challenge of determining whether ID can be accurately called science, must take note that the theory's most prominent advocates exempt it from the requirements of objective science because of its reliance on a creative Force that transcends nature.

Unfortunately, scientific laymen, including judges and juries, are often unqualified to determine the validity of a pseudotechnical movement such as intelligent design. This tends to bend the application of objective criteria back into an examination of consensus science, to test whether practical and theoretical scientists have found anything of value in the doctrine at hand. Scientific evidence, no matter how well grounded in experimental observations, will often be no more understandable (and perhaps much less so) than rhetorical design arguments. Courts are apparently uneducated as to the scientific method, or the necessity of objectivity and lack of preformed conclusions in scientific investigations.

[\[FN153\]](#) In addition, there are precedential problems with empowering courts to address scientific disputes. Although the evolution-creation controversy is not a genuine scientific dispute, there are many areas of science in which different "schools" really do exist. These genuine scientific disputes ought to be settled by scientific debate, not by courts. It is, therefore, an uncomfortable solution to suggest that courts be asked to be the arbiter of science. But when influential, organized, and self-aware interests press a rhetorical and political attack on objective science to achieve religious goals, courts must have the tools and the resources to enforce the separation of church and state.

IV. "NATURALISM" AND THE STATE

So far, we have considered whether teaching Intelligent Design violates the Establishment Clause of the First Amendment. We have concluded that for public schools to teach Intelligent Design violates the Clause for the same reason that teaching more primitive creationism violated the Clause: because it is a religious, *40 rather than a scientific theory-despite ID proponents' portrayal of the concept as religiously neutral. Sensing the failure of their attempts to disguise the religious nature of ID, some proponents of ID make a more sophisticated, epistemological argument for permitting it in the public school classroom. According to this argument, evolutionary theory is based on assumptions which, when taught by public school teachers, violate either the Establishment or Free Exercise Clauses.

The argument is that science itself eschews appeals to miraculous or magical explanations of observed phenomena, and looks instead for natural explanations. Evolution seeks to explain the history of life in natural terms of competition, mutation, replication, and so forth, rather than by reference to a supernatural Creator. By not relying on magical explanations for natural events, scientists ratify an intellectual approach (which proponents of this argument call "methodological naturalism"), which may have other logical consequences as well. If students are taught to avoid supernatural explanations for the origin of species, they are likely to decide to avoid supernatural explanations for the origin of moral concepts also. Methodological naturalism is inseparable from "ontological materialism," meaning that science's dedication to a search for useful natural explanations can only coexist with an atheist metaphysics. As House puts it, "If a 'Watchmaker' is carefully excluded at the beginning, we need not be surprised if no 'Watchmaker' appears at the end." [\[FN154\]](#) Thus, according to this argument, by adopting and teaching "methodological naturalism," government-run schools violate the Establishment Clause, in that they are teaching an approach to understanding things (not just biology, but morality and other things) of which religion has traditionally claimed monopoly. Also, by teaching "methodological naturalism," schools supposedly burden the Free Exercise rights of students whose faiths teach them to seek supernatural explanations for the origin of species, the origin of morals, and other things.

One of the principal spokesmen of this argument is Francis Beckwith. As Beckwith writes,

contemporary science's repudiation of intelligent agency as a legitimate category of explanation is not the result of carefully assessing ID's arguments and finding them wanting, but rather, it is the result of an a priori philosophical commitment to methodological naturalism (MN), an epistemological point of view that entails ontological materialism (OM), but which ID proponents contend is not a necessary condition for the practice of science.

[\[FN155\]](#)

There are several things wrong with this argument. First, some scientists and philosophers argue that methodological naturalism does not necessarily entail ontological materialism. [\[FN156\]](#) Instead, as Carl Zimmer writes, "science, whether it takes the form of chemistry, physics, or evolutionary biology, can explain only the lawlike regularities of the world. If God were to change the mass of protons every morning, it *41 would be impossible for physicists to make any predictions about how atoms work. The scientific method does not claim that events can have only natural causes, but that the only causes that we can understand scientifically are natural ones. As powerful as the scientific method may be, it must be mute about things beyond its scope. Supernatural forces are, by definition, above the laws of nature, and thus beyond the scope of science." [\[FN157\]](#) While some evolutionary theorists have criticized the notion that magical thinking is ever appropriate, [\[FN158\]](#) it is true that a great many scientists and philosophers adhere both to religious belief and to a strictly natural explanation of evolution. [\[FN159\]](#)

Second, it is not true that "methodological naturalism" is a philosophical given upon which scientists

"unquestioningly" build. Rather, as Zimmer makes clear, science appeals to natural explanations for the extremely important reason that supernatural explanations fail to account for natural phenomena in ways that are intellectually useful. As philosopher Daniel Dennett has put it, to appeal to miraculous thinking merely shifts the relevant question a little farther out of reach. [\[FN160\]](#) Also, in a more abstract philosophical sense, a refusal to appeal to magical thinking avoids turning scientific research into question-begging. As Jacob Bronowski put it,

It is those who appeal to God and special creation who reduce everything to accident. They assign to man a unique status on the ground that there was some act of special creation which made the world the way it is. But that explains nothing, because it would explain anything: it is an explanation for any conceivable world. If we had the color vision of a bee combined with the neck of a giraffe and the feet of the elephant, that would equally be explained by the "theory" of special creation. Yet we do not have those features, and we do not believe that they are biologically compatible. Therefore, our criterion of what is compatible sets a limitation on an acceptable explanation. That is why I say that to call in a special or miraculous act of creation reduces every conceivable world to accident. [\[FN161\]](#)

Supernatural explanations, as noted earlier, are like ipse dixit arguments, which are not useful and cannot provide a basis for predictions. By contrast, a science that avoids such thinking and seeks to explain natural phenomena in natural terms is the only science capable of giving us the tools to predict future phenomena, or to understand that phenomena in anything other than self-referential terms. Science's commitment to methodological naturalism is not a priori, but is a chosen path, based on the observed differences between the two epistemological approaches. As Bronowski put it, the greatest discovery of scientists is science itself. [\[FN162\]](#)

Third, and more to the point for the present analysis, Beckwith's argument seems to take for granted that the First Amendment requires the government to be epistemologically neutral in everything, and in every way. Beginning with the premise that "exclud[ing] non-materialist (or ID) accounts of natural phenomena" is "at worst, intellectual imperialism," [\[FN163\]](#) Beckwith claims that the Establishment Clause requires all *42 public policy to regard with equanimity those who would explain natural phenomena only in terms of other natural phenomena, and those who would explain them by appealing to a magical explanation. This assumption, however, is deeply flawed. For the government to adhere to naturalistic explanations is entirely legitimate-even necessary-and does not violate the Establishment Clause or the Free Exercise Clause.

A. The Establishment Clause

The argument that an official state commitment to natural explanations violates the Establishment Clause [\[FN164\]](#) assumes that government may not commit itself to natural explanations over supernatural explanations. But this argument suffers from the same weakness as Beckwith's concern over naturalism generally: because science's commitment to natural explanations is not a priori, but is the result of observed differences in the utility of naturalism versus supernaturalism. So long as the government is expected to engage in any secular policies at all-which is inescapable-it may commit itself to naturalism, in most ways, because of the greater practical benefits of that commitment. Consider, for example, *Smith v. Board of School Comm'rs of Mobile County*. [\[FN165\]](#) There, the court rejected an Establishment Clause challenge brought by parents against the use of certain textbooks in home economics classes, on the grounds that these books taught "secular humanism." [\[FN166\]](#) The Court of Appeals noted:

Examination of the contents of these textbooks, including the passages pointed out by Appellees as particularly offensive, in the context of the books as a whole and the undisputedly nonreligious purpose sought to be achieved by their use, reveals that the message conveyed is not one of endorsement of secular humanism or any religion. Rather, the message conveyed is one of a governmental attempt to instill in Alabama public school children such values as independent thought, tolerance of diverse views, self-respect, maturity, self-reliance and logical decision-making. This is an entirely appropriate secular effect. Indeed, one of the major objectives of public education is the "inculcat[ion of] fundamental values necessary to the maintenance of a democratic political system." It is true that the textbooks contain ideas that are consistent with secular humanism; the textbooks also contain ideas consistent with theistic religion. However, as discussed above, mere consistency with religious tenets is insufficient

to constitute unconstitutional advancement of religion. [\[FN167\]](#)

Similarly, in *Crowley v Smithsonian Institution*, [\[FN168\]](#) the plaintiff challenged the Smithsonian's use of government funds to display an exhibit on evolution, on the grounds that this display promoted what he called a "religion" of secular humanism, in violation of the Establishment Clause. Seeking to "balance between appellants' freedom to practice and propagate their religious beliefs in creation without suffering *43 government competition or interferences and appellees' right to disseminate, and the public's right to receive knowledge from government through schools and other institutions such as the Smithsonian," the court held that "[t]his balance was long ago struck in favor of diffusion of knowledge based on responsible scientific foundations, and against special constitutional protection of religious believers from the competition generated by such knowledge diffusion." [\[FN169\]](#) It noted that the "solid secular purpose of 'increasing and diffusing knowledge among men'" [\[FN170\]](#) was sufficient to permit the expenditure of federal funds:

Nor does it follow that government involvement in a subject which is also important to practitioners of a religion becomes, therefore, activity in support of religion. For example, birth control and abortion are topics that involve both religious beliefs and general health and welfare concerns. Many religious leaders have vigorously opposed government support of the teaching and practice of birth control and government support, or even toleration, of abortion. Controversy, including litigation, about these subjects has been prolific and spirited. No court, however, has finally held that government advocacy of or opposition to either birth control or abortion violates the establishment clause of the first amendment. [\[FN171\]](#)

These courts and others, [\[FN172\]](#) confronted with the argument that a secular educational program inherently violates the Establishment Clause by propagating a "religion of secularism," have rejected the argument for at least two reasons.

First, such a holding would provide the most superstitious person in the society with a heckler's veto against any governmental policy. If a city invested tax funds in creating a fire department, a person claiming that fires are a plague visited on the city because of its sins would be able to enjoin the fire department. If the President chose to meet with a foreign dignitary on Sunday (or Saturday), a strict sabbatarian could block the meeting. Government would grind to a halt. [\[FN173\]](#) Indeed, the argument is similar to that rejected by the Supreme Court in *Employment Division v. Smith*. [\[FN174\]](#) There, the Court noted that "government's ability . . . to carry out . . . public policy, 'cannot depend on measuring the effects of a governmental action on a religious objector's spiritual development.'" [\[FN175\]](#) So long as government is permitted to engage in any secular activities, it must be permitted to prefer naturalism to supernaturalism in at least some ways. It is at least difficult to believe that the framers of the First Amendment expected it to forbid government from basing its policies on verified, tested, scientific reasoning.

Second, if a commitment to non-supernatural thinking constitutes a religious establishment, the alternative would seem to be a complete reversal of Establishment Clause logic. For decades, the Establishment Clause has been applied through the controversial Lemon test, the first prong of which requires government to act for secular purposes. [\[FN176\]](#) If a commitment of naturalism violates the Establishment Clause, *44 then this test would need to be replaced with an understanding of the Clause that makes no distinction between government acting for a religious purpose or a secular purpose. Such an understanding would, to say the least, contravene the purpose of the Establishment Clause, which was to restrain government to secular duties.

B. The Free Exercise Clause

Similarly, some have argued that a government commitment to naturalism violates the Free Exercise clause by burdening the rights of students and others whose religious beliefs impel them to seek supernatural explanations for natural phenomena. [\[FN177\]](#) This argument holds that the teaching of evolution in government school classrooms violates the Free Exercise Clause, because students are "taught only one explanation by the scientific 'experts' (a.k.a. their science teachers) at a time in their lives when . . . they are most susceptible to . . . undue influence from authority figures." [\[FN178\]](#) But the Court has never held that merely being taught something violates the Free Exercise Clause.

In *Brown v. Hot, Sexy, and Safer Products, Inc.*, [\[FN179\]](#) the court held that while the Constitution does protect a parent's right to "choos[e] a specific educational program-whether it be religious instruction at a private school or instruction in a foreign language," a parent does not have a "fundamental constitutional right to dictate the curriculum at the public school to which they have chosen to send their children." [\[FN180\]](#)

Again, the primary problem with this argument is that it provides a heckler's veto over all government activity, particularly education. Except where limited by the Establishment Clause, government does have the authority to make statements which conflict with the private religious beliefs of individuals; it is easy to imagine the sorts of things which government would be forbidden from promulgating if the Free Exercise Clause were violated by government endorsement of secular messages. If a parent believed that God made black men intellectually inferior to white men, he would be empowered to stop public schools from exposing students to the speeches of Martin Luther King. But once one concedes that the state may establish and run a school system, one must also concede that the state has the Constitutional authority to teach students things that conflict with their religious beliefs, including even untrue things. While students may find the facts discomfoting, they may not claim a Constitutional protection from such discomfort.

Secondly, as the Supreme Court has noted, the Free Exercise Clause only forbids the government from interfering with a person's private observation of his religion; it does not empower a person to compel government to pursue specific policies. "The crucial word in the constitutional text is 'prohibit': 'the Free Exercise Clause is written in terms of what the government cannot do to the individual, not in *45 terms of what the individual can exact from the government.'" [\[FN181\]](#)

In this connection, cases involving blood transfusions and vaccinations are instructive. In *Jacobson v. Massachusetts*, [\[FN182\]](#) the Supreme Court held that the state could order vaccinations to combat the spread of disease despite the fact that some people

attach little or no value to vaccination as a means of preventing the spread of smallpox, or who think that vaccination causes other diseases of the body. What everybody knows the court must know, and therefore the state court judicially knew, as this court knows, that an opposite theory accords with the common belief, and is maintained by high medical authority. We must assume that, when the statute in question was passed, the legislature of Massachusetts was not unaware of these opposing theories, and was compelled, of necessity, to choose between them [\[FN183\]](#)

Jacobson stands for the fact that government may, in at least some cases, endorse a policy based on "methodological naturalism" despite the objections of scientific dissenters. [\[FN184\]](#) The same rationale underlies decisions holding that government may get courts to order blood transfusions for children even where the parents, as Jehovah's Witnesses, believe that this is sinful. [\[FN185\]](#)

In many cases, a government commitment to secular policies, or to non-supernatural explanations of phenomena, is entirely justified. To regard a commitment to naturalism as a form of religion is to break down the distinction between religion and non-religion, an entirely unhelpful enterprise, and one that resembles the claim that evolution is a religion-a claim courts have rejected. [\[FN186\]](#) "Any society adopting such a system would be courting anarchy." [\[FN187\]](#) To regard all epistemological methods as equally valid would, if consistently followed, unravel every government undertaking. Suppose that a man has a patently absurd notion that his neighbor is reading his brain through highly sophisticated alien technology. Under current law, he cannot sue for a nuisance, because this is a frivolous and irrational claim. [\[FN188\]](#) Some courts have taken judicial notice of the irrationality of certain pseudosciences, including phrenology and astrology. [\[FN189\]](#) It is hard to imagine what would happen to tort law, or the law of evidence, if government were to seriously attempt to treat naturalistic and supernatural theories of the world as equally valid in every respect.

C. Legitimate Concerns about Naturalism

This being said, however, courts have recognized that government's power to pursue secular policies does have its limits. A notable example is *United States v. Ballard*. [FN190] There, the Court held that the state could not prosecute persons claiming to be religious faith-healers on grounds of fraud. To allow a jury to determine whether faith-healing was a genuine phenomenon or a fraud would violate the Free Exercise *46 Clause.

Men may believe what they cannot prove. They may not be put to the proof of their religious doctrines or beliefs. Religious experiences which are as real as life to some may be incomprehensible to others. Yet the fact that they may be beyond the ken of mortals does not mean that they can be made suspect before the law The miracles of the New Testament, the Divinity of Christ, life after death, the power of prayer are deep in the religious convictions of many. If one could be sent to jail because a jury in a hostile environment found those teachings false, little indeed would be left of religious freedom. [FN191]

Ballard and similar cases [FN192] limit the degree to which government may commit itself to exclusively non-supernatural understandings. But it is possible to square these cases with such a commitment in two ways.

First, *Ballard* was concerned primarily with the possibility of a person being punished for holding unorthodox, unprovable religious beliefs. This is a legitimate concern-indeed, the Court was right that this was the primary reason for adopting the religion clauses of the First Amendment. [FN193] But it is not present in the debate over the constitutional legitimacy of teaching students creationism. There, the primary concern is whether the government may promulgate certain claims. *Ballard* concerns government punishing private activities relating to religion, so that its connection to the issue is analogous to the relationship between cases involving defamation laws and their relationship to freedom of expression in general. While the government is forbidden from punishing people for uttering statements or holding certain beliefs, this prohibition does not mean that government is itself required to make or avoid certain statements. Likewise, the government may not imprison creationists or censor them, but it may choose not to promulgate their views-indeed, it is forbidden by the Establishment Clause from promulgating their views-and it may choose to promulgate opposing views.

Second, *Ballard* and similar cases involved mature adults capable of choosing whether to adopt supernatural notions. Creationism cases tend to involve children who are compelled to attend government-operated schools. The state must avoid propagating religious views in the classroom because "[f]amilies entrust public schools with the education of their children, but condition their trust on the understanding that the classroom will not purposely be used to advance religious views that may conflict with the private beliefs of the student and his or her family." [FN194] Adults have the freedom and responsibility to choose whether to subject themselves to faith-healers, or to refuse blood-transfusions, in a way that children do not. In addition, taxpayers are required to fund public schools. Teaching religion in them is therefore objectionable because "compel[ing] a man to furnish contributions of money for the propagation of opinions which he disbelieves, is sinful and tyrannical." [FN195] For these reasons, the *47 Supreme Court has long shown a greater concern for Establishment Clause infractions in cases involving elementary school children than adults. [FN196]

D. Conclusion

The "methodological naturalism" critique of teaching evolution argues that the government may not make a thoroughgoing commitment to non-supernatural explanations of the history of life, or other issues. The argument claims that such a commitment violates the Establishment Clause, by "establishing" secularism, or the Free Exercise Clause, by intimidating students who believe in looking for supernatural explanations. But these arguments are seriously flawed, and courts confronted with similar arguments have routinely rejected them. The government may-indeed, must-be free to base its policies on methodological naturalism if it is to operate at all; moreover, the opposite conclusion would render the Establishment Clause meaningless at best. Nor does the Free Exercise Clause forbid the government from basing its policies on, or promulgating, natural explanations for natural phenomena. While in extreme cases, the government's commitment to naturalism can be limited, those limits apply only in cases involving responsible adults capable of choosing supernaturalism for themselves, and have only been applied in cases where such adults are threatened with punishment for their beliefs-something clearly forbidden by the First Amendment. A general commitment to naturalism

(while respecting the right of adults to choose supernaturalism) is not "intellectual imperialism;" it is the mandate of rational social policy and the Constitution's religion clauses.

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[\[FN1\]](#). Charles Darwin, *Descent of Man and Selection in Relation to Sex* 3 (John Murray ed., Princeton Univ. Press 1981) (1871).

[\[FN2\]](#). John Alroy, Jean Louis Rodolphe Agassiz (1807-1873), at <http://www.nceas.ucsb.edu/~alroy/lefa/LAgassiz.html> (last visited Oct. 16, 2005). Agassiz was perhaps the last scientifically respected creationist. See generally Louis Menand, *The Metaphysical Club* 96-149 (2001) (describing Agassiz's attempts to disprove evolution).

[\[FN3\]](#). [Edwards v. Aguillard, 482 U.S. 578 \(1987\)](#).

[\[FN4\]](#). For an exhaustive treatment of the topic, see generally Steven G. Gey et al., *Is It Science Yet?: Intelligent Design Creationism and the Constitution* (Sept. 2004) (unpublished manuscript, on file with the Fla. State Univ. College of Law, Public Law Research Paper No. 125), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=590882.

[\[FN5\]](#). Robert Pennock, *Intelligent Design Creationism and its Critics* 646 (2000).

[\[FN6\]](#). See generally Matt Young & Taner Edis, *Why Intelligent Design Fails* (2004); Mark Perakh, *Unintelligent Design* (2003).

[\[FN7\]](#). See generally University of California, Berkeley Museum of Paleontology, William Paley (1743-1805), *Evolution Wing*, at <http://www.ucmp.berkeley.edu/history/paley.html> (last visited Oct. 16, 2005).

[\[FN8\]](#). William Paley, *Natural Theology* 4 (Gregg Int'l 1970) (1802).

[\[FN9\]](#). Richard Dawkins, *The Blind Watchmaker: Why the Evidence Reveals a Universe Without Design* (1986).

[\[FN10\]](#). The Discovery Institute "discovers and promotes ideas in the common sense tradition of representative government, the free market and individual liberty." Mission Statement, Discovery Institute, at <http://www.discovery.org/about.php> (last visited Oct. 16, 2005). In addition to intelligent design advocacy, the Institute funds research on technology and democracy, bioethics, economics, and law and justice. Id.

[\[FN11\]](#). See Randy Dotinga, *A Who's Who of Players in the Battle of Biology Class*, *Christian Science Monitor*, Dec. 7, 2004, at 11 (noting "three-year-old figures for the Discovery Institute, a think tank that tackles a variety of issues beyond evolution, show that it spent \$2.2 million."). See also Karen L. Willoughby, *Discovery Institute Emerging as Force in Creation, Public Policy*, *Baptist News Press*, May 15, 2001, at <http://www.bpnews.net/bpnews.asp?ID=10888> (last visited Oct. 16, 2005) (noting, "The Center for the Renewal of Science and Culture has produced 25 books, hosted a stream of conferences and provided more than 100 doctoral and postdoctoral fellowships over the last five years - half of Discovery Institute's total output over its 11-year history.").

[\[FN12\]](#). Fellows, Discovery Institute, at <http://www.discovery.org/csc/fellows.php> (last visited Oct. 16, 2005).

[FN13]. What is Intelligent Design, Discovery Institute, at [http:// www.discovery.org/csc/topquestions.php](http://www.discovery.org/csc/topquestions.php) (last visited Oct. 16, 2005).

[FN14]. John G. West, Intelligent Design and Creationism Just Aren't the Same, Discovery Institute, at <http://www.discovery.org/scripts/viewDB/index.php?program=CSC&command=view&id=1329> (last visited Oct. 16, 2005) (outlining conceptual differences between ID and creationism, and highlighting creationist critics of ID).

[FN15]. See, e.g., Pennock, *supra* note 5.

[FN16]. See *infra* Section II(D), pp. 23-24.

[FN17]. "[S]cientific creationism . . . usually consists of Fundamentalist and/or Evangelical Christians, whereas, intelligent design is more theologically diverse. For example, various contributors to the seminal volume, *Mere Creation*, represent diverse theological beliefs, e.g., John Mark Reynolds (Eastern Orthodox), Jonathan Wells (The Unification Church), David Berlinski (Judaism), and Michael Behe (Roman Catholic)." H. Wayne House, [Darwinism and the Law: Can Non-Naturalistic Scientific Theories Survive Constitutional Challenge?](#), 13 *Regent U. L. Rev.* 355, 402-03 (2001).

[FN18]. See John Gibeaut, *Evolution of a Controversy*, 85 *A.B.A.J.* Nov. 1999, at 50, 54.

[FN19]. House, *supra* note 17, at 402.

[FN20]. *Id.* at 397-98.

[FN21]. See *id.*; Top Questions and Answers About Intelligent Design, Discovery Institute, at <http://www.discovery.org/scripts/viewDB/index.php?command=view&program=CSC%20-%20Views%20and%20News&id=2348> (last visited Oct. 16, 2005).

[FN22]. *Id.*

[FN23]. It is facile for design advocates to argue that their claimed Designer could be a natural entity; according to the intelligent design canon, it is essentially impossible for life to have originated and developed naturalistically, meaning that no natural entity could have evolved to become the Designer. In other words, even if ID advocates claim that the Designer of life on earth could be a natural extraterrestrial agency, ID requires a supernatural Designer for that designer.

[FN24]. The "Wedge Document", Lenny Flank, at [http:// www.geocities.com/CapeCanaveral/Hangar/2437/wedge.html](http://www.geocities.com/CapeCanaveral/Hangar/2437/wedge.html) (last visited Oct. 16, 2005).

[FN25]. Discovery Institute, The "Wedge Document": "So What?" available at <http://www.discovery.org/scripts/viewDB/index.php?command=view&program=CSC%20Responses&id=2101> (last modified March 1, 2004).

[FN26]. *Id.*

[FN27]. *Id.* at 14.

[FN28]. *Id.* at 15.

[FN29]. *Id.*

[FN30]. *Id.* at 16.

[FN31]. *Id.* at 15-16.

[FN32]. Blaire Martin, Polanyi Center's Future is Unclear, *Lariat* (October 24, 2000), at <http://www.baylor.edu/Lariat/news.php?action=story&story=15691> (noting that Dembski's time at the university was marred by controversy surrounding the Polyani Center, an intelligent design center that the faculty asked to be closed after determining that it had "creationist undertones" and expressing concern that it would "jeopardize their department's degrees"). See William A. Dembski, *Curriculum Vitae*, at http://www.designinference.com/documents/PDF_Current_CV_Dembski.pdf.

[FN33]. Jeff Robinson, Dembski to Head Seminary's New Science & Theology Center, *Baptist News Press*, at <http://www.sbc Baptist Press.org/bpnews.asp?ID=19115> (Sep. 16, 2004) (In reference to the move, Dembski commented, "I started out as a straight research mathematician but got into these questions of philosophy and theology because I was so exercised in my spirit about the unbelief I saw in the academy [and] why it seemed so reasonable to disbelieve the Christian faith That is what really motivated me to work on Christian worldviews and apologetics and it is in the background of my work on intelligent design as well.").

[FN34]. While the description of the filter presented here comes from a paper presented at an evangelical Christian university in 1996, the concept itself is still very much in circulation among intelligent design advocates. Dembski recently published a new text relying on the filter and its associate theories to defend the intelligent design position. See generally William A. Dembski, *The Design Revolution: Answering the Toughest Questions About Intelligent Design* (2004).

[FN35]. Bill Dembski, *Redesigning Science*, Address at Mere Creation Conference (November 15, 1996) (excerpts available at <http://www.origins.org/mc/resources/ri9602/dembski.html>).

[FN36]. *Id.* See also [Mochary v. Caputo, 494 A.2d 1028 \(N.J. 1985\)](#).

[FN37]. [Mochary, 494 A.2d at 1028-29](#).

[FN38]. In practice, while the court noted in dicta that the drawing was almost certainly unfair, it ultimately held that it was not proper to revisit an already decided election, and denied relief. *Id.*

[FN39]. Dembski, *supra* note 35.

[FN40]. *Id.* (citing [Mochary, 494 A.2d 1028 \(N.J. 1985\)](#)).

[FN41]. *Id.*

[FN42]. *Id.*

[FN43]. See, e.g., Jeffrey F. Addicott, [Storm Clouds on the Horizon of Darwinism: Teaching the Anthropic Principle and Intelligent Design in Public Schools, 63 Ohio St. L.J. 1507, 1573-76 \(2002\)](#) (focusing on macroscopic structures such as the eye). See generally Michael J. Behe, *Darwin's Black Box: The Biochemical Challenge to Evolution* 107 (1996).

[FN44]. Behe, *supra* note 43, at 39 ("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. An irreducibly complex biological system, if there is such a thing, would be a powerful challenge to Darwinian evolution.").

[FN45]. See Richard Dawkins, *Climbing Mount Improbable* 138-97 (1996).

[FN46]. *Id.* at 139.

[FN47]. *Id.* at 190.

[FN48]. Behe has made correspondence between himself and a variety of journal editors publicly available as a response to criticism of the scientific merits of his hypothesis. Michael J. Behe, *Correspondence with Science Journals: Response to Critics Concerning Peer Review*, Access Research Network, at http://www.arn.org/docs/behe/mb_correspondencewithsciencejournals.htm (last modified August 2, 2000). For peer-reviewed criticisms of the concept of irreducible complexity, see Eugenie C. Scott, *Not (Just) in Kansas Anymore*, 288 *Science* 813 (May 2000) and sources cited therein.

[FN49]. "Unlike creationism, the scientific theory of intelligent design is agnostic regarding the source of design and has no commitment to defending Genesis, the Bible or any other sacred text." John G. West, *Intelligent Design and Creationism Just Aren't the Same*, Res. News & Opportunities Sci. & Theology, Dec. 1, 2002, available at <http://www.discovery.org/scripts/viewDB/index.php?program=CSC&command=view&id=1329> (last visited Oct. 16, 2005).

[FN50]. "We owe a debt of gratitude to the Ohio State Board of Education. We must pray that their willingness to grasp the nettle will be productive and that they will stand firm on these changes when final decisions are made." David J. Tyler, *Teaching Controversy - The Creation vs. Evolution Debate*, *Evangelical Times* (Jan. 3, 2004), at <http://www.evangelical-times.org/Articles/jan03/jan03a04.htm>.

[FN51]. Gailon Tothorh, *Ohio Education War: Evolution, Media, and Intelligent Design*, CBN News Sci. & Med. Rep. (March 16, 2004), at https://www.cbn.com/CBNNews/Commentary/Tothorh_OhioEducationWar.asp (referencing Mel Gibson's film *The Passion of The Christ*).

[FN52]. Jonathan Wells, *Darwinism: Why I Went for a Second Ph.D.*, True Parents Organization, at <http://www.tpanswers.org/library/unification/talks/wells/DARWIN.htm> (last visited Oct. 16, 2005).

[FN53]. House, *supra* note 17.

[FN54]. Edward B. Davis, *ID critics' use of 'creationist' label is lazy and deliberate: A change won't happen soon*, News & Opportunities Sci. & Theology, Dec. 1, 2002, available at http://www.stnews.org/archives/2002/Dec_features.html#top (last visited Oct. 16, 2005).

[FN55]. About Us, InterVarsity Press, at <http://ivpress.gospelcom.net/info/aboutus/> (last visited Oct. 16, 2005) ("As an extension of InterVarsity Christian Fellowship/USA, InterVarsity Press serves those in the university, the church and the world by publishing resources that equip and encourage people to follow Jesus as Savior and Lord in all of life."). See also About the Author, InterVarsity Press, at http://www.gospelcom.net/cgi_ivpress/author.pl/author_id=889 (last visited Oct. 16, 2005) (listing Dembski's IVP publications as well as those from other publishers).

[FN56]. Glenn Branch, *Evolving Banners at the Discovery Institute*, National Center for Science Education, at http://www.ncseweb.org/resources/articles/4116_evolution_banners_at_the_discovery_8_29_2002.asp (last visited Oct. 16, 2005) (recording and presenting various banners and titles used by the Discovery Institute over a three-year period).

[FN57]. *Id.*

[\[FN58\]](#). House, *supra* note 17, at 439.

[\[FN59\]](#). *Id.* at 445 n.424.

[\[FN60\]](#). [Edwards v. Aguillard, 482 U.S. 578, 604 \(1987\)](#) (Powell, J., concurring) (quoting [Stone v. Graham, 449 U.S. 39, 41 \(1980\)](#)).

[\[FN61\]](#). Eugenie C. Scott & Glenn Branch, "Intelligent Design" Not Accepted by Most Scientists, Sch. Board News, Aug. 13, 2002, available at http://www.ncseweb.org/resources/articles/5896_intelligent_design_not_accep_9_10_2002.asp (last visited Oct. 16, 2005). See also Statements from Scientific and Scholarly Organizations, National Center for Science Education, at http://www.ncseweb.org/resources/articles/344_statements_from_scientific_an_12_19_2002.asp (last visited Oct. 16, 2005).

[\[FN62\]](#). [Epperson v. Arkansas, 393 U.S. 97 \(1968\)](#).

[\[FN63\]](#). [Scopes v. Tennessee, 289 S.W. 363 \(Tenn. 1927\)](#).

[\[FN64\]](#). [Epperson, 393 U.S. at 98](#) (citing Ark. Stat. Ann. § 80-1627 (Repl. Vol. 1960)).

[\[FN65\]](#). *Id.*

[\[FN66\]](#). *Id.* at 99-100.

[\[FN67\]](#). *Id.* at 102.

[\[FN68\]](#). *Id.* at 103.

[\[FN69\]](#). *Id.* at 109.

[\[FN70\]](#). *Id.*

[\[FN71\]](#). *Id.* at 109 n.17.

[\[FN72\]](#). *Id.* at 109 n.16.

[\[FN73\]](#). *Id.* (citations omitted).

[\[FN74\]](#). *Id.* at 103.

[\[FN75\]](#). *Id.* at 109.

[\[FN76\]](#). [McLean v. Arkansas Bd. of Educ., 529 F. Supp. 1255, 1256 \(E.D. Ark. 1982\)](#).

[\[FN77\]](#). *Id.*, (quoting Ark. Stat. Ann. § 80-1663 (Supp. 1981)).

[\[FN78\]](#). *Id.* at 1264.

[\[FN79\]](#). *Id.* at 1256-57. Individual plaintiffs included parents and next friends of children in the Arkansas public school system, a biology teacher in that system, and bishops and other clergy from Episcopal, Roman Catholic, United Methodist, African Methodist, Presbyterian, and Southern Baptist churches. Organizational plaintiffs included "the

American Jewish Congress, the Union of American Hebrew Congregations, the American Jewish Committee, the Arkansas Education Association, the National Association of Biology Teachers and the National Coalition for Public Education and Religious Liberty." Id. at 1257.

[FN80]. Id. at 1258-63. The court characterized creationists as a subset of fundamentalists, and attributed to both the belief that the only two perspectives on the origins of life are a literal interpretation of Genesis and evolution. Id. at 1260.

[FN81]. Id. at 1259-1260. Both institutions would be addressed by name in *Edwards v. Aguillard*. See [Edwards v. Aguillard, 482 U.S. 578 \(1987\)](#). See text accompanying note 128, *infra*.

[FN82]. [McLean, 529 F. Supp. at 1260](#) (It should be noted that many of the proponents of "creation science" as espoused in the McLean materials would be unenthusiastic about intelligent design, seeing it as an insufficiently Christian dogma. "It is impossible to devise a legitimate means of harmonizing the Bible with evolution.") (internal quotations omitted).

[FN83]. Deposition of Robert V. Gentry, *McLean v. Arkansas Documentation Project*, at http://mclean_project.home.att.net/depos/pf_gentry_dep.htm (last visited Oct. 16, 2005).

[FN84]. [McLean, 529 F. Supp. at 1257](#).

[FN85]. Id. at 1258. See generally [Lemon v. Kurtzman, 403 U.S. 602, 612-13 \(1971\)](#) ("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.'").

[FN86]. [McLean, 529 F. Supp. at 1272](#).

[FN87]. Id. at 1261.

[FN88]. Id.

[FN89]. Id. at 1261-62.

[FN90]. Id. at 1267.

[FN91]. Id.

[FN92]. See id. at 1268-69.

[FN93]. Id. at 1272.

[FN94]. [Edwards v. Aguillard, 482 U.S. 578 \(1987\)](#).

[FN95]. Id. at 580.

[FN96]. Id. at 582.

[FN97]. Id. at 586-87.

[FN98]. Id. at 587 ("It is equally clear that requiring schools to teach creation science with evolution does not advance academic freedom. The Act does not grant teachers a flexibility that they did not already possess to supplant the present science curriculum with the presentation of theories, besides evolution, about the origin of life. Indeed, the Court of

Appeals found that no law prohibited Louisiana public school teachers from teaching any scientific theory.").

[\[FN99\]. Id. at 594.](#)

[\[FN100\]. Id. at 591-92.](#)

[\[FN101\]. Id. at 591.](#)

[\[FN102\]. Id. at 592.](#)

[\[FN103\]. Epperson v. Arkansas, 393 U.S. 97, 106 \(1968\).](#)

[\[FN104\]. Edwards, 482 U.S. at 599](#) (citing [Malnak v. Yogi, 440 F. Supp. 1284, 1322 \(D.N.J. 1977\)](#)), *aff'd per curiam*, [592 F.2d 197 \(3d Cir. 1979\)](#)).

[\[FN105\]. Edwards, 482 U.S. at 601.](#)

[\[FN106\]. Id. at 602.](#)

[\[FN107\]. Id. at 599](#) ("A religious purpose alone is not enough to invalidate an act of a state legislature. The religious purpose must predominate.").

[\[FN108\]. Id. at 603-04](#) ("Here, it is clear that religious belief is the Balanced Treatment Act's 'reason for existence.' The tenets of creation science parallel the Genesis story of creation, and this is a religious belief. '[N]o legislative recitation of a supposed secular purpose can blind us to that fact.'") (citing [Stone v. Graham, 449 U.S. 39, 41 \(1980\)](#)).

[\[FN109\]. Edwards, 482 U.S. at 610](#) (Scalia J., Rehnquist C.J., dissenting).

[\[FN110\]. Id. at 594.](#)

[\[FN111\]. House, supra note 17, at 439-41.](#)

[\[FN112\]. Barbara Forrest, Intelligent Design? Special Report: Disputing Darwinism, Nat. Hist., April 2002 at 73.](#)

[\[FN113\]. See generally House, supra note 17, at 389.](#)

[\[FN114\]. House, supra note 17, at 409](#) (citing [Epperson v. Arkansas, U.S. 97, 99 \(1968\)](#)).

[\[FN115\]. House, supra note 17, at 409.](#)

[\[FN116\]. Lisa D. Kirkpatrick, Forgetting the Lessons of History: The Evolution of Creationism and Current Trends to Restrict the Teaching of Evolution in Public Schools, 49 *Drake L. Rev.* 125, 139-40 \(2000\).](#)

[\[FN117\]. Francis J. Beckwith, Public Education, Religious Establishment, and the Challenge of Intelligent Design, 17 *Notre Dame J.L. Ethics & Pub. Pol'y* 461, 512 \(2003\).](#)

[\[FN118\]. Kirkpatrick, supra note 116 at n.137. See also supra Part II\(C\)\(2\).](#)

[\[FN119\]. Percival Davis & Dean H. Kenyon, *Of Pandas And People: The Central Question of Biological Origins* \(Charles B. Thaxton ed., 2d ed. 1993\).](#)

[FN120]. See Jay D. Wexler, Note, Of [Pandas, People, and the First Amendment: The Constitutionality of Teaching Intelligent Design in the Public Schools](#), 49 *Stan. L. Rev.* 439, 439-40 (1997).

[FN121]. In *Of Pandas and People*, Davis and Kenyon assume that evolution is a random process, which it is not; evolution is the gradual, non-random selection of randomly caused variations. It takes place only among entities that reproduce—replicators—and writing in the sand on a beach, or a painting of a sunset, are not replicators. See, e.g., Davis, *supra* note 119, at 7 ("Are natural causes capable of producing these kinds of patterns [in DNA]? To say that DNA and protein arose by natural causes, as chemical evolution does, is to say complex, coded messages arose by natural causes. It is akin to saying 'John loves Mary' [written in the sand on a beach] arose from the action of the waves, or from the interaction of the grains of sand. It is like saying the painting of a sunset arose spontaneously from the atoms in the paint and canvas.... If science is based upon experience, then science tells us the message encoded in DNA must have originated from an intelligent cause.").

[FN122]. "On the final pages of *Pandas*, its authors argue that the book does not teach a religious viewpoint because intelligent design implies nothing about the beliefs, such as a young earth or a global flood, that are associated with Christian fundamentalism. The idea that life had an intelligent source, they further assert, is not unique to Christian fundamentalism." Wexler, *supra* note 120, at 457-58 (citing Davis, *supra* note 119 at 160-61).

[FN123]. E.g., [United States v. Downing](#), 753 F.2d 1224, 1238 n.18 (3d Cir. 1985) (taking judicial notice of the fact that astrology is not science).

[FN124]. [Edwards v. Aguillard](#), 482 U.S. 578, 596 (1987) (citing [Lemon v. Kurtzman](#), 403 U.S. 602 (1971)).

[FN125]. See House, *supra* note 17, n.420 (citing several intelligent design theorists for the proposition that "non-creationist scientists call into question the viability and truthfulness of evolution as a scientific theory.").

[FN126]. [Edwards](#), 482 U.S. at 599, (citing [Malnak v. Yogi](#), 440 F. Supp. 1284, 1322 (N.J. 1977), *aff'd per curiam*, 592 F.2d 197 (3d Cir. 1979)).

[FN127]. [Edwards](#), 482 U.S. at 598.

[FN128]. *Id.* at 601.

[FN129]. *Id.* at 602.

[FN130]. See Note, [Toward A Constitutional Definition of Religion](#), 91 *Harv. L. Rev.* 1056 (1978).

[FN131]. *W. Va. State Bd. of Educ. v. Barnette*, 319 U.S. 624, 659 (1943) (quoting [United States v. Kauten](#), 133 F.2d 703, 708 (2d Cir. 1943)).

[FN132]. Cf. [Glassroth v. Moore](#), 335 F.3d 1282, 1294-95 (11th Cir. 2003) (finding judge's display of Ten Commandments to be religious despite judge's claim that they were secular.) ID advocates might argue that the doctrine relies on reason to reach conclusions different than those of evolutionary theory. We maintain that intelligent design disclaims the scientific process and reasoned inquiry into natural laws in favor of arguments from incredulity and revelation.

[FN133]. *Selman v. Cobb County Sch. Dist.*, No. 102-CV-2325-CC, 2005 U.S. Dist. LEXIS 432, at 58-59 (N.D. Ga. Jan. 13, 2005).

[FN134]. [Edwards v. Aguillard](#), 482 U.S. 578, 599 (1987) ("A religious purpose alone is not enough to invalidate an act

of a state legislature. The religious purpose must predominate.").

[FN135]. [Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579, 592-93 \(1993\)](#). See also Gey, *supra* note 4, at 185-188.

[FN136]. See [Daubert, 509 U.S. at 592-93](#).

[FN137]. As Justice Field put it, "The Constitution deals with substance, not shadows. Its inhibition was leveled at the thing, not the name. It is intended that the rights of the citizen should be secure against deprivation for past conduct by legislative enactment, under any form, however disguised. If the inhibition can be evaded by the form of the enactment, its insertion in the fundamental law was a vain and futile proceeding." [Cummins v. Missouri, 71 U.S. 277, 325 \(1866\)](#).

[FN138]. [Edwards, 482 U.S. at 626](#) (Scalia, J., dissenting) (citing the legislative testimony). See also [Tangipahoa Parish Bd. of Educ. v. Freiler, 530 U.S. 1251 \(2000\)](#) (Scalia and Thomas, JJ., Rehnquist, C.J., dissenting from denial of certiorari) (seeming to adopt proposition that "other theories besides evolution-including, but not limited to, the Biblical theory of creation-are worthy of . . . consideration.").

[FN139]. The American Heritage College Dictionary (4th ed. 2002).

[FN140]. [Edwards, 482 U.S. at 625 n.4](#) (Scalia, J., and Rehnquist, C.J., dissenting).

[FN141]. *Id.*

[FN142]. [Edwards v. Aguillard, 778 F.2d 225, 227-28 \(5th Cir. 1985\)](#), *aff'd*, [482 U.S. 578 \(1987\)](#) (Gee, dissenting).

[FN143]. See William A. Dembski, *Becoming a Disciplined Science: Prospects, Pitfalls, and a Reality Check for ID*, Keynote address at RAPID Conference, Biola University (Oct. 25, 2002) (transcript available at http://www.designinference.com/documents/2002.10.27.Disciplined_Science.htm) ("Darwinism's defenders prefer that certain sectors of the public (like public education) be cordoned off and censored.").

[FN144]. See [Daubert v. Merrell Dow Pharms., Inc., 509 U.S. 579 \(1993\)](#).

[FN145]. See generally Jay D. Wexler, [Darwin, Design, and Disestablishment: Teaching the Evolution Controversy in Public Schools, 56 Vand. L. Rev. 751, 804 n.234 \(2003\)](#).

[FN146]. *Id.* at 803-04.

[FN147]. See generally *id.* at 145.

[FN148]. Jerry Bergman, *Censorship of Information on Origins*, 10 *Creation Ex Nihilo Technical J.* 3 (1996), at <http://www.rae.org/censor.html> (visited Oct. 16, 2005).

[FN149]. *Id.*

[FN150]. See also *Publish or Perish*, Talk.Origins Archive, at <http://www.talkorigins.org/faqs/behe/publish.html> (last modified October 16, 2001) (giving another cursory listing of peer-reviewed articles and books advancing evolutionary theory).

[FN151]. *Top Questions and Answers About Intelligent Design*, *supra* note 21.

[FN152]. William A. Dembski, *Is Intelligent Design Testable?*, Access Research Network, at

http://www.arn.org/docs/dembski/wd_isidtestable.htm (last modified October 5, 2001).

[FN153]. See supra text accompanying notes 138-141.

[FN154]. House, supra note 17, at 432.

[FN155]. Francis J. Beckwith, [Science And Religion Twenty Years After McLean v. Arkansas: Evolution, Public Education, And The New Challenge of Intelligent Design](#), 26 Harv. J.L. & Pub. Pol'y 455, 457 (2003).

[FN156]. See, e.g., Eugenie Scott, Creationism, Ideology, And Science, in *The Flight From Science and Reason* 505 (Paul R. Gross et al. eds., 1996).

[FN157]. Carl Zimmer, Evolution: The Triumph of an Idea 332 (2001).

[FN158]. See, e.g., Richard Dawkins, The Great Convergence, in *A Devil's Chaplain* 146 (2003).

[FN159]. See Scott, supra note 156, at 510.

[FN160]. See Daniel C. Dennett, Darwin's Dangerous Idea 74-77 (1995).

[FN161]. George Derfer, Science, Poetry, and "Human Specificity": An Interview with J. Bronowski, 43 Am. Scholar 386, 399-400 (1974).

[FN162]. Id.

[FN163]. Beckwith, supra note 117, at 469.

[FN164]. See, e.g., Wexler, supra note 145 (describing proposed state science policy which held that "censorship of design theory is inconsistent with the Establishment Clause's requirement of neutrality toward religion"). See also Lawrence Van Dyke, Not [Your Daddy's Fundamentalism: Intelligent Design in the Classroom](#), 117 Harv. L. Rev. 964, 967 (2004) ("ID may lend support to a plethora of theistic religions, it is itself no more a religion than naturalistic evolution.").

[FN165]. [Smith v. Bd. of Sch. Comm'rs](#), 827 F.2d 684 (11th Cir. 1987).

[FN166]. Id. at 690-91 (quoting [Smith v. Bd. of Sch. Comm'rs](#), 655 F.Supp. 939, 987 (S.D. Ala. 1987)).

[FN167]. Id. at 692 (citations omitted).

[FN168]. [Crowley v. Smithsonian Inst.](#), 636 F.2d 738 (D.C. Cir. 1980).

[FN169]. Id. at 744.

[FN170]. Id. at 740.

[FN171]. Id. at 742 (citations omitted).

[FN172]. See also [Cornwell v. State Bd. of Educ.](#), 314 F. Supp. 340 (D. Md. 1969), aff'd 428 F.2d 471 (4th Cir.), cert. denied 400 U.S. 942 (1970); [Civic Awareness of Am., Ltd. v. Richardson](#), 343 F. Supp. 1358 (E.D. Wis. 1972); [Smith v. Ricci](#), 446 A.2d 501, 507 (N.J. 1982), app. dismissed, 459 U.S. 962; Gregory G. Sarno & Alan Stephens, Annotation,

[Constitutionality of Teaching or Otherwise Promoting Secular Humanism in Public Schools, 103 A.L.R. Fed. 538](#) (rejecting argument that government sex education program violates Establishment Clause by establishing religion of secularism).

[FN173]. See also [McGowan v. Maryland, 366 U.S. 420, 442 \(1961\)](#) (upholding Sunday closing laws because, though originally enacted for religious purpose, they have sufficient legitimate secular purposes to justify them).

[FN174]. [Employment Div., Dep't of Human Res. v. Smith, 494 U.S. 872 \(1990\)](#).

[FN175]. [Id. at 885](#).

[FN176]. [Lemon v. Kurtzman, 403 U.S. 602, 612 \(1971\)](#).

[FN177]. See, e.g., Crystal V. Hodgson, Note, Coercion in The Classroom: The Inherent Tension between The Free Exercise and Establishment Clauses in the Context of Evolution, 9 Nexus J. Op. 171, 176-85 (2004).

[FN178]. [Id. at 180](#).

[FN179]. [Brown v. Hot, Sexy and Safer Prod., Inc., 68 F.3d 525 \(1st Cir. 1995\)](#).

[FN180]. [Id. at 533](#).

[FN181]. [Lyng v. Northwest Indian Cemetery Protective Ass'n, 485 U.S. 439, 449-51 \(1988\)](#).

[FN182]. [Jacobson v. Massachusetts, 197 U.S. 11 \(1905\)](#).

[FN183]. [Id. at 30-31](#).

[FN184]. See also [id. at 34-35](#) ("It must be conceded that some laymen, both learned and unlearned, and some physicians of great skill and repute, do not believe that vaccination is a preventive of smallpox. The common belief, however, is that it has a decided tendency to prevent the spread of this fearful disease, and to render it less dangerous to those who contract it. While not accepted by all, it is accepted by the mass of the people, as well as by most members of the medical profession The possibility that the belief may be wrong, and that science may yet show it to be wrong, is not conclusive; for the legislature has the right to pass laws which, according to the common belief of the people, are adapted to prevent the spread of contagious diseases While we do not decide, and cannot decide, that vaccination is a preventive of smallpox, we take judicial notice of the fact that this is the common belief of the people of the state, and, with this fact as a foundation, we hold that the statute in question is a health law, enacted in a reasonable and proper exercise of the police power." (quoting [Viemeister v. White, 179 N.Y. 235, 241 \(1904\)](#)).

[FN185]. See, e.g., [In re Cabrera, 552 A.2d 1114 \(Pa. Super. Ct. 1989\)](#); [Jehovah's Witnesses v. King's County Hosp., 278 F. Supp. 488, 504 \(W.D. Wash. 1967\)](#), [aff'd, 390 U.S. 598 \(1968\)](#).

[FN186]. See [Peloza v. Capistrano Unified Sch. Dist., 782 F. Supp. 1412, 1417-18 \(C.D. Ca. 1992\)](#) (citing supportive cases).

[FN187]. [Employment Div., Dep't of Human Res. v. Smith, 494 U.S. 872, 888 \(1990\)](#).

[FN188]. Cf. [McPherson v. First Presbyterian Church, 120 Okla. 40 \(1926\)](#) (holding that a nuisance suit cannot be maintained where neighbor's fear is irrational). But cf. [Everett v. Paschall, 61 Wash. 47, 51 \(1910\)](#).

[FN189]. See [United States v. Downing](#), 753 F.2d 1224, 1238 n.18 (3d Cir. 1985).

[FN190]. [United States v. Ballard](#), 322 U.S. 78 (1944).

[FN191]. [Id.](#) at 86-87.

[FN192]. See, e.g., [In re Brown](#), 689 N.E.2d 397 (Ill. App. Ct. 1997) (holding that the state may not require a pregnant woman to take a transfusion against her religious views for benefit of her unborn fetus); [Williams v. Bright](#), 632 N.Y.S.2d 760, 766 (Sup. Ct. 1995) (holding that the court may not find, as a matter of tort liability, that party's refusal of medical treatment on religious grounds was unreasonable).

[FN193]. See generally [Reynolds v. United States](#), 98 U.S. 145, 162-64 (1878) (describing reasons for passage of First Amendment).

[FN194]. [Edwards v. Aguillard](#), 482 U.S. 578, 584 (1987).

[FN195]. [Everson v. Bd. of Educ.](#), 330 U.S. 1, 13 (1947) (quoting Thomas Jefferson, Virginia Bill for Religious Liberty).

[FN196]. [Sch. Dist. v. Ball](#), 473 U.S. 373, 390 (1985).

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