

**IN THE UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF PENNSYLVANIA**

TAMMY J. KITZMILLER, <i>et al.</i>)	
)	
Plaintiffs,)	
)	
v.)	Civil Action No. 4:04-CV-2688
)	
DOVER AREA SCHOOL,)	Hon. John E. Jones, III
DISTRICT and DOVER AREA)	
SCHOOL DISTRICT BOARD OF)	(Filed Electronically)
DIRECTORS,)	
)	
Defendants,)	
)	

BRIEF OF AMICUS CURIAE, THE DISCOVERY INSTITUTE

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INTRODUCTION AND SUMMARY OF ARGUMENT

In this case, plaintiffs have made two main types of claims. First, they have made *fact-based* claims that the specific policy adopted by the Dover Area School Board (“DASB”) violates the first and second prongs of the *Lemon* test. Second, they claim that the theory of intelligent design is an “inherently religious concept” such that teaching students about it would necessarily violate *Lemon*’s first and second prongs *under any circumstances*. Amicus vigorously disputes this second, more general claim, but takes no position on the first.

Amicus takes no position on the first set of claims because Amicus lacks access to the factual record regarding the motives and actions of the DASB. Amicus disputes the second, more general claim, because it ignores the many secular purposes under which the theory of intelligent design could be taught, as well as the likely primary effect of teaching about intelligent design—to advance science education.

Secular purposes for teaching about the theory of intelligent design include informing students about competing scientific theories of biological origins, helping students to better understand the contrasting theory of neo-Darwinism (the standard textbook theory of evolution), and enhancing critical thinking skills.

As to the second prong of the *Lemon* test, plaintiffs falsely assert that the theory of intelligent design *necessarily* has the primary effect of advancing religion. Instead,

there is every good reason to regard the theory of intelligent design as a scientific theory, and thus, the primary effect of informing students about it is to improve science education; further, the inclusion of such “alternative scientific theories” was clearly authorized by *Edwards v. Aguillard*. Moreover, plaintiffs’ argument rests upon (a) the demonstrably false claim that design theory postulates a “supernatural creator” and (b) discredited and misapplied definitions of science.

Were it true that teaching about intelligent design had the primary effect of advancing religion, then by the same logic teaching neo-Darwinism would have a similar primary effect, since (as even plaintiffs have acknowledged) both theories have larger religious, anti-religious or metaphysical implications. Notwithstanding these implications, courts have repeatedly sanctioned the teaching of neo-Darwinism because (presumably) its primary effect is to advance science education and any effect on religion is merely incidental. Thus, since both neo-Darwinism and the theory of intelligent design may have larger, if contradictory, philosophical implications, teaching students about it not only should be *permitted*, but could serve to *advance religious neutrality*.

Thus, whatever the merits and history of DASB’s policy, Amicus urges the court to reject plaintiffs’ claim that teaching students about the theory of intelligent design *necessarily* violates the Establishment Clause. If the Court strikes down

DASB's policy, Amicus urges the court to fashion relief that does not impugn the constitutionality of teaching about intelligent design, since policies permitting such instruction might reflect valid secular purposes and could enhance religious neutrality.

INTEREST OF AMICUS

Amicus Discovery Institute (herein "Discovery") is a public policy think tank addressing transportation, bioethics, legal reform, and science and technology issues. Discovery's Center for Science and Culture ("CSC") supports scientific research developing the theory of intelligent design. Amicus has also taken a leading role in crafting and promoting an inclusive controversy-based approach to science education in general and biological origins in particular. Discovery's fellows include numerous highly credentialed scientists and scholars at respected academic institutions.

Dr. Stephen C. Meyer (Ph.D., Philosophy of Science, Cambridge University), CSC's Director, was initially designated by DASB as an expert witness in this case, along with several Discovery Senior Fellows, two of whom (Dr. Michael Behe and Dr. Scott Minnich) will testify. In anticipation of testifying, Dr. Meyer prepared and disclosed to plaintiffs an expert report (attached as Exhibit A) refuting the contentions of plaintiffs' experts. Although Dr. Meyer is not scheduled to testify, this brief relies directly upon many parts of Dr. Meyer's report and will direct the Court to other

pertinent sections.

ARGUMENT

I. TEACHING ABOUT THE THEORY OF INTELLIGENT DESIGN IN A SCIENCE CLASS CAN SERVE MANY IMPORTANT SECULAR PURPOSES.

Plaintiffs argue that the predominating purpose under which DASB enacted its policy was religious. In fact, plaintiffs acknowledge *no* secular purposes for teaching about the theory of intelligent design. Yet whatever the motivation of the individual school board members in this case, there are many secular purposes under which the theory of intelligent design *could* be taught, and that these purposes could predominate in a policy that permits teaching about intelligent design.

A. The Law Does Not Require That Government Action Have No Religious Purpose, But Only That Secular Purposes Predominate.

The first prong of the *Lemon test* requires that state action “must have a secular legislative purpose.”¹ In *Edwards v. Aguillard*, the U.S. Supreme Court elaborated upon this “purpose prong,” explaining that “[a] religious purpose alone is not

¹ *Lemon v. Kurtzman*, 403 U.S. 602 612-13 (1971) (internal citations and quotations omitted).

enough to invalidate an act of a state legislature.”² Thus, a school board policy will *not* be unconstitutional merely if some or even all of its members had religious motivations, or merely because one legislator’s motivations comprised a mixture of both religious and secular motives. For government action to be declared unconstitutional under *Lemon*, “[t]he religious purpose must predominate.”³

In *Edwards*, the Supreme Court sanctioned the teaching of alternatives to neo-Darwinism under legitimate secular purposes:

[T]eaching 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.⁴

Provided that the stated secular purpose is “sincere and not a sham,”⁵ policies resulting from religious motivations are permissible so long as such motivations do not predominate.

B. There Are Many Legitimate Secular Purposes Under Which The Theory Of Intelligent Design Could Be Taught

Valid secular purposes for teaching students about the theory of intelligent design include:

² *Edwards v. Aguillard*, 482 U.S. 578, 599 (1987).

³ *Id.*

⁴ *Id.* at 593-94.

⁵ *Id.* at 587.

- informing students about competing theories of biological origins as they exist within the scientific community,⁶
- helping students to better understand neo-Darwinism by understanding a theory with which it competes,⁷
- enhancing critical thinking skills by exposing students to alternative explanations for the origin of life,⁸
- helping students to understand the value of dissenting viewpoints in the advancement of scientific knowledge,⁹
- increasing student interest in science by exposing them to current debates within the scientific community,¹⁰ and
- advancing cultural literacy by helping students understand a current controversy about science and science education policy.¹¹

As Dr. Meyer's expert report explains (p. 48), the debate between Professor Michael Behe and Professor Ken Miller about the origin of "irreducibly complex"

⁶ "Where topics are taught that may generate controversy (such as biological evolution), the curriculum should help students to understand the full range of scientific views that exist..." Conference report to the No Child Left Behind Act, Congress; House Committee of Conference, *Report to Accompany H.R. 1*, 107th Cong. 1st sess., 78 (2001) H. Rept. 334, 78.

⁷ John Angus Campbell, "Intelligent Design, Darwinism, and Public Education Philosophy," in *Darwin, Design, and Public Education* (Michigan State University Press 2003).

⁸ Students should engage in "identification of assumptions, use of critical and logical thinking, and consideration of alternative explanations." National Research Council, *National Science Education Standards* (National Academy Press, 1996), 23.

⁹ Exhibit A, page 48.

¹⁰ Exhibit A, at 48.

¹¹ Campbell, *supra* note 7.

molecular machines could be used to enhance students' critical thinking skills or to interest them in the fascinating world of cell biology. Plaintiffs deny the scientific merit of the theory of intelligent design, and thus the educational value of giving students access to this debate. But even if design lacked scientific merit (which Amicus obviously disputes), judgments about "the wisdom of an educational policy . . . [are] not germane to the constitutional issue of whether that policy violates the establishment clause."¹²

C. Curriculum Policies Sanctioning The Teaching Of Design Theory Could Be Constructed In Which Secular Purposes Predominate

School boards and teachers typically have many educational reasons for selecting the curriculum that they introduce into their science classrooms. The reasons cited in the previous section are among the most important reasons that teachers or school boards may have for selecting a curriculum. Thus, a policy allowing the teaching of intelligent design could be enacted such that secular purposes predominate.

¹² *Smith v. Board of School Commissioners of Mobile County*, 827 F.2d 684, 694 (11th Cir. 1987). See also Exhibit A, at 49.

II. TEACHERS CAN INFORM STUDENTS ABOUT THE THEORY OF INTELLIGENT DESIGN WITHOUT ADVANCING RELIGION.

Plaintiffs have also argued that, even if DASB's policy had a secular purpose, teaching about the theory of intelligent design would "convey a message of endorsement of religion" and thus would have an impermissible effect of advancing religion. Plaintiffs base their argument on several assertions:

- (a) The theory of intelligent design lacks any empirical support and is by definition inherently unscientific;
- (b) Because intelligent design is not scientific, it must therefore be religious such that teaching about it would have the effect of advancing religion;
- (c) The theory of intelligent design postulates a "supernatural creator" and is indistinguishable from creationism for legal purposes;
- (d) In light of (c), the theory of intelligent design is not testable, reinforcing the claim that it is not scientific; and
- (e) DASB's disclaimer disparages the theory of evolution and relies upon a "theory/fact" distinction, both of which strategies have already been disapproved in other court cases.

Propositions (a) through (d) are clearly false. (As to (e), Amicus does not use a "theory/fact" distinction to justify its science education policy, and thus takes no position on this fact-specific objection to DASB's policy.)

- A. There Are Many Good Reasons For Regarding The Theory Of Intelligent Design As A Scientific Theory
1. Both The Theory Of Intelligent Design And Neo-Darwinism Address A Scientific Question – How Did The “Appearance Of Design In Living Systems” Arise – That Has Long Been Part Of Evolutionary And Historical Biology.

Biologists have long noted the appearance of design in living systems. As Richard Dawkins puts it, “Biology is the study of complicated things that appear to have been designed for a purpose.”¹³ Neo-Darwinism maintains, however, that the appearance of design is illusory because the mechanism of natural selection acting on random variations (or genetic mutations) can account for the appearance of design in living organisms. The theory of intelligent design proposes the opposite, namely that the appearance of design in living organisms is best explained by the action of a designing intelligence. Is design real or merely apparent? Courts have held that the Darwinian answer to this question (“Merely apparent”) is a scientific proposition.¹⁴ But if it is, then the opposite answer (“Design is real”) must also be a scientific proposition. Thus, the theory of intelligent design and neo-Darwinism do not make two different *kinds* of claims (one scientific and the other religious), but rather they offer the *two different answers* to the very same question.

Moreover, it is difficult to understand Darwin’s argument in *The Origin of*

¹³ RICHARD DAWKINS, *THE BLIND WATCHMAKER* (1986), p. 1.

¹⁴ *Epperson v. Arkansas*, 393 U.S. 97 (1968).

Species apart from understanding how he argues against the 19th-century version of the design hypothesis. The Darwinian mechanism (which functions in Darwinian thought as a kind of “designer substitute”) and the theory of intelligent design are dialectical complements. Thus, if one is scientific, then the other must be scientific as well.

2. The Theory of Intelligent Design Employs Established Scientific Methods

Scientists have long inferred or detected the prior activity of other designing minds by the character of the effects they leave behind.¹⁵ Archaeologists assume, for example, that rational agents produced the inscriptions on the Rosetta Stone. Insurance fraud investigators detect certain “cheating patterns” that suggest intentional manipulation of circumstances rather than “natural” disasters. Cryptographers distinguish between random signals and those that carry encoded messages. In *The Design Inference*, a peer-reviewed book published by Cambridge University Press, mathematician and philosopher William Dembski shows that recognizing the activity of intelligent agents constitutes a common and fully rational mode of scientific inference. Further, Dembski’s work explicates

¹⁵DEMBSKI, 1998 (Exhibit A, p. 51).

the criteria by which scientists recognize the effects of intelligent agents and distinguish them from the effects of material causes. The comparative evaluation procedure he describes and develops in *The Design Inference* thus constitutes a scientific method for design detection.

3. Empirical Evidence Supports the Theory of Intelligent Design

Recent discoveries in a variety of fields – molecular biology, cell biology, paleontology, comparative anatomy, genetics, and physics – have persuaded many scientists to re-examine the case for intelligent design. For example, Lehigh University biochemist Michael Behe has argued that “irreducibly complex” molecular machines and circuits in cells can best be explained by reference to an intelligent cause rather than an undirected process such as natural selection.¹⁶ Similarly, scientists such as Charles Thaxton, Walter Bradley, Dean Kenyon and Stephen Meyer have argued that the presence of the digital information encoded in DNA is best explained by an intelligent cause.¹⁷ Meyer has also argued that intelligent design may provide the best explanation of recent fossil discoveries establishing the sudden appearance of new animal forms and new biological

¹⁶ MICHAEL J. BEHE, *DARWIN'S BLACK BOX* (1996).

¹⁷ Thaxton, et al., 1984 (Exhibit A, p. 51)

information in an event known as the “Cambrian explosion.”¹⁸ Other scientists may vigorously disagree with the design-theoretic interpretation of such discoveries, but they cannot deny that these arguments for intelligent design are based upon empirical evidence.

4. Peer-reviewed and Peer-edited Scientific Literature Supports the Theory of Intelligent Design

In spite of efforts by critics of intelligent design to exclude them,¹⁹ scientists and philosophers advocating the theory of intelligent design have developed their theory and the empirical case for it in peer-reviewed publications; many of these publications are reviewed in Exhibit A (pp. 51-56), and include:

- articles in mainstream peer-reviewed scientific journals;
- articles in peer-reviewed philosophical journals;
- books published by prestigious university presses and trade presses; and
- articles in peer-edited or peer-reviewed scientific books and in scientific conference proceedings.

¹⁸ Stephen C. Meyer, “The Origin of Biological Information and the Higher Taxonomic Categories,” *PROCEEDINGS OF THE BIOLOGICAL SOCIETY OF WASHINGTON*, 117(2) (2004): 213-239.

¹⁹ Michael J. Behe, *Correspondence with Science Journals: Response to critics concerning peer-review*, (<http://www.discovery.org/scripts/viewDB/index.php?command=view&id=450>)

5. Attempts to Define Intelligent Design As Inherently Unscientific Depend Upon Discredited, Arbitrary, Or Contentious Definitions Of Science.

In *McLean v. Arkansas*²⁰ Judge Overton found that “creation science” failed to qualify as a scientific theory because it did not meet a definition of science offered by philosopher of science Michael Ruse, who was called as an expert witness by the ACLU. Ruse asserted that, to be scientific, a theory or explanation must be:

- (1) guided by natural law;
- (2) explanatory by reference to natural law;
- (3) testable against the empirical world;
- (4) tentative in its conclusions; and
- (5) falsifiable

Although leading philosophers of science (and even Ruse himself) subsequently repudiated Ruse’s definition of science,²¹ his criteria have been used as the basis for an exclusionary principle known as “methodological naturalism,” which asserts that to be scientific a theory must limit itself to material causes, and

²⁰ 529 F. Supp. 1255 (E.D. Ark. 1982).

²¹ Michael Ruse, *The New Anti-evolutionism*, 1993 Annual Meeting of the American Association for the Advancement of Science, available at <http://www.arn.org/docs/orpages/or151/mr93tran.htm>.

thus exclude from consideration *any* intelligent cause. This convention has been offered to disqualify not only creation science but also the theory of intelligent design.

In this case the plaintiffs do not propose specific criteria to justify methodological naturalism; nor have they referenced the discussion of this issue in contemporary philosophy of science. Instead, they simply assert methodological naturalism as though it were a self-evident definition of science, and then apply it to disqualify intelligent design.

Plaintiffs' bald assertion should be rejected for four reasons:

(1) *The Demarcation Criteria Used to Justify Methodological Naturalism as a Normative Principle of Scientific Reasoning Have Been Discredited.* Judge Overton's adoption of Ruse's criteria was widely criticized by other philosophers of science for "canonizing a false stereotype of science."²² As Appendix A (pp. 23-27) explains, philosophers of science have generally abandoned attempts to define science using "demarcation" criteria of the type promulgated in *McLean*.²³ Many well established scientific theories lack some of the presumably necessary features of "true science" (e.g., falsifiability, observability, use of law-like

²² Larry Laudan, *Science at the Bar—Causes for Concern, in BUT IS IT SCIENCE?* 351, 355 (Michael Ruse, ed., 1988)

²³ *Id.* at 354-55.

explanation, etc.), while many poorly supported, disreputable, or “crank” ideas meet some of these same criteria.

Even worse, the *McLean* criteria (and those used by plaintiffs, including testability) fail to recognize how scientific theories about past events differ from scientific theories about repeatable phenomena. Consequently, demarcation criteria have proven incapable of differentiating the scientific status of Darwinism from intelligent design.²⁴ For example, both intelligent design and neo-Darwinism are testable by comparing their power to explain already known evidence, but important aspects of these theories are not testable by prediction under “controlled laboratory conditions.” As Meyer has shown (see Appendix A, pp. 27-37 and citations), depending on which criteria are used to define science, and how they are applied, either both theories will qualify as science, or neither will. Only by abandoning any criteria, and asserting methodological naturalism by fiat, can plaintiffs validate neo-Darwinism and exclude design—but there is no justification for such an arbitrary limitation on scientific inquiry.²⁵

²⁴ *Id.*

²⁵ While Amicus believes that there are good reasons to regard intelligent design as scientific, Amicus recognizes that the question itself may be non-justiciable. Questions are non-justiciable when there is “a lack of judicially discoverable and manageable standards.” *Vieth v. Jubelirer*, 541 U.S. 267, 277-78 (2004). Even expert philosophers of science have been unable to settle the question, “What is science?” Still less is this question subject to “judicially discoverable and

(2) *Scientists Have Not Always Restricted Themselves to Naturalistic Hypotheses.* Contrary to plaintiffs’ assertion, it is not true that all scientists since the Enlightenment have accepted methodological naturalism as normative.²⁶ Newton, for example, made design arguments within his scientific works, most notably in the *Principia* and in the *Opticks*. Louis Aggasiz, a distinguished paleontologist and contemporary of Darwin, also made design arguments within his scientific works, insisting that the pattern of appearance in the fossil record strongly suggested “an act of mind.” Defenders of methodological naturalism can claim at best that it has had normative force during *some* periods of scientific history. But this concedes that canons of scientific method change over time—and indeed they have. From Newton until Darwin, design arguments were a common feature of scientific research. After Darwin, more materialistic canons of method came to predominate. More recently, however, this has begun to change, as the following discussion demonstrates.

(3) *Many scientific fields currently posit intelligent causes as scientific explanations.* As noted previously (§IIA2), design detection (the inference to

manageable standards.” Insofar as plaintiffs base their argument on the claim that design is inherently unscientific, and thus inherently religious, finding the scientific status of intelligent design non-justiciable would undermine plaintiffs’ case.

²⁶ Appendix A, p. 38.

intelligent causation) is part of many scientific fields. Thus, the claim that methodological naturalism imposes a universal constraint upon scientific reasoning is false.

(4) *Even within biology, methodological naturalism is contested.* Granted, many evolutionary biologists accept methodological naturalism as normative within their discipline. Nevertheless, other biologists, scientists, and philosophers of science reject methodological naturalism because it prevents scientists from considering hypotheses that may be true and following the evidence wherever it leads.²⁷ Indeed, a central aspect of the current debate over design is precisely about whether methodological naturalism should be regarded as normative for biology today. Darwinian scientists say it should remain normative; scientists advocating intelligent design disagree. For this reason, plaintiffs cannot invoke methodological naturalism to settle the debate about the scientific status of intelligent design *because methodological naturalism is itself a large part of what the controversy is about.* Plaintiffs' argument is thus vacuous. It asserts: 'The theory of intelligent design cannot be part of science because it violates the principle of methodological naturalism,' which turns out to be nothing more than the claim that intelligent causes – and thus the theory of intelligent design – must

²⁷ Appendix A, p. 38.

be excluded from science.

B. The Theory of Intelligent Design Does Not Postulate a Supernatural Creator and Is Distinct from Creationism

Following *Edwards v. Aguillard*, plaintiffs argue that, like creationism, the theory of intelligent design is a religious viewpoint because it postulates a “supernatural creator.”²⁸ But the plaintiffs mischaracterize intelligent design, which does not postulate a supernatural creator, but instead infers only an unspecified designing intelligence. Exhibit B. Plaintiffs confuse the propositional content of the theory of intelligent design with the personal religious beliefs of some of the scientists who advocate it.

Of course, many advocates of intelligent design do affirm the existence of a supernatural creator as a matter of personal religious belief, as do many evolutionary biologists, including plaintiffs’ expert Kenneth Miller. But as intelligent design proponents have consistently maintained, the theory itself says nothing about the *identity* of the intelligent agent who may be responsible for the complexity of life—*nor can it do so*.

There is a good scientific reason for this. The analytical tools permitting the

²⁸ 482 U.S. 578, 592.

detection of a prior intelligent cause, and the biological evidence that justifies the inference to such a cause, are insufficient to determine its identity. For this reason, design theorists carefully distinguish the case for intelligent agency (as the best explanation of biological data) from philosophical or theological speculation regarding the identity of the designing intelligence. Just as an archaeologist can infer the action of an intelligent scribe from a hieroglyphic inscription without knowing the scribe's identity, so too can a biologist infer a designing intelligence from the information encoded in DNA without knowing its author. By limiting the scope of design theory, design theorists are not seeking to circumvent *Edwards v. Aguillard*—a canard repeated frequently in the media and by plaintiffs' experts. Instead, design theorists are merely insisting on scientific rigor by claiming no more than what accepted methods of design detection and the biological evidence can establish. As Michael Behe explains:

I myself do believe in a benevolent God . . . ***But a scientific argument for design in biology does not reach that far.*** Thus while I argue for design, the question of the identity of the designer is left open. Possible candidates for the role of designer include: the God of Christianity; an angel--fallen or not; Plato's demi-urge; some mystical new age force; space aliens from Alpha Centauri; time travelers; or some utterly unknown intelligent being. Of course, some of these possibilities may seem more plausible than others based on information from fields other than science. Nonetheless, as regards the identity of the designer, modern ID theory happily echoes Isaac

Newton's phrase *hypothesis non fingo* [I will not speculate].²⁹

Based on the false claim that design theory postulates an omnipotent deity, plaintiffs and plaintiffs' witnesses have argued that the theory of intelligent design is not testable, and therefore not scientific. This claim is incorrect. As Dr. Meyer has demonstrated in his expert report, the theory of intelligent design is not only testable, but is testable in precisely the same way as is neo-Darwinism and other scientific theories about the past history of the natural world.

Moreover, the theory of intelligent design is distinct from "creationism" in the methods that it employs, in its propositional content, and in its constitutional standing.³⁰

C. School Boards Could Enact A Policy Permitting Discussion Of The Theory Of Intelligent Design Without Relying Upon Contentious Disclaimers Stating That Evolution "Is A Theory . . . Not A Fact."

Advocates of teaching about the theory of intelligent design justify its inclusion in the science curriculum on the grounds that design represents a credible, evidence-

²⁹ Michael Behe, "The Modern Intelligent Design Hypothesis," *Philosophia Christi*, Series 2, Vol. 3, No. 1 (2001): 165 (emphasis added).

³⁰ DeWolf, Meyer and DeForrest, *Teaching the Origins Controversy: Science, Religion, or Speech?*, 2000 UTAH L. REV. 39, 93-95; Francis J. Beckwith, *Science and Religion 20 Years After McLean v. Arkansas: Evolution, Public Education, and the Challenge of Intelligent Design.*" 26 HARVARD J. L. & PUB. POL'Y 455, 484-489 (2003).

based alternative to materialistic evolutionary theories. They do not employ the contentious and imprecise “theory/fact” distinction that DASB incorporates in its policy. Clearly, a policy allowing for teaching about intelligent design could be constructed that does not depend on this distinction.

D. Teaching About Design Theory, Like Teaching About Neo-Darwinism, Has Only An Incidental Effect On Religion

State action that results in an indirect or secondary benefit (or detriment) to religion is not unconstitutional under the second prong of the *Lemon* test. The Supreme Court has consistently held that the *primary* effect must be distinguished from incidental or secondary effects:

The Court has made it abundantly clear, however, that “not every law that confers an ‘indirect,’ ‘remote,’ or ‘incidental’ benefit upon [religion] is, for that reason alone, constitutionally invalid.” Here, whatever benefit there is to one faith or religion or to all religions, is indirect, remote, and incidental³¹

Under such logic, teaching about either Darwinian evolution or the theory of intelligent design could either inhibit or encourage religious belief, without violating the Establishment Clause, so long as the *primary* effect of such teaching is not to advance or inhibit religion. Just as the theory of intelligent design may

³¹ *Lynch v. Donnelly*, 465 U.S. 668, at 683 (internal citations omitted).

have favorable implications for theistic, deistic, polytheistic, or even pantheistic systems of thought, so too might neo-Darwinism have favorable implications for atheistic or materialistic systems of thought. Obviously, the critical constitutional question in both cases is whether the alleged effect on religion from a policy permitting the discussion of such scientific theories is merely incidental or primary. In *Agostini v. Felton*,³² the Supreme Court noted that benefits are incidental when they are provided “on the basis of neutral, secular criteria that neither favor nor disfavor religion.”³³

There are several neutral, secular criteria that could be the basis for including the theory of intelligent design in the science curriculum. For example, a school board might wish to (a) promote scientific literacy and (b) follow the Report language in the No Child Left Behind Act³⁴ by including “the full range of scientific views” about biological evolution in its science curriculum. Even if one result of such a policy was to encourage (or discourage) various religious or philosophical beliefs, such effects, by the standard enunciated in *Agostini*, would be merely incidental. Further, the variety of secular purposes for teaching about intelligent design cited in the previous section could generate other “neutral,

³² 521 U.S. 203, 231 (1997).

³³ *Id.* (because services to students in a religious school resulted in a benefit that had been distributed on a neutral, secular basis, program was constitutional).

³⁴ *Supra* note 6.

secular criteria” that would justify teaching about intelligent design and render the effect of such a policy on religion merely incidental.

Precisely such logic has permitted the courts at once to acknowledge the anti-religious implications of teaching neo-Darwinism³⁵ and at the same time to authorize its presentation.³⁶ In this case plaintiffs freely admit that teaching neo-Darwinism is offensive to certain religious beliefs;³⁷ indeed, their assertion of religious motivation is based on the claim that the conflict between neo-Darwinism and certain religious beliefs generated the DASB policy. More generally, many neo-Darwinists have openly acknowledged the anti-theistic implications of their theory. As Miller and Levine’s textbook originally stated, “Darwin knew that accepting his theory required believing in philosophical materialism”³⁸ Or, as Douglas Futuyma has stated in his authoritative textbook, “By coupling undirected, purposeless variation to the blind, uncaring process of natural selection, Darwin made theological or spiritual explanations of the life processes superfluous.”³⁹ Such statements raise an obvious question. As Justice Black asked in *Epperson*: “[I]f the theory [of evolution] is considered anti-religious, as the Court indicates,

³⁵ *Epperson v. Arkansas*, 393 U.S. 97, 113 (1968). (Black, J., concurring).

³⁶ *Id.*

³⁷ Plaintiffs’ Opposition to Motion for Summary Judgment, p. 59.

³⁸ KENNETH R. MILLER & JOSEPH LEVINE, *BIOLOGY: DISCOVERING LIFE* (1992), at 152; (2d ed. 1994), at 152.

³⁹ Douglas Futuyma, *EVOLUTIONARY BIOLOGY* (3d ed.), p. 5.

how can the State be bound by the Federal Constitution to permit its teachers to advocate such an `antireligious' doctrine to schoolchildren?" The answer to this rhetorical question is clear: courts have treated the religious implications of neo-Darwinism as merely an incidental effect of the secular purpose of teaching students about a scientific theory.

E. Given That Both Theories Have Larger Implications, The Inclusion Of Intelligent Design In The Curriculum Could Advance Religious Neutrality.

Arguably, the theory of intelligent design has broadly theistic implications (since evidence of a prior intelligent cause is consistent with belief in a god or a creator). By the same logic, however, neo-Darwinism has equivalent atheistic or materialistic implications (since the neo-Darwinian theory that life arose by a purely undirected process is consistent with a materialistic or atheistic worldview). Although neither theory advances nor inhibits any specific religion or sect, both may have favorable implications for broad, if contradictory, systems of thought or worldviews. For this reason, teaching both neo-Darwinism and the theory of intelligent design could actually more closely approximate neutrality with respect to the Establishment Clause, since allowing students to learn about both theories advances metaphysical neutrality. Conversely, teaching only one of these two

competing theories would not be metaphysically neutral, but instead would favor one class of religious believers to the detriment of others. In short, the broad relief demanded by the plaintiffs would stand the principle of religious neutrality on its head.

CONCLUSION

Because the inclusion of intelligent design in the science curriculum can serve a variety of important secular purposes, and because it has a primary effect of improving science education and even promoting religious neutrality, the plaintiffs' request for broad and precedent-setting relief should be denied.

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE

Counsel certifies that this brief complies with the type-volume limitation set forth in Local Rule 7.8 (b)(2) of the Local Rules for the United States District Court for the Middle District of Pennsylvania. According to the word-processing system used to prepare it, this brief contains 4,995 words.

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