INTELLIGENT DESIGN WILL SURVIVE *KITZMILLER V. DOVER**

by David K. DeWolf, John G. West,*** and Casey Luskin******

I. Introduction

The year 2005 was the year the theory of intelligent design (ID) made the headlines. It was featured on the cover of *Time* magazine,[1] its study was seemingly endorsed by the President of the United States,[2] and it became one of the most talked-about issues in the public square. However, its increasing public recognition also attracted the attention of defenders of Darwinian orthodoxy, who vowed to banish it from the realm of respectable discourse.

When the Dover Area School District, located in central Pennsylvania, adopted a policy that required biology classes to be told about the theory of ID as part of a short statement introducing the topic of biological evolution, the American Civil Liberties Union (ACLU) and Americans United for Separation of Church and State filed suit. As the trial began in late September 2005, Barry Lynn, Executive Director of Americans United for Separation of Church and State, predicted that the Dover case would be "the death knell for intelligent design as a serious issue confronting

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* *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707 (M.D. Pa. 2005). Editors' Note: A critical response to the present article follows. Peter Irons, *Disaster in Dover: The Trials (and Tribulations) of Intelligent Design*, 68 Mont. L. Rev. 59 (2007). Irons's response is rebutted by the present authors in *Rebuttal to Irons*, 68 Mont. L. Rev. 89 (2007). The series is preceded by *Editors' Note: Intelligent Design Articles*, 68 Mont. L. Rev. 1 (2007), which includes a chronology of important events pertaining to *Kitzmiller*.

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1. 166 Time Mag. front cover (Aug. 15, 2005) (referring to Claudia Willis, *The Evolution Wars*, *id.* at 26).

2. *Id.* at 28.

American school boards, period. I think this will be the last case."[3]

After several months of testimony, Judge John E. Jones III issued an opinion that appeared to be just what the plaintiffs wanted. The opinion was immediately hailed by opponents of ID as having driven "a stake into the heart of the ID proponents' crusade to circumvent the Establishment Clause."[4] Initial commentary on the case seemed to assume that Judge Jones had ruled correctly, and that the only question for the courts would be how to identify and stop further evasions of the Establishment Clause.[5] But announcements of the demise of ID were greatly exaggerated. As even Judge Jones acknowledged, his opinion has "no precedential value outside the Middle District [of Pennsylvania]";[6] its influence will depend heavily upon its persuasive quality, and close inspection of the opinion reveals many fatal flaws.

Before analyzing the opinion itself, it is necessary to review the factual setting in which the case arose, particularly with regard to the role of Discovery Institute, an organization with which

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3. Barry Lynn, Panel Discussion, *From Scopes to Dover: Should the Courts Permit Public Schools to Teach Intelligent Design?* (Natl. Press Club, D.C., Sept. 22, 2005) (available at http://pewforum.org/events/index.php?EventID=84 (accessed March 22, 2007)).

4. Stephen Gey, Op. Ed., Kitzmiller*: An Intelligent Ruling on "Intelligent Design"*, Jurist Leg. News & Research (Dec. 29, 2005) (available at http://jurist.law.pitt.edu/forumy/2005/12/kitzmiller-intelligent-ruling-on.php). A representative of the anti-ID National Center for Science Education cheerfully told the leading science journal *Nature* that "Intelligent design as a strategy is probably toast." Emma Marris, *Intelligent Design Verdict Set to Sway Other Cases*, 439 Nature 6, 6–7 (Jan. 5, 2006).

5. *See* Charles Kitcher, *Lawful Design: A New Standard for Evaluating Establishment Clause Challenges to School Science Curricula*, 39 Colum. J.L. & Soc. Probs. 451, 452–53 (2006); Brenda Lee, Student Author, Kitzmiller v. Dover Area School District*: Teaching Intelligent Design in Public Schools*, 41 Harv. Civ. Rights-Civ. Libs. L. Rev. 581, 583–84 (2006); Louis J. Virelli III, *Making* Lemon*ade: A New Approach to Evaluating Evolution Disclaimers under the Establishment Clause*, 60 U. Miami L. Rev. 423, 430 n. 41 (2006); Anne Marie Lofaso, *Does Changing the Definition of Science Solve the Establishment Clause Problem for Teaching Intelligent Design as Science in Public Schools? Doing an End-Run around the Constitution*, 4 Pierce L. Rev. 219, 222–23 (2006); Anthony Kirwin, Student Author, *Toto, I've a Feeling We're . . . Still in Kansas? The Constitutionality of Intelligent Design and the 2005 Kansas Science Education Standards*, 7 Minn. J.L. Sci. & Tech. 657, 678–89 (2006); Kristi L. Bowman, *Seeing Government Purpose through the Objective Observer's Eyes: The Evolution-Intelligent Design Debates*, 29 Harv. J.L. & Pub. Policy 417, 437 (2006); Todd R. Olin, Student Author, *Fruit of the Poison Tree: A First Amendment Analysis of the History and Character of Intelligent Design Education*, 90 Minn. L. Rev. 1107, 1122–23 (2006) ("The court emphatically found that Intelligent Design is a new form of creationism and that the designer it proposes is the God of Christianity.").

6. Lisa L. Granite, *One for the History Books*, Pa. Law. 17, 22 (July/Aug. 2006).

the authors of this article are affiliated and one which played a role in Judge Jones's analysis of the issues.

II. Factual Background of the *Kitzmiller* Case and Involvement of Discovery Institute

The Discovery Institute was formed in 1990 as a nonprofit public policy and research center with programs in such areas as transportation, technology, economics, education, and representative democracy.[7] In 1996, the Institute launched the Center for the Renewal of Science and Culture (later renamed the Center for Science and Culture) to support research and public education with regard to controversies surrounding ID and neo-Darwinian theory.[8] The Center funds the work of scientists, philosophers and historians of science, social scientists, and legal experts, and by 2005, the Center for Science and Culture was recognized as the leading supporter of research and scholarship on ID.[9] In 2000, one of the authors of this article published, along with two other co-authors, an article defending the academic freedom of teachers to voluntarily address the topic of ID in public school classrooms.[10] In 2002, two Discovery Institute scholars were invited to testify before the Ohio State Board of Education as the board formulated Ohio's science education standards.[11] In order to provide guidance to individuals and organizations who were interested in better ways to teach biological origins, the Discovery Institute assigned attorney Seth Cooper the task of communicating with "legislators, school board members, teachers, parents and students across the country" about how to approach the subject.[12] He de-

7. Discovery Inst., *Center for Science and Culture*, *Top Questions*, "General Questions, 1," http://www.discovery.org/csc/topQuestions.php#generalQuestions (accessed Nov. 4, 2006) [hereinafter Discovery Inst., *Top Questions*]; Discovery Inst., *About Discovery*, "Mission Statement," http://www.discovery.org/about.php (accessed Dec. 20, 2006).

8. Discovery Inst. *Top Questions*, *supra* n. 7; Teresa Watanabe, *Enlisting Science to Find the Fingerprints of a Creator*, L.A. Times A1 (Mar. 25, 2001).

9. Paul Nussbaum, *Court Test Is Near for "Intelligent Design"*, Phila. Inquirer A1 (Sept. 25, 2005); Discovery Inst., *Top Questions*, *supra* n. 7; Discovery Inst., *New Book Examines Misguided Quest of Darwin's Conservatives*, http://www.discovery.org/scripts/viewDB/index.php?command=view&id=3799 (accessed Dec. 20, 2006).

10. David K. DeWolf, Stephen C. Meyer & Mark Edward DeForrest, *Teaching the Origins Controversy: Science, or Religion, or Speech?* 2000 Utah L. Rev. 39.

11. Discovery Inst., *Ohio Praised for Historic Decision Requiring Students to Critically Analyze Evolutionary Theory*, http://www.discovery.org/scripts/viewDB/index.php?command=view&id=1368 (Dec. 10, 2002).

12. Seth Cooper, Discovery Inst., *Center for Science and Culture*, *Evolution News & Views*, "Statement by Seth L. Cooper Concerning Discovery Institute and the Decision in *Kitzmiller v. Dover Area School Board* Intelligent Design Case," http://www.evolutionnews.

scribed the policy position of the Discovery Institute as recommending, from both an educational and legal standpoint, that public schools present the "scientific arguments both supporting and challenging the contemporary version of Darwin's theory as well as chemical evolutionary theories for the origin of the first life."[13] While Fellows at the Discovery Institute had supported the right of individual teachers, exercising their academic freedom, to address the topic of ID in a scientifically and educationally responsible way, the Discovery Institute in general, and Seth Cooper in particular, had consistently *opposed* policies that would mandate the teaching of the theory of ID in public schools.[14]

Cooper learned about the Dover controversy in June of 2004 after reading a newspaper article, and he then called Dover school board member William Buckingham, and warned him that the board was courting legal trouble if it "require[d] students to learn about creationism or [attempted] to censor the teaching of the contemporary [presentation] of Darwin's theory or chemical origin of life scenarios."[15] Cooper also emphasized that the Discovery Institute does not support *requiring* that the theory of ID be presented; instead, it recommends that schools cover scientific criticisms of Darwin's theory along with the scientific evidence supporting the theory.[16] Cooper sent Buckingham materials that included a DVD based on the book *Icons of Evolution*[17] and a study guide prepared as a companion to *Icons of Evolution*.[18] Notably, these materials focused only on scientific criticisms of Darwin's theory. They did not discuss ID.[19] Nonetheless, in the fall of 2004, Cooper learned that the Dover board planned to require science teachers to use the textbook *Of Pandas and People* (*Pandas*).[20] Cooper then communicated with several Dover school board members, hoping to persuade them to rescind the policy, revise it, or aban-

org/2005/12/statement_by_seth_l_cooper_con.html (Dec. 21, 2005) [hereinafter Cooper, *Statement*].

13. *Id.*

14. *Id.*

15. *Id.*

16. *Id.*

17. Jonathan Wells, *Icons of Evolution: Science or Myth? Why Much of What We Teach about Evolution Is Wrong* (Regnery Publg. 2000).

18. Cooper, *Statement*, *supra* n. 12.

19. *Id.*

20. *Id.*; Percival Davis & Dean H. Kenyon, *Of Pandas and People: The Central Question of Biological Origins* (Charles B. Thaxton ed., Haughton Publg. Co. 1993) [hereinafter Davis & Kenyon, *Pandas*].

don it altogether.[21] Discovery Institute also issued a statement on October 6, 2004 opposing the policy under consideration by the Dover board:

> [A] recent news report seemed to suggest that the Center for Science & Culture endorses the adoption of textbook supplements teaching about the scientific theory of intelligent design (ID), which simply holds that certain aspects of the universe and living things can best be explained as the result of an intelligent cause rather than merely material and purposeless processes like natural selection. Any such suggestion is incorrect.[22]

Despite the lack of support from the Discovery Institute, on October 18, 2004 the board voted to adopt a policy that required discussion of ID in biology classes.[23] Shortly thereafter, the Discovery Institute expressed to the news media its opposition to the adopted policy, and the Institute's disagreement with the policy was acknowledged in an article published in early November 2004 by the Associated Press.[24] The board later modified its policy to require that an oral disclaimer be read to biology classes. The disclaimer stated, "Intelligent Design is an explanation of the origin of life that differs from Darwin's view" and noted that "[t]he reference book, Of Pandas and People, is available for students who might be interested in gaining an understanding of what Intelligent Design actually involves."[25] Dover's board apparently was encouraged to adopt its policy by assurances from the Thomas More Law Center (TMLC) that the policy was constitutional and that TMLC would defend the school board in the event that the policy was challenged.[26] TMLC supported the Dover board not-

21. Cooper, *Statement*, *supra* n. 12.

22. Discovery Inst., *Pennsylvania School District Considers Supplemental Textbook Supportive of Intelligent Design*, http://www.discovery.org/scripts/viewDB/index.php?command=view&id=2231 (Oct. 6, 2004).

23. *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 708 (M.D. Pa. 2005) ("Students will be made aware of gaps/problems in Darwin's theory and of other theories of evolution including, but not limited to, intelligent design. Note: Origins of Life is not taught.").

24. Martha Raffaele, *Teaching "Intelligent Design" Required*, Wis. State J. (Madison) A8 (Nov. 14, 2004) ("Even the Seattle-based Discovery Institute, which supports scientists studying intelligent-design theory, opposes mandating it in schools . . . said John West, associate director of the institute's Center for Science and Culture.").

25. *Kitzmiller*, 400 F. Supp. 2d at 708–09 (quoting Dover Area School Board disclaimer).

26. E-mail interview by authors with Seth L. Cooper, Former Atty. for Discovery Inst. (Dec. 20, 2006); Jenni Laidman, *Ann Arbor Law Firm Fights to Dethrone Darwin*, Toledo Blade B1 (Mar. 5, 2006); Discovery Inst., *Setting the* Record *Straight about Discovery Institute's Role in the Dover School District Case*, http://www.discovery.org/scripts/viewDB/index.php?command=view&id=3003&program=News&callingPage=discoMainPage (Nov. 10, 2005) [hereinafter Discovery Inst., *Setting* Record *Straight*]; Christina Kauffman, *Crea-*

withstanding the fact that the Discovery Institute privately communicated its strong reservations about the policy to TMLC attorneys.[27]

On December 14, 2004 the ACLU and Americans United for Separation of Church and State filed suit on behalf of eleven parents of students in the district.[28] The same day, the Discovery Institute again reiterated its opposition to the policy, issuing a statement in which John West explained, "When we first read about the Dover policy, we publicly criticized it because according to published reports the intent was to mandate the teaching of intelligent design . . . ."[29] West went on to reiterate Discovery's position that "intelligent design should not be prohibited, [but] we don't think intelligent design should be required in public schools."[30]

In preparing its defense, TMLC sought the assistance of prominent ID advocates, many of whom were affiliated with the Discovery Institute. Each witness appeared on his own behalf, rather than as a representative of the Discovery Institute. Two scientists affiliated with the Discovery Institute—biochemist Michael Behe of Lehigh University and microbiologist Scott Minnich of the University of Idaho—testified as expert witnesses for the school board.[31] Three other Discovery Institute Fellows—Stephen Meyer, William Dembski, and John Angus Campbell—were initially willing to testify but ultimately did not do so because of disagreements with TMLC attorneys.[32] Two additional experts later withdrew from testifying, but those "two witnesses . . . [were] not affiliated with the Discovery Institute and the Institute had nothing to do with any decisions surrounding their withdrawal."[33]

As it became clear that the plaintiffs planned to focus their case on the "intelligent design movement" (which Judge Jones

tionism Conflict, York Dispatch (Oct. 28, 2005) (available at http://www.yorkdispatch.com/searchresults/ci_3160754).

27. Discovery Inst., *Setting* Record *Straight*, *supra* n. 26, at § 2.

28. Compl. at 1, 24–25, *Kitzmiller*, 400 F. Supp. 2d 707.

29. Discovery Inst., *Discovery Calls Dover Evolution Policy Misguided, Calls for Its Withdrawal*, http://www.discovery.org/scripts/viewDB/index.php?command=view&id=2341 (Dec. 14, 2004).

30. *Id.*

31. Discovery Inst., *Setting* Record *Straight*, *supra* n. 26, at § 3; Discovery Inst., *Center for Science and Culture*, *Fellows*, http://www.discovery.org/csc/fellows.php (accessed Mar. 4, 2007).

32. Discovery Inst., *Setting* Record *Straight*, *supra* n. 26, at § 3 (explaining why Stephen C. Meyer, William Dembski, and John Angus Campbell did not testify).

33. *Id.*

calls the "IDM"[34]) rather than simply on the actors in Dover, and as it became increasingly clear that TMLC would not represent those interests, the publisher of *Pandas*, the Foundation for Thought and Ethics (FTE), sought to intervene as co-defendant. FTE filed a motion to intervene on May 23, 2005, but after hearing the motion, Judge Jones denied it on July 27, 2005.[35]

When the testimony at trial revealed the religious motives and questionable conduct of the individual school board members and the poor impression the board members had made upon Judge Jones, it became increasingly clear that the school board would lose. However, the Discovery Institute maintained that there was no reason for the judge to conflate the actions of the school board with those of the "IDM." There was also no reason for the judge to try to resolve the scientific controversy over whether a theory that pointed to intelligence as a possible explanation for a scientific phenomenon should be recognized as scientific.[36] In support of this view, the Discovery Institute filed an amicus brief urging the court to decline the invitation to employ demarcation criteria so as to arbitrarily exclude intelligent design from science.[37] In addition, eighty-five scientists—including professors from the University of Georgia, the University of Michigan, and the University of Iowa, as well as a member of the National Academy of Sciences—filed an amicus brief imploring the court not to assume that scientific questions could be resolved by judicial decree.[38] Despite his listing of these briefs in a footnote,[39] there is no evidence from the

34. *E.g. Kitzmiller v. Dover Area School Dist.*, 400 F. Supp. 2d 707, 716 (M.D. Pa. 2005).

35. *Kitzmiller v. Dover Area Sch. Dist.*, 229 F.R.D. 463, 471 (M.D. Pa. 2005).

36. Because the relief sought by the plaintiffs—an injunction against the policy adopted by the school board—could be granted on the obvious ground that the school board had acted for religious rather than secular reasons in adopting the policy, Judge Jones could have avoided the non-justiciable question, "What is Science?":

> 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 [in part] 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 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.

(Rev.) Br. of Amicus Curiae Discovery Inst. at 20 n. 30, *Kitzmiller*, 400 F. Supp. 2d 707 [hereinafter Discovery Brief, *Kitzmiller*].

37. Discovery Brief at 19–20, *Kitzmiller*.

38. Br. of Amici Curiae Biologists and Other Scientists in Support of Defs. at 6–7, 26–38, *Kitzmiller* [hereinafter Biologists Brief, *Kitzmiller*].

39. *Kitzmiller*, 400 F. Supp. 2d at 711 n. 3.

text of Judge Jones's opinion that he ever considered the arguments made in either brief.[40] By contrast, "90.9% (or 5,458 words) of Judge Jones's 6,004-word section on intelligent design as science was taken virtually verbatim from the ACLU's proposed 'Findings of Fact and Conclusions of Law' submitted to Judge Jones nearly a month before his ruling."[41]

III. THE *KITZMILLER* RULING AND JUDICIAL ACTIVISM

Judge Jones issued his decision on December 20, 2005. The ruling resolved the question of whether the challenged policy violated the Establishment Clause by finding unmistakable religious motives on the part of the Dover Area School Board.[42] However, Judge Jones also found it "incumbent upon the Court to further address an additional issue raised by Plaintiffs, which is whether ID is science."[43] This, Judge Jones felt, was necessitated not only because the issue was "essential to our holding that an Establishment Clause violation has occurred in this case, but also in the hope that it may prevent the obvious waste of judicial and other resources which would be occasioned by a subsequent trial involving the precise question which is before us."[44]

Judge Jones was wrong on both counts. As the following analysis demonstrates, not only was it *not* "essential" to his holding that "an Establishment Clause violation has occurred" to make findings about the whether ID is science, but one federal district court judge cannot, and should not presume to settle a contested scientific issue for all other courts.

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40. Even one of the plaintiffs' expert witnesses, Kevin Padian, and an advisor to the plaintiffs with the NCSE, Nick Matzke, recognized that these "amicus briefs were ignored by the Judge." Kevin Padian & Nick Matzke, *National Center for Science Education*, *Discovery Institute Tries to "Swift-Boat" Judge Jones*, http://www.ncseweb.org/resources/articles/127_discovery_institute_tries_to_1_4_2006.asp (Jan. 4, 2006); *see also Kitzmiller*, 400 F. Supp. 2d at 743 (referring to Padian's expert testimony); Natl. Ctr. for Sci. Educ., *Matzke Profiled in* Seed, http://www.ncseweb.org/ourstaff.asp (accessed Mar. 10, 2007) ("During the landmark 'intelligent design' case *Kitzmiller v. Dover*, Nick spent a year working for the Plaintiffs' legal team, providing scientific advice and researching the creationist origins of the ID movement.").

41. John G. West & David K. DeWolf, *A Comparison of Judge Jones' Opinion in* Kitzmiller v. Dover *with Plaintiffs' Proposed "Findings of Fact and Conclusions of Law,"* http://www.discovery.org/scripts/viewDB/filesDB-download.php?command=download&id=1186 (accessed Jan. 19, 2007).

42. *Kitzmiller v. Dover*, 400 F. Supp. 2d at 746–63.

43. *Id.* at 734–35.

44. *Id.* at 735.

Under the disjunctive *Lemon* test,[45] all that was necessary to determine that an Establishment Clause violation had occurred was to find that the Dover school board members had predominantly religious motivations for enacting their ID policy.[46] Longstanding U.S. Supreme Court precedent suggests that in resolving constitutional issues, a narrow holding (such as a finding that the school board had religious motives in adopting the policy) is preferable to a broad holding (concerning the definition of science, the motives of the "IDM," or whether ID is science); in *Village of Euclid v. Ambler Realty Co.*,[47] the Supreme Court pointed out that it is the "traditional policy of this Court" to decide only the legal question most directly at issue, not all possible legal questions raised by a particular controversy:

> In the realm of constitutional law, especially, this Court has perceived the embarrassment which is likely to result from an attempt to formulate rules or decide questions beyond the necessities of the immediate issue. It has preferred to follow the method of a gradual approach to the general by a systematically guarded application and extension of constitutional principles to particular cases as they arise, rather than by out of hand attempts to establish general rules to which future cases must be fitted.[48]

The Supreme Court employed precisely this approach when dealing with the teaching of biological origins. The Court did not analyze the effect prong of the *Lemon* test when it struck down Louisiana's Balanced Treatment for Creation-Science and Evolution-Science Act.[49] "[B]ecause the primary purpose of the Creationism Act [was] to endorse a particular religious doctrine,"[50] the Court chose to devote no analysis under *Lemon*'s effect prong. The Court found that the district court "properly concluded that a Monday-morning 'battle of the experts' over possible technical meanings of terms in the statute would not illuminate the contemporaneous

45. "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.' " *Lemon v. Kurtzman*, 403 U.S. 602, 612–13 (1971) (citing *Bd. of Educ. v. Allen*, 392 U.S. 236, 243 (1968)).

46. *Id.*

47. *Village of Euclid v. Ambler Realty Co.*, 272 U.S. 365 (1926).

48. *Id.* at 397; Ernest A. Young, *Judicial Activism and Conservative Politics*, 73 U. Colo. L. Rev. 1139, 1152–53 (2002) (stating that "[a] court that tends to announce sweeping rules—thereby leaving less leeway for future judicial decisions—is refusing to defer to *future* courts in much the same way that courts departing from precedent have refused to defer to *past* tribunals").

49. La. Stat. Ann. § 17:286.1 (2006).

50. *Edwards v. Aguillard*, 482 U.S. 578, 594 (1987).

purpose of the Louisiana Legislature when it made the law."[51] In other words, judicial findings and inquiries on the scientific status of the theory in question and the effect of teaching it are neither necessary nor appropriate if a court finds that the acting government agents had predominantly religious motivations, for "[i]f the law was enacted for the purpose of endorsing religion, 'no consideration of the second or third criteria [of *Lemon*] is necessary.' "[52]

Judge Jones had no trouble finding extensive and unambiguous evidence for the religious motives of the Dover Area School Board,[53] which would have disposed of the case under the *Ambler Realty* principle. Instead, he tried to settle an array of the broadest questions possible, including the proper definition of science,[54] the motives of the "IDM,"[55] the compatibility of Darwinian theory with religion,[56] and even obscure scientific minutiae such as whether the Type-III Secretory System could be an evolutionary precursor to the bacterial flagellum,[57] and whether inductive reasoning provides a quantitative argument for design.[58]

Judge Jones suspected that his broad holdings would lead to accusations that he is "an activist judge."[59] He therefore inserted a pre-emptive defense to this charge by noting that "[t]hose who disagree with our holding will likely mark it as the product of an activist judge" but "they will have erred as this is manifestly not an activist Court."[60] In a post-decision interview, Judge Jones reiterated this point, accusing his critics of calling him an activist simply because "an activist judge is a judge whose decision you disagree with."[61]

Proclaiming that one is not an activist judge does not make it so. And claiming that those who charge "judicial activism" simply disagree with the ruling and have nothing better to say does not mean that reasonable arguments cannot be raised that Judge Jones's ruling intruded into inappropriate territory or had factually incorrect findings. Judicial activism is not just a meaningless

51. *Id.* at 596.
52. *Id.* at 585 (citing *Wallace v. Jaffree*, 472 U.S. 38, 56 (1985)).
53. *Kitzmiller v. Dover*, 400 F. Supp. 2d 707, 746–63 (M.D. Pa. 2005).
54. *Id.* at 735.
55. *Id.* at 720, 737.
56. *Id.* at 765.
57. *Id.* at 739, 740.
58. *Id.* at 741–42.
59. *Kitzmiller*, 400 F. Supp. 2d at 765.
60. *Id.*
61. Granite, *supra* n. 6, at 23.

epithet; it is a term applied to judges who succumb to the temptation to "increase their impact as policymakers."[62] Judicial activism has the tendency to displace other branches of government, or other institutions in society, that are arguably better equipped to resolve a dispute.[63] When Judge Jones described the breadth of his opinion as being the result of a "fervent hope" that his opinion "could serve as a primer for school boards and other people who were considering this [issue],"[64] he admitted (apparently without realizing it) that he was a judicial activist. Nonetheless, because we have described Judge Jones's "activism" in detail elsewhere,[65] there is no need to do so here: readers can decide for themselves whether Judge Jones's ruling tried to settle a controversial social issue by deciding matters far beyond the necessary legal questions he had to address.

Despite Judge Jones's apparent desire to have the final word on ID for the judiciary, future jurists encountering efforts to address the topic of ID will have not only the right, but the obligation to think for themselves and determine whether the reasoning used by Judge Jones is accurate, necessary, or even relevant. Indeed, future courts may do well to read the balance of this article, which outlines the key errors of fact and law made by Judge Jones in his opinion.

IV. Error #1: Conflating the "IDM" with the Actions of the Dover School Board

Judge Jones's first major error was conflating the case for ID as it has been made by the "IDM" with the actions of the Dover

62. Lawrence Baum, *American Courts: Process and Policy* 316 (4th ed., Houghton Mifflin Co. 1998) (providing that "[p]olicymaking is inherent in the work of the courts, but judges have some control over the *extent* of their involvement in policymaking. In deciding cases, judges often face a choice between alternatives that would enhance their court's role in policymaking and those that would limit its role. . . . When judges choose to increase their impact as policymakers, they can be said to engage in activism; choices to limit that impact can be labeled judicial restraint").

63. Young, *supra* n. 48, at 1145 ("A common thread [in judicial activism is] a refusal by the court deciding a particular case to defer to other sorts of authority at the expense of its own independent judgment about the correct legal outcome. [This] sort of behavior, then, tends to increase the significance of the court's own institutional role *vis-à-vis* the political branches, the Framers and Ratifiers of the Constitution, or other courts deciding cases in the past or in the future.") (citation omitted).

64. Granite, *supra* n. 6, at 22.

65. David K. DeWolf, John West, Casey Luskin & Jonathan Witt, *Traipsing into Evolution: Intelligent Design and the* Kitzmiller v. Dover *Decision* 9–13 (Discovery Inst. Press 2006) [hereinafter DeWolf et al., *Traipsing*].

school board. As laid out in the factual background in Section II, the Dover school board's actions were not because of, but rather in spite of, the recommendations of the Discovery Institute, the leading proponent of ID. Yet Judge Jones made no effort to distinguish the two actors. Instead, he began his analysis of the application of the endorsement test with the following statement:

> The history of the intelligent design movement (hereinafter "IDM") and the development of the strategy to weaken education of evolution by focusing students on alleged gaps in the theory of evolution is the historical and cultural background against which the Dover School Board acted in adopting the challenged ID Policy.[66]

Judge Jones was urged to conflate the "IDM" with the actions of the school board by lawyers for both parties. It is clear that counsel for the plaintiffs (the ACLU and Americans United for Separation of Church and State) intended to put the "IDM" on trial,[67] and it is equally clear that TMLC similarly welcomed the opportunity to put ID on trial. Richard Thompson told the press that TMLC was "preparing our case for an ultimate review by the Supreme Court of the United States."[68] However, TMLC was in no position to represent the interests of the "IDM" for a variety of reasons. First, its clients were the school board and its individual members, whose interests were hardly coextensive with those of the "IDM." Second, the organization that could conceivably be considered a representative of the "IDM" (the Discovery Institute) had publicly and privately opposed Dover's policy and TLMC's approach to the case.

Since this case litigated a policy opposed by leading members of the "IDM," it did not present issues wherein the interests and positions of the "IDM" were fully at stake, and the "IDM" itself was largely unrepresented in the litigation due to Judge Jones's refusal to allow the publisher of *Pandas* to intervene. Given these

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66. *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 716 (M.D. Pa. 2005).

67. *See* Lynn, *supra* n. 3.

68. Mike Weiss, *War of Ideas Fought in a Small-Town Courtroom: Intelligent Design Theory vs. the Science of Evolution at Center of Pennsylvania Trial*, S.F. Chron. A1 (Nov. 6, 2005); *see Kitzmiller*, 400 F. Supp. 2d. at 765. Judge Jones stated that the case resulted from

> the activism of an ill-informed faction on a school board, aided by a national public interest law firm eager to find a constitutional test case on ID, who in combination drove the Board to adopt an imprudent and ultimately unconstitutional policy. The breathtaking inanity of the Board's decision is evident when considered against the factual backdrop which has now been fully revealed through this trial.

Id.

facts, Judge Jones's framing of the case as though it were the definitive test of the "IDM" is indefensible.

V. Error #2: The False Equation of ID with Creationism

The opening paragraph of Judge Jones's analysis of the "IDM" makes clear that he accepted the plaintiffs' claim that ID was merely an artifice to avoid the legal effect of previous court rulings that made it unconstitutional to teach Biblical creationism in the public schools.[69] But *contra* Judge Jones, ID cannot be fairly equated with "creationism" in ways that are constitutionally relevant.

It is important from the outset to understand that labeling ID "creationism" simply because many of its proponents believe God created the universe would define the term so broadly as to make it largely meaningless. For example, biologist Kenneth Miller, one of the plaintiffs' expert witnesses, conceded on the witness stand that he was a creationist when "creationist" is understood to mean anyone who believes that the universe was created by God.[70] Yet clearly it would be misleading to call Miller—an avowed evolution proponent—a "creationist." In the same way, defining ID as "creationism" merely because many of its proponents believe God created the world would be misleading as well as unfair.[71]

Judge Jones traced the origins of ID back to the natural theology of William Paley and the arguments of the thirteenth century Catholic philosopher Thomas Aquinas.[72] However, the Judge presented a sharply truncated view of intellectual history. The debate over design in nature actually reaches back to the ancient Greek and Roman philosophers,[73] and it continued vigorously

69. *Kitzmiller*, 400 F. Supp. 2d. at 716.

70. Transcr. of Procs. Morn. Sess. at 63:1–19 (Sept. 27, 2005), *Kitzmiller*, 400 F. Supp. 2d 707.

71. John West, Discovery Inst., *Intelligent Design and Creationism Just Aren't the Same, Research News and Opportunities in Science and Theology*, http://www.discovery.org/scripts/viewDB/index.php?command=view&id=1329 (Dec. 1, 2002) (criticizing as inaccurate the term "intelligent design creationism," noting that "[c]reationism 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.").

72. *Kitzmiller*, 400 F. Supp. 2d at 718.

73. In fact, ID as a philosophical concept is as old as philosophy itself. *See* Xenophon, *Memorabilia*, in *Memorabilia and Oeconomicus* 55–65 (E.C. Marchant trans., Harv. U. Press 1938); Plato, *The Laws* 408–17 (Trevor J. Saunders trans., Penguin Books 1975);

among scientists and philosophers—not just theologians—at the time of Darwin. The term "intelligent design" was invoked as a plausible alternative to blind Darwinian evolution in 1897 by Oxford scholar F.C.S. Schiller, who wrote, "it will not be possible to rule out the supposition that the process of Evolution may be guided by an intelligent design."[74] Even the independent co-discoverer of the theory of evolution by natural selection, Alfred Russel Wallace, concluded that it was possible—and appropriate—to detect design in nature.[75]

In more recent decades, the resurgence of ID in science and philosophy arose from the confluence of information theory with the discoveries of the astonishingly complex and digital nature of DNA and cell engineering.[76] It was not a response to the legal flaws associated with Biblical creationism, but a recognition that the mechanisms proposed by neo-Darwinism could not adequately explain the informational and irreducible properties of living systems that were increasingly being identified in biological literature as identical to features common in language and engineered machines.[77] The term "intelligent design" appears to have been coined in its contemporary usage by cosmologist Dr. Fred Hoyle and soon thereafter Dr. Charles Thaxton, a chemist and academic editor for the *Pandas* textbook, adopted the term after hearing it mentioned by a NASA engineer.[78] Thaxton's adoption of the term was not an attempt to evade a court decision, but rather to distinguish ID from creationism, because, in contrast to creationism, ID sought to stay solely within the empirical domain:

Michael Ruse, *The Argument from Design: A Brief History*, in *Debating Design: From Darwin to DNA* 13, 13–16 (William A. Dembski & Michael Ruse eds., Cambridge U. Press 2004); John Angus Campbell, *Why Are We Still Debating Darwinism? Why Not Teach the Controversy?* in *Darwinism, Design, and Public Education* at xi, xii (John Angus Campbell & Stephen C. Meyer eds., Mich. St. U. Press 2003).

74. F.C.S. Schiller, *Darwinism and Design*, in *Humanism: Philosophical Essays* 128, 141 (2d ed., Macmillan & Co. 1912) (citing *Contemporary Review*, June 1897).

75. Alfred Russel Wallace, *Sir Charles Lyell on Geological Climates the Origin of Species*, in *Alfred Russel Wallace: An Anthology of His Shorter Writings* 33–34 (Charles H. Smith ed., Oxford U. Press 1991).

76. Br. of Amicus Curiae Found. for Thought & Ethics at 14–15, *Kitzmiller*, 400 F. Supp. 2d 707 [hereinafter FTE Brief, *Kitzmiller*].

77. *Id.*; Michael Polanyi, *Life's Irreducible Structure*, 160 Science 1308, 1308–12 (June 21, 1968).

78. Fred Hoyle, *Evolution from Space (The Omni Lecture)* 28 (Enslow Publishers 1982); Jonathan Witt, Discovery Inst., *The Origin of Intelligent Design: A Brief History of the Scientific Theory of Intelligent Design*, http://www.discovery.org/scripts/viewDB/filesDB-download.php?command=download&id=526 (accessed Nov. 11, 2006).

> I wasn't comfortable with the typical vocabulary that for the most part creationists were using *because it didn't express what I was trying to do*. They were wanting to bring God into the discussion, *and I was wanting to stay within the empirical domain and do what you can do legitimately there*.[79]

In their effort to tie ID to creationism, the plaintiffs introduced as their "smoking gun"[80] a comparison of the language in early pre-publication drafts of *Pandas* that used the term "creation" and later pre-publication drafts as well as published editions that used the term "intelligent design."[81] They alleged the terminology was switched merely in an effort to evade the *Edwards v. Aguillard* ruling, which found "creation science" unconstitutional.[82] But the plaintiffs (and Judge Jones, who relied on them[83]) were wrong both historically and conceptually.

Historically, it is clear (as just pointed out) that the research that generated the *Pandas* textbook came years before any of the litigation over "creation science."[84] Conceptually, early drafts of *Pandas*, although they used the word "creation," did not advocate "creationism" as that term was defined by the Supreme Court.

In *Edwards v. Aguillard*, the Supreme Court found that creationism was religion because it referred to a "supernatural creator."[85] Yet long before *Edwards*, pre-publication drafts of *Pandas* specifically rejected the view that science could determine whether an intelligent cause identified through the scientific method was supernatural. A pre-*Edwards* draft argued that "observable instances of information cannot tell us if the intellect behind them is natural or supernatural. This is not a question that science can answer."[86] The same draft explicitly rejected William Paley's eighteenth century design arguments because they unsci-

79. Depo. of Charles Thaxton at 53:5–11, *Kitzmiller*, 400 F. Supp. 2d 707 (emphasis added).

80. Rob Boston, *Americans United for Separation of Church and State, Feature, Biohazard, "Intelligent Design" Poses Threat to Science Education and Church-State Separation, Say Parents and Experts at Pennsylvania Trial*, http://www.au.org/site/News2?page=NewsArticle&id=7645&abbr=cs_ (accessed Mar. 4, 2007).

81. Transcr. of Procs. Morn. Sess. at 116–26 (Oct. 5, 2005), *Kitzmiller*, 400 F. Supp. 2d 707.

82. *Id.*; Transcr. of Procs. Afternoon Sess. at 38:6–12 (Nov. 4, 2005), *Kitzmiller*, 400 F. Supp. 2d 707.

83. *Kitzmiller*, 400 F. Supp. 2d at 721–22 (M.D. Pa. 2005) (emphasis added).

84. FTE Brief at 14–16, *Kitzmiller*.

85. *Edwards v. Aguillard*, 482 U.S. 578, 592 (1987).

86. Charles Thaxton, *Introduction to Teachers*, in Dean H. Kenyon & P. William Davis, *Biology and Origins Ms. #I* at 13 (unpublished ms., 1987) (copy on file with Found. for Thought & Ethics) [hereinafter *Biology and Origins Ms. #I*].

entifically "extrapolate to the supernatural" from the empirical data.[87] The draft stated that Paley was wrong because "there was no basis in uniform experience for going from nature to the supernatural, for inferring an unobserved supernatural cause from an observed effect."[88] Another pre-publication draft made similar arguments: "[W]e cannot learn [about the supernatural] through uniform sensory experience . . . and so to teach it in science classes would be out of place . . . [S]cience can identify an intellect, but is powerless to tell us if that intellect is within the universe or beyond it."[89]

By unequivocally affirming that the empirical evidence of science "cannot tell us if the intellect behind [the information in life] is natural or supernatural"[90] it is evident that these pre-publication drafts of *Pandas* meant something very different by "creation" than did the Supreme Court in *Edwards v. Aguillard*, in which the Court defined creationism as religion because it postulated a "supernatural creator."[91]

Unable to defend its work directly before Judge Jones, the publisher of *Pandas* (FTE) provided ample justification in its amicus brief for the wording changes in pre-publication drafts of *Pandas*.[92] Judge Jones rejected FTE's explanations by focusing on a definition of "creation" from a pre-publication draft of *Pandas* that was also used as one definition of ID in the final published textbook.[93] The definition reads, "various forms of life that began abruptly through an intelligent agency with their distinctive features intact—fish with fins and scales, birds with feathers, beaks, and wings, etc."[94] However, as pointed out by FTE in its amicus brief, this language of "abrupt" appearance of fully-formed biological structures simply represents a common observation of the fossil record, not a theological assertion.[95] Similar observations have been made repeatedly by prominent evolutionary biologists and

87. *Id.*

88. *Id.* at 13.

89. Charles Thaxton, *Introduction to Teachers*, in Dean H. Kenyon & P. William Davis, *Biology and Origins Ms. #II* at 13 (unpublished ms., 1987) (copy on file with Found. for Thought & Ethics).

90. *Biology and Origins Ms. #I*, *supra* n. 86, at 13.

91. *Edwards v. Aguillard*, 482 U.S. 578, 592 (1987).

92. FTE Brief at 14, *Kitzmiller*.

93. *Kitzmiller v. Dover Area Sch. Dist*, 400 F. Supp. 2d 707, 721–22 (M.D. Pa. 2005) (citing *Biology and Origins Ms. I*, *supra* n. 86, at 2–13; *Pandas*, *supra* n. 20, at 99–100).

94. *Biology and Origins, Ms. #I*, *supra* n. 86, at 2–13.

95. FTE Brief at 9–10, *Kitzmiller*.

paleontologists, such as Stephen Jay Gould,[96] Ernst Mayr,[97] and others. For example, the observation that types of organisms appear with their body plans intact or "fully formed" was noted in an invertebrate biology textbook published the same year as the *Pandas* edition used in Dover.[98] According to that textbook, "[m]ost of the animal phyla that are represented in the fossil record first appear, '*fully formed*,' in the Cambrian, some 550 million years ago . . . [t]he fossil record is therefore of no help with respect to the origin and early diversification of the various animal phyla."[99] That *Pandas* would dare attribute these common observations of the fossil record to "an intelligent agency" should not render ID the equivalent of "creationism" any more than Gould's observations should render him or his evolutionary model of punctuated equilibrium "creationist." The language used in the *Pandas* text is not out-of-step with the observations of mainstream paleontologists, and should raise no constitutional concerns.

It is worth reiterating that in *Edwards v. Aguillard*, the Supreme Court found creationism to be religion because it required the "supernatural."[100] Notions of "abrupt appearance" had no impact upon the majority's constitutional analysis.[101] Perhaps this was because of the number of mainstream paleontologists who recognize the historical fact of the abrupt appearance of "fully-formed" complex biological features in the history of life.

Even if early editions of *Pandas* had embraced "creationism" in the way alleged by Judge Jones, the removal of creationist terminology should have protected *Pandas*, not rendered the textbook unconstitutional. While there are no canons of textbook in-

96. Stephen Jay Gould, *This View of Life: The Return of Hopeful Monsters*, 86 Nat. History 22, 22–30 (June–July, 1977) ("The fossil record with its *abrupt* transitions offers no support for gradual change"; "All paleontologists know that the fossil record contains precious little in the way of intermediate forms; transitions between major groups are characteristically *abrupt*." (emphasis added)).

97. *See* Ernst Mayr, *One Long Argument: Charles Darwin and the Genesis of Modern Evolutionary Thought* 138 (Harvard U. Press 1991) ("Anything truly novel always seemed to appear quite *abruptly* in the fossil record." (emphasis added)); Ernst Mayr, *What Evolution Is* 189 (Basic Books 2001) ("When we look at the living biota, whether at the level of the higher taxa or even at that of the species, discontinuities are overwhelmingly frequent. . . . The discontinuities are even more striking in the fossil record. New species usually appear in the fossil record suddenly, not connected with their ancestors by a series of intermediates.").

98. R.S.K. Barnes, P. Calow & P.J.W. Olive, *The Invertebrates: A New Synthesis* 10–11 (2d ed., Blackwell Sci. Publications 1993).

99. *Id.* (emphasis added).

100. *Edwards v. Aguillard*, 482 U.S. 578, 592 (1987).

101. *Id.* at 595.

terpretation, traditional rules for statutory interpretation suggest that language removed from an earlier draft of a statute should be understood as a rejection of that language.[102] This form of reasoning is common among scholars of constitutional law, who refer to language rejected from drafts of constitutional amendments in order to determine what was *not* the intent of the Framers.[103] Had Judge Jones fairly applied such a canon of construction to *Pandas*, Thaxton's exclusion of the word "creation" should have been properly understood by Judge Jones as a *rejection* of some aspect of creationism.

Judge Jones's inquiry into pre-publication drafts of *Pandas* presents a troubling development for those who support freedom of the press for textbook publishers. In his inquiry, pre-publication drafts, which never saw the light of day, were used against the final published version of the *Pandas* textbook. The judge construed language which was removed as relevant to the final published version. This effectively removes the ability of editors of textbooks for usage in public schools to improve upon their terminology, language, and arguments so as to ensure constitutionality of the material. The truth is that, from its early days, ID was formulated as something distinct from what caused the Supreme Court to declare creationism unconstitutional. This formulation took place prior to the *Edwards* ruling, and stemmed from a desire to construct a scientific theory distinct from creationism that did not stray into unscientific religious questions about the divine or the supernatural.

VI. Error #3: Dismissing the Scientific Case for Design

The *Kitzmiller* trial demonstrated one thing beyond dispute: scientists disagree over whether or not ID is a useful scientific theory. Despite this obvious fact, Judge Jones believed it was his responsibility to resolve the dispute and rule on which scientific

102. *Russello v. U.S.*, 464 U.S. 16, 21–24 (1983) ("[W]here Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion."); *Landgraf v. USI Film Prods.*, 511 U.S. 244, 255–56 (1994) (comparing a previous version of legislation that was vetoed to the bill that was ultimately enacted into law, and interpreting the removal of language about retroactivity to mean that Congress intended *not* to make the law retroactive).

103. *See* Douglas Laycock, *"Nonpreferential" Aid to Religion: A False Claim about Original Intent*, 27 Wm. & Mary L. Rev. 875, 879–81 (1986).

view was the more persuasive.[104] Not only was this inappropriate for a federal judge to do, but his opinion ignored or distorted the scientific testimony. Although Judge Jones cited not one, but six reasons for holding that ID is not a scientific theory, none of them bears up under scrutiny.

Before addressing the merits of each of these claims, it is important to identify the basis upon which many scientists believe that ID *is* science.

A. Why ID Is Science

ID is a scientific theory based on the claim that there are "telltale features of living systems and the universe that are best explained by an intelligent cause."[105] Regarding evolution, ID "does not challenge the idea of evolution defined as change over time, or even common ancestry, but it does dispute Darwin's idea that the cause of biological change is wholly blind and undirected."[106] ID contends that "intelligent agency, as an aspect of scientific theory-making, has more explanatory power in accounting for the specified, and sometimes irreducible, complexity of some physical systems, including biological entities, and/or the existence of the universe as a whole, than the blind forces of unguided and everlasting matter."[107] The definitions for these terms given by ID theorists will be given below.

Scientists employing ID compare observations of how intelligent agents act when they design things to observations of phenomena whose origin is unknown. Human intelligence provides a large empirical dataset for studying the products of the action of intelligent agents. Mathematician William Dembski observes that "[t]he principal characteristic of intelligent agency is *directed*

104. In some cases, a judge (or jury) is required to find which of two scientific theories is more persuasive. For example, in *Williams v. Hedican*, 561 N.W.2d 817 (Iowa 1997), a mother and child sued the doctors who cared for the mother, who contracted chicken pox during her pregnancy. The plaintiffs' expert claimed that a certain antibody, if timely administered, can prevent or minimize injuries to a fetus whose mother contracts chicken pox. The defendant presented an expert who vigorously disagreed. The court held that it was for the jury to determine whether any harm resulted from the failure to treat the mother with the antibody. *Id.* at 832. However, the necessity of choosing sides in a scientific debate in some cases does not create a general warrant for judges to resolve scientific issues that scientists are still debating.

105. Stephen C. Meyer, *Not by Chance: From Bacterial Propulsion Systems to Human DNA, Evidence of Intelligent Design Is Everywhere*, Natl. Post A22 (Dec. 1, 2005).

106. *Id.*

107. Francis J. Beckwith, *Public Education, Religious Establishment, and the Challenge of Intelligent Design*, 17 Notre Dame J.L., Ethics & Pub. Policy 461, 462 (2003).

contingency, or what we call *choice*."[108] When "an intelligent agent acts, it chooses from a range of competing possibilities" to create some complex and specified event.[109] Dembski calls ID "a theory of information" where "information becomes a reliable indicator of design as well as a proper object for scientific investigation."[110] ID thus seeks to find in nature the types of information which are known to be produced by intelligent agents, and reliably indicate the prior action of intelligence.

The "information" which reliably indicates ID is generally called "specified complexity."[111] Dembski suggests that design can be detected when one finds a rare or highly unlikely event (making it complex) that conforms to an independently derived pattern (making it specified). The usage of such reasoning in other scientific fields is often illustrated with the Search for Extra-Terrestrial Intelligence (SETI) project. As dramatized in the movie *Contact*, SETI astronomers scan the skies for a radio signal from intelligent extraterrestrials. Implicit in their research is the assumption that signals produced by intelligent agents differ from radio emissions resulting from natural phenomena. While himself not supportive of ID, Seth Shostak, a senior astronomer for the SETI Institute, admitted that what astronomers do in filtering radio signals from outer space is to identify a signal that is not likely to be produced by "natural astrophysical processes."[112] In such a case, "were we to find such a signal, we could reasonably conclude that there was intelligence behind it."[113]

In applying ID theory to biology, biologists use the term "irreducible complexity."[114] Irreducible complexity is a form of speci-

108. William A. Dembski, *The Design Inference: Eliminating Chance through Small Probabilities* 62 (Cambridge U. Press 1998).

109. *Id.*

110. William A. Dembski, *Intelligent Design as a Theory of Information*, in *Intelligent Design Creationism and Its Critics: Philosophical, Theological, and Scientific Perspectives* 553, 553 (Robert T. Pennock ed., MIT Press 2001) [hereinafter *Intelligent Design Creationism*].

111. William A. Dembski, *No Free Lunch: Why Specified Complexity Cannot Be Purchased without Intelligence* at xiv (Rowman & Littlefield Publishers 2002) [hereinafter Dembski, *No Free Lunch*] ("[T]he defining feature of intelligent causes is their ability to create novel information and, in particular, specified complexity.").

112. Seth Shostak, *SETI and Intelligent Design*, http://www.seti.org/site/apps/nl/content2.asp?c=KTJ2J9MMIsE&b=194993&ct=1638783 (Dec. 1, 2005).

113. *Id.*

114. Michael J. Behe, *Darwin's Black Box: The Biochemical Challenge to Evolution* 39 (Free Press 1996) [hereinafter Behe, *Darwin's Black Box*]. Though irreducible complexity was first popularized by Behe, the notion has its origins in a mainstream scientific book

fied complexity,[115] which exists in systems composed of "several interacting parts that contribute to the basic function, and where the removal of any one of the parts causes the system to effectively cease functioning."[116] Because natural selection only preserves structures that confer a functional advantage to an organism, it is argued that such systems would be unlikely to evolve through a Darwinian process because there exists no evolutionary pathway wherein they could remain functional during each small evolutionary step.[117] According to ID theorists, irreducible complexity is an informational pattern which may be taken as a reliable indicator of ID because our experience demonstrates intelligence is the sole known cause of such structures.[118]

Design proponents thus use standard uniformitarian reasoning to apply an empirically-derived cause-and-effect relationship between intelligence and certain types of informational patterns to the historical scientific record in order to account for the origin of various natural phenomena.[119] Design theory does not try to address questions about whether the designer is natural or supernatural because such questions lie outside of the empirical domain of science.[120] ID proponents have used these criteria to infer design in irreducibly complex biological structures, the complex and specified information in DNA, the life-sustaining physical architecture of the universe, and the rapid origin of biological diversity in the fossil record.[121] Even though philosophers of science vigorously disagree over the proper definition of science[122]—even if we use a definition that Judge Jones adopted from the National Acad-

published by Cambridge University Press in 1986. Michael J. Katz, *Templets and the Explanation of Complex Patterns* 90 (Cambridge U. Press 1986).

115. Dembski, *No Free Lunch*, *supra* n. 111, at 115.

116. Michael J. Behe, *Molecular Machines: Experimental Support for the Design Inference*, in *Intelligent Design Creationism*, *supra* n. 110, at 241, 247.

117. Behe, *Darwin's Black Box*, *supra* n. 114, at 39 ("If it could be demonstrated that any complex organ existed which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down.").

118. Scott A. Minnich & Stephen C. Meyer, *Genetic Analysis of Coordinate Flagellar and Type III Regulatory Circuits in Pathogenic Bacteria*, in *Proceedings of the Second International Conference on Design & Nature, Rhodes Greece* 7–8, http://www.discovery.org/scripts/viewDB/filesDB-download.php?id=389 (accessed Feb. 19, 2007).

119. Stephen C. Meyer, *The Scientific Status of Intelligent Design: The Methodological Equivalence of Naturalistic and Non-Naturalistic Origins Theories*, in *The Proceedings of the Wethersfield Institute: Science and Evidence for Design in the Universe* vol. 9, 151, 182–92 (Ignatius Press 1999).

120. Davis & Kenyon, *Pandas*, *supra* n. 20, at 7, 126–27, 161.

121. Beckwith, *supra* n. 107, at 480–82.

122. "[T]here is no demarcation line between science and nonscience, or between science and pseudo-science, which would win assent from a majority of philosophers." Larry

emy of Sciences[123] —ID still qualifies as science. As the authors of this article explained previously,

> Intelligent causes can be inferred through confirmable data. The types of information produced by intelligent causes can be observed and then measured. Scientists can use observations and experiments to base their conclusions of intelligent design upon empirical evidence. Intelligent design limits its claims to those which can be established through the data. In this way, intelligent design does not violate the mandates of predictability and reliability laid down for science by methodological naturalism (whatever the failings and limitations of methodological naturalism).[124]

B. Assessing Judge Jones's Reasons for Finding ID Unscientific

We will now examine the reasons cited by Judge Jones to prove that ID is not science and show that they are unsustainable.

1. Contra *Judge Jones, ID Does Not Make Claims about the Supernatural*

The *Kitzmiller* ruling variously claimed that ID "invoke[es] and permit[s] supernatural causation,"[125] that it "involves a supernatural designer,"[126] and even that it "requires supernatural creation."[127] These findings were a key reason Judge Jones concluded that ID is unscientific, yet they were plainly incorrect. ID does not require "supernatural creation," and the fact that it "permits" supernatural causation is irrelevant.

a. ID Does Not "Require Supernatural Causation"

ID as a scientific theory does not attempt to address religious questions about the identity or metaphysical nature of the de-

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Laudan, *Beyond Positivism and Relativism: Theory, Method, and Evidence* 210 (Westview Press 1996).

123. Science is a particular way of knowing about the world. In science, explanations are restricted to those that can be inferred from the confirmable data—the results obtained through observations and experiments that can be substantiated by other scientists. Anything that can be observed or measured is amenable to scientific investigation. Explanations that cannot be based upon empirical evidence are not a part of science.

Natl. Acad. of Sci., *Teaching about Evolution and the Nature of Science* 27 (Natl. Acad. Press 1998) (quoted in *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 735–36 (M.D. Pa. 2005)).

124. DeWolf et al., *Traipsing*, *supra* n. 65, at 37.

125. *Kitzmiller*, 400 F. Supp. 2d at 735.

126. *Id.* at 720.

127. *Id.* at 721.

signer. This has been the consistent view of ID proponents for the last two decades, and Judge Jones was presented with extensive documentation of this fact in amicus briefs filed by the Discovery Institute and FTE, which the text of his opinion seemed to have ignored.[128] Judge Jones also ignored—or misinterpreted—key passages from the *Pandas* textbook that addressed this issue. For example, the published version of *Pandas* used in Dover schools explained that ID merely seeks to infer "intelligent causes" and is compatible with a wide variety of religious viewpoints, including pantheism and agnosticism:

> The idea that life had an intelligent source is hardly unique to Christian fundamentalism. Advocates of design have included not only Christians and other religious theists, but pantheists, Greek and Enlightenment philosophers and now include many modern scientists who describe themselves as religiously agnostic. Moreover, the concept of design implies absolutely nothing about beliefs normally associated with Christian fundamentalism, such as a young earth, a global flood, or even the existence of the Christian God. *All it implies is that life had an intelligent source*.[129]

One would think this passage would be highly relevant to the determination of the religious nature of ID, but Judge Jones *did not even quote it* in his ruling. Rather, he cited another passage from *Pandas* out of context in order to insist that ID requires supernatural causation:

> [A]n explicit concession that the intelligent designer works outside the laws of nature and science and a direct reference to religion is *Pandas*' rhetorical statement, "what kind of intelligent agent was it [the designer]" and answer: "On its own, science cannot answer this question; it must leave it to religion and philosophy."[130]

But an examination of the full passage cited by Judge Jones makes clear that he misused it. The passage does not state that an intelligent designer must be supernatural, but rather that science is unable to address this question:

> If science is based upon experience, then science tells us the message encoded in DNA must have originated from an intelligent cause. *What kind of intelligent agent was it? On its own, science cannot answer this question; it must leave it to religion and philosophy*. But that should not prevent science from acknowledging evidences for an intelligent cause origin wherever they may exist. This is no different, really, than if we discovered life did result from natu-

128. Discovery Brief at 22–25, app. A, *Kitzmiller*; FTE Brief at 5–12, apps. A–B, *Kitzmiller*.

129. Davis & Kenyon, *Pandas*, *supra* n. 20, at 161 (citation omitted, emphasis added).

130. *Kitzmiller*, 400 F. Supp. 2d at 719 (quoting Davis & Kenyon, *Pandas*, *supra* n. 20, at 7).

> ral causes. *We still would not know, from science, if the natural cause was all that was involved, or if the ultimate explanation was beyond nature, and using the natural cause*.[131]

Indeed at one point, *Pandas* even seems to adopt methodological naturalism,[132] stating that "intelligence . . . can be recognized by uniform sensory experience, and the supernatural . . . cannot."[133]

It is important to stress that the refusal of ID proponents to draw scientific conclusions about the nature or identity of the designer is principled rather than merely rhetorical. ID is primarily a historical science, meaning it uses principles of uniformitarianism to study present-day causes and then applies them to the historical record in order to *infer* the best explanation for the origin of the natural phenomena being studied.[134] ID starts with observations from "uniform sensory experience" showing the effects of intelligence in the natural world.[135] As *Pandas* explains, scientists have uniform sensory experience with intelligent causes (i.e. humans), thus making intelligence an appropriate explanatory cause within historical scientific fields.[136] However, the "supernatural" cannot be observed, and thus historical scientists applying uniformitarian reasoning cannot appeal to the supernatural. If the intelligence responsible for life was supernatural, science could only infer the prior action of intelligence, but could not determine whether the intelligence was supernatural.[137]

b. Acknowledging the Possibility *of "Supernatural Causation" Does Not Make a Theory Unscientific*

Judge Jones also seemed to claim that ID is unscientific because it *permits* "supernatural causation."[138] While it is true that ID *permits* supernatural causation, the same is true of neo-Darwinism. For example, theistic evolutionist Kenneth Miller believes that neo-Darwinian evolution allows for the supernatural

131. Davis & Kenyon, *Pandas*, *supra* n. 20, at 7 (emphasis added).

132. *See* Eugenie C. Scott, *Evolution vs. Creationism: An Introduction* 50 (Greenwood Press 2004) (stating that "methodological naturalism" is a rule which says "scientists do not consider supernatural explanations as scientific").

133. Davis & Kenyon, *Pandas*, *supra* n. 20, at 126.

134. Stephen C. Meyer, *DNA and the Origin of Life* [hereinafter Meyer, *DNA and the Origin of Life*], in *Darwinism, Design, and Public Education*, *supra* n. 73, at 223, 266–69.

135. Davis & Kenyon, *Pandas*, *supra* n. 20, at ix, 7.

136. *Id.*

137. *See* Depo. of Charles Thaxton, *Kitzmiller*, 400 F. Supp. 2d 707.

138. *Kitzmiller*, 400 F. Supp. 2d at 735.

creation of life on earth.[139] Indeed, so does Judge Jones![140] In rejecting ID because it does not rule out supernatural causation as an explanation for the appearance of design in biological systems, Judge Jones applies a different standard from the one that he used for Darwinists. If ID is deemed unscientific merely because it "permit[s]"[141] supernatural causation, then Darwinism is equally unscientific according to the testimony of the plaintiffs' own expert witness.

2. Contra *Judge Jones, the Argument of Irreducible Complexity Does Not Employ a "Flawed and Illogical Contrived Dualism"*

According to Judge Jones, the use of irreducible complexity as an indicator of ID rests on a "contrived dualism,"[142] because it falsely claims that if "evolutionary theory is discredited, ID is confirmed."[143] But on closer inspection it is Judge Jones's charge of "contrived dualism" that is truly contrived. Contrary to Judge Jones, ID proponents do not simply claim that irreducible complexity confirms ID simply because it refutes Darwinism. They also maintain that irreducible complexity provides positive evidence for design. Scott Minnich and Stephen C. Meyer explain why:

> In all irreducibly complex systems in which the cause of the system is known by experience or observation, intelligent design or engineering played a role [in] the origin of the system. . . . Although some may argue this is a merely an argument from ignorance, we regard it as an inference to the best explanation . . . , given what we know about the powers of intelligence as opposed to strictly natural or material causes.[144]

Design is inferred based upon our positive understanding of the types of complexity known to come from intelligent agents. The methodology behind ID is simple: (1) observe human intelligence to understand the properties inherent in designed objects; (2) study natural objects to find those same properties that are tell-

139. Transcr. of Procs. Morn. Sess. at 64:4–23 (Sept. 27, 2005), *Kitzmiller*, 400 F. Supp. 2d 707.

140. *Kitzmiller*, 400 F. Supp. 2d at 765 ("Plaintiffs' scientific experts testified that the theory of evolution . . . in no way conflicts with, nor does it deny, the existence of a divine creator.").

141. *Id.* at 735.

142. *Id.*

143. *Id.* at 738.

144. Minnich & Meyer, *supra* n. 118, at 8–9.

tale signs that intelligence was at work.[145] Scott Minnich described this positive argument to the Judge, as did Michael Behe.[146]

Thus, irreducible complexity is both a positive argument for design, and a negative argument against evolution.[147] It is a positive argument for design because we understand that forward-thinking intelligent agents produce such a complex, purposeful arrangement of parts.[148] It is a negative argument against evolution because neo-Darwinian pathways cannot produce structures where large leaps in complexity are required to maintain functionality.[149] This is not a "contrived dualism." It is an actual, logical dualism justified by our empirically-based understanding of the respective causal powers of ID and natural selection.

3. Contra *Judge Jones, ID's Scientific Criticisms of Darwinian Evolution Have Not "Been Refuted by the Scientific Community"*

Judge Jones claimed that "ID's negative attacks on evolution have been refuted by the scientific community."[150] This finding is irrelevant as well as wrong.

a. Being Wrong Does Not Imply Being Unscientific

University of Kentucky philosopher Bradley Monton observes that being wrong does not necessarily make an idea unscientific.[151] Newtonian physics has been refuted and superseded by Einstein's theory of relativity. But that does not make Newton's laws of mechanics "unscientific," and indeed, physics classes still invariably teach them alongside Einstein's models in schools.[152] Here it is Judge Jones who proposes the false dichotomy: he

145. Transcr. of Procs. Morn. Sess. at 57:6–16 (Nov. 4, 2005), *Kitzmiller*, 400 F. Supp. 2d 707; Transcr. of Procs. Morn. Sess. at 110:5–6 (Oct. 17, 2005), *Kitzmiller*, 400 F. Supp. 2d 707.

146. *See* Transcr. of Procs. Morn. Sess. at 57:6–16 (Nov. 4, 2005), *Kitzmiller*, 400 F. Supp. 2d 707; Transcr. of Procs. Morn. Sess. at 110:5–6 (Oct. 17, 2005), *Kitzmiller*, 400 F. Supp. 2d 707.

147. Behe, *Darwin's Black Box*, *supra* n. 114, at 263–64.

148. Meyer, *DNA and the Origin of Life*, *supra* n. 134, at 262–67.

149. Behe, *Darwin's Black Box*, *supra* n. 114, at 263–64.

150. *Kitzmiller*, 400 F. Supp. 2d at 735.

151. Bradley Monton, *Is Intelligent Design Science? Dissecting the Dover Decision* 1–2, http://philsci-archive.pitt.edu/perl/search; *path* Authors/Editors, *search* "Monton", *path* year, *search* "2006" (Jan. 18, 2006).

152. *Id.* at 3.

wrongly asserts that if a theory is not correct, it cannot be science. But something can be wrong and still be science.

Even if Judge Jones believed that ID is false, he should have remembered that "the wisdom of an educational policy or its efficiency from an educational point of view is not germane to the constitutional issue of whether that policy violates the establishment clause."[153] If it is really true that "[s]tates and local school boards are generally afforded considerable discretion in operating public schools,"[154] then what matters is that the school board sincerely believed that ID has scientific merit, not whether a federal judge is convinced of its ultimate scientific truth.

b. Criticisms of Darwinian Theory Are Made by Many Scientists, Including Scientists Who Are Not Proponents of ID

Many "negative" scientific arguments made by ID proponents against the sufficiency of natural selection and random mutation are also made by scientists who do not support ID.[155] Stephen Meyer adds that "[m]any scientists and mathematicians have questioned the ability of mutation and selection to generate information in the form of novel genes and proteins. Such skepticism often derives from consideration of the extreme improbability (and specificity) of functional genes and proteins."[156] Notably, more than 700 doctoral scientists have signed their names to "A Scien-

153. *Smith v. Bd. of Sch. Commrs. of Mobile Co.*, 827 F.2d 684, 694 (11th Cir. 1987).

154. *Edwards v. Aguillard*, 482 U.S. 578, 583 (1987).

155. Leading biologist Lynn Margulis rejects ID, but sharply criticizes neo-Darwinism's reliance on mutations, arguing "new mutations don't create new species; they create offspring that are impaired." Darry Madden, *UMass Scientist to Lead Debate on Evolutionary Theory*, Brattleboro (Vt.) Reformer (Feb 3, 2006) (also documenting Margulis's criticisms of ID). Complexity theorist Stuart Kauffman, another critic of ID, cautions that "there appears to be a limit on the complexity of a genome that can be assembled by mutation and selection." Stuart Kauffman, *At Home in the Universe: The Search for Laws of Self-Organization and Complexity* 184 (Oxford U. Press 1995); *see also* Stuart Kauffman, *Live Moderated Chat: Stuart Kauffman*, http://www.iscid.org/stuartkauffman-chat.php (accessed Jan. 24, 2007). Evolutionary biologist Stanley Salthe does not accept ID but describes himself as "a critic of Darwinian evolutionary theory," which he insists "cannot explain origins, or the actual presence of forms and behaviors" in organisms. Stanley N. Salthe, *Stanley Salthe Home Page*, http://www.nbi.dk/~natphil/salthe/ (accessed Feb. 21, 2007); *see also* S.N. Salthe, *Analysis and Critique of the Concept of Natural Selection (and of the NeoDarwinian Theory of Evolution) in Respect (Part 1) to Its Suitability as Part of Modernism's Origination Myth, as Well as (Part 2) of Its Ability to Explain Organic Evolution*, http://www.nbi.dk/~natphil/salthe/Critique_of_Natural_Select_.pdf (accessed Feb. 22, 2007).

156. Stephen C. Meyer, *The Cambrian Information Explosion: Evidence for Intelligent Design*, in *Debating Design: From Darwin to DNA*, *supra* n. 73, at 375–76.

tific Dissent from Darwinism,"[157] declaring they are "skeptical of claims for the ability of random mutation and natural selection to account for the complexity of life."[158] Signers include members of the national academies of science in the United States, Russia, Poland, the Czech Republic, and India (Hindustan), as well as faculty and researchers from a wide range of universities and colleges, including Princeton, MIT, Dartmouth, Ohio State, Tulane, and the University of Michigan.[159]

c. Scientific Disagreement Does Not Equal Scientific Refutation

On the specific question of Michael Behe and the concept of "irreducible complexity," it is important to note that while some evolutionists have attacked Behe's criticisms of the evidence for natural selection,[160] other prominent biochemists have conceded them. Shortly after Behe's *Darwin's Black Box*[161] came out in 1996, biochemist James Shapiro of the University of Chicago acknowledged that "there are no detailed Darwinian accounts for the evolution of any fundamental biochemical or cellular system, only a variety of wishful speculations."[162] Five years later in a scientific monograph published by Oxford University Press, biochemist Franklin Harold, who rejects ID, admitted, in virtually the same language, "we must concede that there are presently no detailed Darwinian accounts of the evolution of any biochemical or cellular system, only a variety of wishful speculations."[163] Other scientists have begun to cite Behe's ideas favorably and seriously

157. Discovery Inst., *A Scientific Dissent from Darwinism*, http://www.discovery.org/scripts/viewDB/filesDB-download.php?command=download&id=660 (accessed Feb. 22, 2007).

158. *Id.*

159. *Id.*

160. *See e.g.* T. Cavalier-Smith, *The Blind Biochemist*, 12 Trends in Ecology and Evolution 162, 162–63 (1997); Niall Shanks & Karl H. Joplin, *Redundant Complexity: A Critical Analysis of Intelligent Design in Biochemistry*, 66 Phil. of Sci. 268, 268–82 (1999); Christoph Adami, *Reducible Complexity*, 311 Science 61 (2006); *but see* Michael J. Behe, *Self-Organization and Irreducibly Complex Systems: A Reply to Shanks and Joplin*, 67 Phil. of Sci. 155, 155–62 (2000); Discovery Inst., *About Irreducible Complexity: Responding to Darwinists Claiming to Have Explained Away the Challenge of Irreducible Complexity*, http://www.discovery.org/scripts/viewDB/index.php?command=view&id=3408 (April 6, 2006); Michael J. Behe, *Reply to My Critics: A Response to Reviews of* Darwin's Black Box: The Biochemical Challenge to Evolution, 16 Biology & Phil. 685, 685–709 (2001).

161. Behe, *Darwin's Black Box*, *supra* n. 114.

162. James A. Shapiro, *In the Details . . .What?* 48 Natl. Rev. 62, 64 (Sept. 16, 1996).

163. Franklin M. Harold, *The Way of the Cell: Molecules, Organisms and the Order of Life* 205 (Oxford U. Press 2001).

in their own scientific publications.[164] What one has here is evidence of a scientific debate, not that Behe's ideas "have been refuted by the scientific community."[165]

d. The Type-III Secretory System Does Not Refute Behe's Idea of Irreducible Complexity

As a concrete example of how ID has been refuted, Judge Jones claimed that Kenneth Miller's testimony about the Type-III Secretory System (T3SS) explained how the bacterial flagellum could evolve: "[W]ith regard to the bacterial flagellum, Dr. Miller pointed to peer-reviewed studies that identified a possible precursor to the bacterial flagellum, a subsystem that was fully functional, namely the Type-III Secretory System."[166]

However, a number of biologists have concluded that that the T3SS was *not* a precursor to the flagellum.[167] Moreover, the *Kitzmiller* ruling ignored testimony by microbiologist Scott Minnich, who explained that even if Miller's speculative scenario turned out to be true, it would not be sufficient to prove a Darwinian explanation for the origin of the flagellum because there is still a huge leap in complexity from a T3SS to a flagellum.[168] The unresolved challenge that the irreducible complexity of the flagellum continues to pose for Darwinian evolution is starkly summarized by William Dembski:

> At best the T[3]SS represents one possible step in the indirect Darwinian evolution of the bacterial flagellum. But that still wouldn't constitute a solution to the evolution of the bacterial flagellum. What's needed is a complete evolutionary path and not merely a possible oasis along the way. To claim otherwise is like saying we can travel by foot from Los Angeles to Tokyo because we've discov-

164. Heinz-Albert Becker & Wolf-Ekkehard Lönnig, *Transposons: Eukaryotic*, in *Encyclopedia of Life Sciences* vol. 18, 529, 538 (Nat. Publg. Group 2002); Evelyn Fox Keller, *Developmental Robustness*, 981 Annals N.Y. Acad. Sci. 189, 189–90, 199 (2002); Richard A. Watson, *Compositional Evolution* 277 (MIT Press 2006).

165. *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 735 (M.D. Pa. 2005).

166. *Id.* at 740.

167. The lack of a fossil record for biological molecules makes it difficult to even assess this question. Milton H. Saier, Jr., *Evolution of Bacterial Type III Protein Secretion Systems*, 12 Trends in Microbiology 113 (2004); *see also* Uri Gophnaa, Eliora Z. Rona & Dan Graur, *Bacterial Type III Secretion Systems Are Ancient and Evolved by Multiple Horizontal-Transfer Events*, 312 Gene 151 (2003).

168. Transcr. of Proc. Afternoon Sess. at 112:13–25 (Nov. 3, 2005), *Kitzmiller*, 400 F. Supp. 2d 707.

> ered the Hawaiian Islands. Evolutionary biology needs to do better than that.[169]

Dembski's critique is apt because it recognizes that Miller wrongly characterizes irreducible complexity as focusing on the non-functionality of sub-parts. Conversely, Behe properly tests irreducible complexity by assessing the plausibility of the entire functional system to assemble in a step-wise fashion, even if sub-parts can have functions outside of the final system.[170] The "leap" required by going from one functional sub-part to the entire functional system is indicative of the degree of irreducible complexity in a system.[171] Contrary to Miller's assertions, Behe never argued that irreducible complexity mandates that sub-parts can have no function outside of the final system.[172] In the end, Judge Jones's conclusion that Miller refuted the irreducible complexity of the flagellum "based upon peer-reviewed studies" was plainly erroneous. Indeed, a recent review article in *Nature Reviews Microbiology* admits that "the flagellar research community has scarcely begun to consider how these systems have evolved."[173] Judge Jones was similarly wrong to claim that Behe had been refuted regarding the origin of the immune system.[174]

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169. William A. Dembski, *Rebuttal to Reports by Opposing Expert Witnesses* 52, http://www.designinference.com/documents/2005.09.Expert_Rebuttal_Dembski.pdf (May 14, 2005) (emphasis added) (document not offered at trial, but succinctly summarizes the T3SS arguments made by Minnich in his lengthy testimony).

170. Casey Luskin, *International Society for Complexity, Information, and Design Archives*, *Do Car Engines Run on Lugnuts? A Response to Ken Miller & Judge Jones's Straw Tests of Irreducible Complexity for the Bacterial Flagellum*, http://www.iscid.org/papers/Luskin_EngineLugnuts_042706.pdf (accessed Oct. 11, 2006).

171. Michael J. Behe, *A Response to Critics of* Darwin's Black Box 17, http://www.iscid.org/papers/Behe_ReplyToCritics_121201.pdf (accessed Oct. 11, 2006).

172. Behe, *Darwin's Black Box*, *supra* n. 114, at 40, 65–67.

173. Mark J. Pallen & Nicholas J. Matzke, *From* The Origin of Species *to the Origin of Bacterial Flagella*, 4 Nat. Revs. Microbiology 784, 788 (Nat. Pblg. Group 2006).

174. Judge Jones ruled that a pile of fifty-eight papers dumped upon the witness stand during Behe's cross-examination refuted the claim that "science would never find an evolutionary explanation for the immune system." *Kitzmiller v. Dover Area Sch. Dist*, 400 F. Supp. 2d 707, 741 (M.D. Pa. 2005). Judge Jones provided no reference for that claim. Behe merely requested a reasonable standard of evolutionary proof of "detailed rigorous models for the evolution of the immune system by random mutation and natural selection." Transcr. of Procs. Afternoon Sess. at 23 (Oct. 19, 2005), *Kitzmiller*, 400 F. Supp. 2d 707. Did the fifty-eight papers meet that standard? One of the papers, an authoritative article recently published in *Nature*, reveals the answer is "no," as it clearly discussed the lack of step-by-step accounts of the evolution of key components of the immune system: "In contrast, the deployment of immunoglobulin domains as core components of jawed vertebrate recombinatorial lymphocyte receptors represents an intriguing although as yet *untraceable evolutionary innovation*, as immune recognition of pathogens and allografts by means of immunoglobulin superfamily members [IG domains] have been shown only in the jawed vertebrates." Z. Pancer et al., *Somatic Diversification of Variable Lymphocyte Receptors in*

4. Contra *Judge Jones, the Level of Acceptance of ID in the Scientific Community Is Not an Appropriate Test of Whether ID Is Science*

Another reason Judge Jones claimed that ID is not science is because "ID has failed to gain acceptance in the scientific community."[175] But this view fundamentally misstates the nature of scientific inquiry, and it threatens to disqualify any new or novel scientific viewpoint as "unscientific."

a. Science Is Not a Popularity Contest

Many have recognized that scientific progress depends upon consideration of minority views and unpopular ideas. This point was made emphatically and eloquently by Stephen Jay Gould, writing with other scientists in an amicus brief to the United States Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals*:

> Judgments based on scientific evidence, whether made in a laboratory or a courtroom, are undermined by a categorical refusal even to consider research or views that contradict someone's notion of the prevailing "consensus" of scientific opinion. . . . Automatically rejecting dissenting views that challenge the conventional wisdom is a dangerous fallacy, for almost every generally accepted view was once deemed eccentric or heretical. Perpetuating the reign of a supposed scientific orthodoxy in this way, whether in a research laboratory or in a courtroom, is profoundly inimical to the search for truth.
>
> * * *
>
> The quality of a scientific approach or opinion depends on the strength of its factual premises and on the depth and consistency of its reasoning, not on its appearance in a particular journal or on its popularity among other scientists.[176]

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the Agnathan Sea Lamprey, 430 Nature 174, 179 (2004) (emphasis added). Immunoglobulin (IG) domains are a common structure in proteins found throughout biology from bacteria to humans. *Id.* at 174. When the paper found that the evolution of IG domains is "untraceable," it was therefore not asking "from what might these structures have been borrowed during evolution?" It was asking the deeper question Behe raises: by what detailed, step-by-step pathway did IG domains come into their critical function in the adaptive immune system? Judge Jones said "each element of the evolutionary hypothesis explaining the origin of the immune system" had been "confirmed." *Kitzmiller*, 400 F. Supp. 2d at 741. Yet Pancer's recent, authoritative paper reveals that Judge Jones's finding merely recapitulated the plaintiffs' literature-dump bluff, and that Behe's actual arguments were never refuted.

175. *Kitzmiller*, 400 F. Supp. 2d at 735.

176. Br. Amici Curiae Phys., Scientists, and Historians of Sci. in Support of Petrs., *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

b. New Scientific Theories Are Typically Resisted by Existing Elites in Science

Making "acceptance" by the scientific community a valid test for whether an idea is scientific would jeopardize the status of most new theories in science, not just ID. As an amicus brief from eighty-five scientists submitted in *Kitzmiller* pointed out, new ideas in science typically start out as minority views opposed by the current scientific majority:

> The history of science . . . reveals that novel scientific theories, even those that prove successful, are often resisted by an "old guard" that defends the long-standing paradigms. Philosophers of science teach that scientists committed to the reigning paradigm engage in "normal science" where scientific dogmas are not questioned. Those practicing "normal science" typically close their ears to dissent:
>
> > 'No part of the aim of normal science is to call forth new sorts of phenomena; indeed those that will not fit the box are often not seen at all. Nor do scientists normally aim to invent new theories, and they are often intolerant of those invented by others.'
>
> Intelligent design fits this historical pattern. It is a relatively young scientific theory, based upon relatively new scientific data, which is currently opposed by many "normal scientists" committed to the Neo-Darwinian paradigm.[177]

Just because ID is a minority view in science does not make it unscientific.

5. Contra *Judge Jones, ID Proponents Have Produced Peer-Reviewed Publications*

The Supreme Court has stated that peer-reviewed publication is not a necessary condition of admissibility for scientific evidence.[178] Yet in no fewer than five places in his ruling, Judge Jones claimed that ID "has not generated peer-reviewed publications."[179] Not only was this claim of doubtful relevance,[180] it was flatly wrong.

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177. Biologists Brief at 8–9, *Kitzmiller* (quoting Thomas S. Kuhn, *The Structure of Scientific Revolutions* 24 (2d ed., U. of Chi. Press 1970) (footnote omitted)).

178. "Publication . . . is not a *sine qua non* of admissibility; it does not necessarily correlate with reliability." *Daubert*, 509 U.S. at 593.

179. *Kitzmiller.* 400 F. Supp. 2d at 735, 744, 745 (ID "has not generated peer-reviewed publications"; "A final indicator of how ID has failed to demonstrate scientific warrant is the complete absence of peer-reviewed publications supporting the theory"; "ID is not supported by any peer-reviewed research, data or publications"; "In addition to failing to produce papers in peer-reviewed journals . . . ."; "ID is not science and cannot be adjudged a valid, accepted scientific theory as it has failed to publish in peer-reviewed journals . . . .").

Expert witnesses Scott Minnich and Barbara Forrest each discussed[181] an explicitly pro-ID article by Stephen Meyer in the peer-reviewed biology journal, *Proceedings of the Biological Society of Washington*.[182] Moreover, Behe testified about his article, co-authored with physicist David Snoke, in the peer-reviewed journal *Protein Science* reporting on computer calculations showing that implausibly large population sizes are required to evolve

180. For a discussion of why peer-review is a problematic standard for science, *see* DeWolf et al. *Traipsing*, *supra* n. 65, at 53–56.

181. Transcr. of Procs. Afternoon Sess. at 33–34 (Oct. 5, 2005), *Kitzmiller*, 400 F. Supp. 2d 707; Transcr. of Procs. Morn. Sess. at 79–80 (Oct. 6, 2005), *Kitzmiller*, 400 F. Supp. 2d 707; Transcr. of Procs. Morn. Sess. at 34 (Nov. 4, 2005), *Kitzmiller*, 400 F. Supp. 2d 707.

182. Stephen C. Meyer, *The Origin of Biological Information and the Higher Taxonomic Categories*, 117(2) Procs. of the Biological Socy. of Wash. 213, 213–39 (2004). The Biological Society of Washington (BSW) issued a false and misleading statement subsequent to publication alleging that Meyer's article was published "[c]ontrary to typical editorial practices" because it had not been reviewed by an associate editor; that its "subject matter represents . . . a significant departure from the nearly purely systematic content" of the *Proceedings*; and that it did not meet the journal's "scientific standards" because the board of the American Association for the Advancement of Science (AAAS) previously passed a resolution stating that there was no credible evidence for intelligent design—thus an article presenting such evidence should not even have been considered. Council of the Biol. Socy. of Wash., *Statement from the Council of the Biological Society of Washington Regarding the Publication of the Paper by Stephen C. Meyer in Volume 117(2) of the Proceedings*, http://www.biolsocwash.org/id_statement.html (accessed Feb. 15, 2007). It should be noted that the BSW statement is not about whether the Meyer article was properly peer-reviewed. It is beyond dispute that the Meyer article was published after passing standard peer-review; this fact has been confirmed by Roy McDiarmid, the president of the BSW. *Staff Report: Intolerance and the Politicization of Science at the Smithsonian*, *U.S. House of Representatives Committee on Government Reform* 24–25, http://www.souder.house.gov/_files/IntoleranceandthePoliticizationofScienceattheSmithsonian.pdf (Dec. 11, 2006) [hereinafter *Staff Report*]. Because the peer-review of the Meyer article could not be challenged, the BSW tried to attack the article on other grounds. But each of its claims was either false or illegitimate. An investigation by subcommittee staff of the U.S. House of Representatives Committee on Government Reform found that the BSW wrongly claimed that editor Richard Sternberg had not followed "typical editorial practices," noting that even Eugenie Scott of the pro-evolution NCSE conceded privately that other articles had been handled in the same manner. *Id.* As for the charge that Meyer's article fell outside the normal scope of the *Proceedings*, former editor Sternberg strongly disagreed, pointing out the wide array of topics actually covered by the journal. Richard Sternberg, *Scope of the Paper and the Proceedings*, http://www.rsternberg.net/publication_details.htm (accessed Feb. 15, 2007). Finally, the BSW's preemptive ban on the consideration of articles presenting empirical evidence for ID was an effort to shut down legitimate scientific debate before it started, and it relied on a AAAS resolution discredited by one of this Article's authors, because it was passed by board members who were later shown to be uninformed about intelligent design. John G. West, *Darwin's Conservatives: The Misguided Quest* 100 (Discovery Press 2006). The BSW's attempt to discredit the Meyer article was conducted in collaboration with the NCSE, which even scripted "talking points" for officials of the BSW to use. *Staff Report*, *supra*, at 22. For further information about the controversy surrounding the Meyer paper, see Discovery Inst., *Sternberg, Smithsonian, Meyer, and the Paper that Started It All*, http://www.discovery.org/scripts/viewDB/index.php?command=view&id=2399 (Oct. 19, 2005).

simple protein-protein interactions via the common method of gene duplication.[183] Other peer-reviewed pro-ID articles published in mainstream scientific journals and books were documented in an amicus brief accepted by Judge Jones,[184] and Scott Minnich testified at trial that between "seven and ten" peer-reviewed papers supporting ID exist.[185] While Judge Jones briefly alluded to Behe's *Protein Science* article in a footnote,[186] he simply ignored the Meyer article as well as the other publications brought to his attention, insisting that there is a "complete absence of peer-reviewed publications supporting" ID,[187] and that "ID is not supported by *any* peer-reviewed research, data or publications."[188] The factual record in the case absolutely refutes such claims.

183. Michael J. Behe & David W. Snoke, *Simulating Evolution by Gene Duplication of Protein Features that Require Multiple Amino Acid Residues*, 13 Protein Sci. 2651 (Oct. 2004).

184. FTE Brief at app. D, 8–18, *Kitzmiller*.

185. Transcr. of Procs. Morn. Sess. at 34:5 (Nov. 4, 2005), *Kitzmiller*, 400 F. Supp. 2d 707.

186. Judge Jones dismissed Michael Behe and David W. Snoke's article in *Protein Science* because "it does not mention either irreducible complexity or ID." *Kitzmiller*, 400 F. Supp. 2d at 745 n. 17. While it is true that the article does not contain those words, it does bear directly on those topics as it tests the complexity inherent in enzyme-substrate interactions. Even an anti-ID article in *Science* acknowledged that the evolution of protein-protein interactions bears on the question of irreducible complexity and the ID argument (discussed in Michael J. Behe & David W. Snoke, *Simulating Evolution by Gene Duplication of Protein Features that Require Multiple Amino Acid Residues*, 13 Protein Sci. 2651 (Oct. 2004)). *See* Christoph Adami, *Reducible Complexity*, 312 Science 61–63 (Apr. 7, 2006). Moreover, by Judge Jones's own standards, the lack of the phrase "intelligent design" should not preclude one from arguing that the paper supports ID. Judge Jones claimed that the review paper *The Origin of New Genes: Glimpses From the Young and Old* accounted for "the origin of *new genetic information* by evolutionary processes" in a peer-reviewed scientific publication. *Kitzmiller*, 400 F. Supp. 2d at 744 (emphasis added) (citing Manyuan Long, Esther Betrán, Kevin Thornton, & Wen Wang, *The Origin of New Genes: Glimpses from the Young and Old*, 4 Nat. Revs. Genetics 865 (Nov. 2003)). Yet the body of Long's review article does not even contain the word "information," much less the phrase "new genetic information." The word "information" appears once in the entire article—in the title of note 103. *Id.* at 875 n. 103. This reveals a double standard applied by Judge Jones to pro-evolution versus pro-ID papers as regards peer review.

187. *Kitzmiller*, 400 F. Supp. 2d at 744.

188. *Id.* at 745 (emphasis added).

6. Contra *Judge Jones, ID Has "Been the Subject of Testing and Research"*[189]

Judge Jones maintained that ID has not "been the subject of testing and research,"[190] and had harsh words for ID proponents who he claimed have not performed the appropriate tests.[191] However, philosophers of science have acknowledged that "[t]he requirement is that a scientific theory be testable, not that its proponents actually test it."[192] This criterion would appear to therefore be irrelevant to a determination of whether ID is science.

Nonetheless, Judge Jones made an incorrect finding of fact regarding this criterion as well. In his court testimony, microbiologist Scott Minnich showed slides of the genetic knock-out experiments he performed in his own laboratory at the University of Idaho, which presented evidence that the bacterial flagellum is irreducibly complex with respect to its complement of thirty-five genes.[193] Judge Jones failed to mention any of Minnich's experimental data supporting the irreducible complexity of the flagellum.[194]

7. The Burden of Proof

Leaving aside Judge Jones's incorrect findings of fact, the burden of proof to establish that ID is not science should have been very high. For a variety of reasons, judges ought to be reticent about assuming the power to determine the "true" definition of science.[195] In the present case, it should not have been enough merely to show that ID is a minority position among scientists or that many scientists disagree with ID. As noted previously, a theory can be scientific even if it is opposed by the majority of scientists, and even if it is ultimately shown to be wrong.[196] Unfortunately, Judge Jones appears to have confused the question of whether he finds ID personally convincing with the question of

189. *Id.* at 735.

190. *Id.*

191. *Id.* at 741.

192. Phillip L. Quinn, *The Philosopher of Science as Expert Witness*, in *Science and Reality: Recent Works in the Philosophy of Science* 32, 47 (J. Cushing et al. eds., U. of Notre Dame Press 1984).

193. Transcr. of Procs. Afternoon Sess. at 99–108 (Nov. 3, 2005), *Kitzmiller*, 400 F. Supp. 2d 707.

194. *See Kitzmiller*, 400 F. Supp. 2d at 744–45.

195. DeWolf et al., *Traipsing*, *supra* n. 65, at 25–28.

196. Meyer, *DNA and the Origin of Life*, *supra* n. 134; *supra* nn. 151–52 and accompanying text.

whether ID is a scientific theory. Because he was not convinced by the scientific arguments made by ID proponents, Judge Jones ruled that ID must not be science in principle. But it was not Judge Jones's place to determine the ultimate truth or falsity of ID's scientific arguments, as some legal scholars critical of ID have now recognized. Boston University law professor Jay Wexler, an ID critic, condemns Judge Jones's effort to decide the scientific validity of ID as a matter of law:

> [T]he important issue for evaluating the decision is not whether ID actually is science—a question that sounds in philosophy of science—but rather whether judges should be deciding in their written opinions that ID is or is not science as a matter of law. On this question, I think the answer is "no," particularly when the overall question posed to a court is whether teaching ID endorses *religion*, not whether ID is or is not *science*. The part of *Kitzmiller* that finds ID not to be science is unnecessary, unconvincing, not particularly suited to the judicial role, and even perhaps dangerous both to science and to freedom of religion.[197]

We agree. Judge Jones's attempt to decide whether ID is science exhibits poor legal reasoning, goes well beyond the issues needed to dispose of the case, and raises troubling First Amendment concerns.

VII. Error #4: Abandoning Religious Neutrality in Order to Impose Religious Orthodoxy

While previous sections of this article have addressed the question of whether Judge Jones fairly and accurately analyzed the question of whether ID is science, the ultimate test of his opinion should be whether or not he treated religion in a neutral manner. After all, his entire opinion is based upon the determination of whether or not the conduct of the school board violated the religion clauses of the First Amendment. Although specific tests have been developed for analyzing, for example, whether state action violates the Establishment Clause,[198] the overarching purpose of judicial interpretations of the religion clauses of the First Amendment is to promote religious neutrality: "The 'establishment of religion' clause of the First Amendment means at least this: Neither a state nor the Federal Government can set up a church. Neither can pass laws which aid one religion, aid all reli-

197. Jay D. Wexler, Kitzmiller *and the "Is It Science?" Question*, 5 First Amend. L. Review. 90, 93 (2006) (footnotes omitted).

198. *Lemon v. Kurtzman*, 403 U.S. 602, 612–13 (1971).

gions, or prefer one religion over another."[199] As the following sub-sections demonstrate, Judge Jones consistently violated this principle by applying different standards to advocates of ID compared to the standard he applied to advocates of Darwinian evolution.

Judge Jones scrutinized the religious beliefs and motives of ID proponents, as well as the religious implications of ID, as if they were relevant to a determination of whether ID is constitutional to teach in public schools.[200] However, Judge Jones's opinion contains no explanations of why this analysis should not apply with equal force to disqualify other scientific theories with metaphysical implications, such as Big Bang cosmology or evolution. Indeed, Judge Jones failed to explain why his ruling would not invite future litigation to scrutinize the religious (or anti-religious) beliefs and motives of evolution advocates, nor did he consider how his rules would affect the teaching of evolution in light of the anti-religious implications that can be drawn from the theory.[201] As a result, his mode of analysis either fails completely to treat religion in a neutral fashion, or (if neutrally applied), would threaten the teaching of many scientific theories, including Big Bang cosmology and evolution.[202]

A. *Considering* Only *the Implications Drawn from ID*

1. *The Double Standard*

Judge Jones stated that ID is "an inherently religious view" and no different from creationism.[203] In making this finding, he did not distinguish between the implications of a scientific theory and the science from which the implications are drawn. Moreover, Judge Jones made no effort to examine whether the scientific theory against which ID competes (Darwinian evolution)[204] contains

199. *Everson v. Bd. of Educ. Ewing Township*, 330 U.S. 1, 15 (1947).

200. *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 747 (M.D. Pa. 2005).

201. *See infra* nn. 206, 208–12, 249–59 and accompanying text.

202. Beckwith, *supra* n. 107, at 499; Discovery Brief at 40, *Kitzmiller*; DeWolf et al., *Traipsing*, *supra* n. 65, at 65.

203. *Kitzmiller*, 400 F. Supp. 2d at 747.

204. Although critics of intelligent design vehemently reject the idea that ID deserves the same scientific status as Darwinian evolution, Darwin proposed his theory as a designer substitute and the most fervent advocate of neo-Darwinism, Richard Dawkins, describes biology in terms of design: "Biology is the study of complicated things that appear to have been designed for a purpose." Richard Dawkins, *The Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe without Design* 1 (W.W. Norton & Co. 1986). Dawkins attempts to identify mechanisms that can produce the *appearance* of design with-

parallel religious (or anti-religious) implications. If Judge Jones's analytical method were sound, it would threaten the constitutionality of teaching about Darwinian evolution itself.

Advocates of ID have never denied that the science of ID has implications for religious belief. Indeed, one reason for the intense interest in this area for many people is that the answers to the scientific questions have larger implications for philosophy, theology, and culture. In the same way that the famous British atheist, Anthony Flew, decided to abandon atheism because he was convinced by the argument for (actual) design in biology,[205] Richard Dawkins has declared that "Darwin made it possible to become an intellectually fulfilled atheist."[206] Both Antony Flew and Richard Dawkins have drawn implications for religion from their interpretation of the scientific data. But religious implications drawn from conflicting answers to the scientific question do not render the original question (whether design is actual or illusory) any less scientific. Neither Darwinism nor ID is rendered unscientific because some proponents of each theory passionately advocate philosophical, theological, or cultural positions that are believed to follow from their respective answers to the scientific question.

It is telling that Judge Jones treated statements about the religious implications of design as though they defined the theory, but never treated similar statements by leading advocates of Darwinism about *its* implications for religion as though they defined Darwinism.[207] This is despite the fact that leading proponents of Darwinian evolution frequently raise the cultural and metaphysical implications of the theory in their writings. For example, Douglas Futuyma has declared in a popular college-level textbook that "[b]y coupling undirected, purposeless variation to the blind, uncaring process of natural selection, Darwin made theological or

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out any actual designer. The advocates of ID postulate the scientific possibility that Dawkins and others are wrong about the ability of non-intelligent processes to produce the appearance of design. Thus, unless the actions of an intelligent agent are excluded *a priori* from the definition of science, ID must be recognized as the scientific rival to theories like neo-Darwinism.

205. Interview by Gary R. Habernas with Antony Flew, Emeritus Prof. of Phil., U. of Reading, U.K. (2004), available at http://www.biola.edu/antonyflew/page2.cfm (accessed Mar. 12, 2007) ("It now seems to me that the findings of more than fifty years of DNA research have provided materials for a new and enormously powerful argument to design.").

206. Dawkins, *supra* n. 204, at 6.

207. *Kitzmiller*, 400 F. Supp. 2d 707.

spiritual explanations of the life processes superfluous."[208] Stephen Jay Gould repeatedly discussed the "radical philosophical content of Darwin's message" and its denial of purpose in the universe:

> First, Darwin argues that evolution has no purpose. . . . Second, Darwin maintained that evolution has no direction. . . . Third, Darwin applied a consistent philosophy of materialism to his interpretation of nature. Matter is the ground of all existence; mind, spirit, and God as well, are just words that express the wondrous results of neuronal complexity.[209]

Cornell University evolutionary biologist William Provine has similarly stated that "belief in modern evolution makes atheists of people"[210] and that "[o]ne can have a religious view that is compatible with evolution only if the religious view is indistinguishable from atheism."[211] Even the plaintiffs' own expert biologist Kenneth Miller drew a direct connection between philosophical materialism and evolution in the first two editions of one of his biology textbooks, claiming,

> Darwin knew that accepting his theory required believing in *philosophical materialism*, the conviction that matter is the stuff of all existence and that all mental and spiritual phenomena are its byproducts. Darwinian evolution was not only purposeless but also heartless . . . . Suddenly, humanity was reduced to just one more species in a world that cared nothing for us. The great human mind was no more than a mass of evolving neurons. Worst of all, there was no divine plan to guide us.[212]

Whereas the plaintiffs were required to scour addresses by ID advocates to religious groups and confidential documents to "out" the religious agenda of proponents of the theory of ID, the implications for religion from Darwinian evolution could be found in a widely-used high school textbook written by one of the plaintiffs' primary experts. Yet Judge Jones paid attention only to the religious implications of ID (concluding that it was therefore religion, not science) and ignored the implications from Darwinian evolution (which could have led to a parallel conclusion). A more blatant double standard would be hard to imagine.

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208. Douglas J. Futuyma, *Evolutionary Biology* 5 (3d ed., Sinaeur Assocs. 1998).

209. Stephen Jay Gould, *Ever Since Darwin: Reflections in Natural History* 12–13 (W.W. Norton & Co. 1977).

210. William B. Provine, *No Free Will* in *Catching up with the Vision* S117, S123 (Margaret W. Rossiter ed., U. of Chi. Press 1999).

211. *Id.*

212. Kenneth R. Miller & Joseph S. Levine, *Biology: Discovering Life* 161 (2d ed., D.C. Heath 1994); Kenneth R. Miller & Joseph S. Levine, *Biology: Discovering Life* 158 (1st ed., D.C. Heath 1991).

2. *The Incidental or Secondary Effects Test*

The United States Supreme Court has repeatedly recognized that "[t]he 'Establishment' Clause does not ban federal or state regulation of conduct whose reason or effect merely happens to coincide or harmonize with the tenets of some or all religions."[213] Thus, the *primary* or direct effect of state action must be distinguished from incidental or secondary effects.[214] As one example, in *Agostini v. Felton*, the Court noted that, if government aid "is allocated on the basis of neutral, secular criteria that neither favor nor disfavor religion, and is made available to both religious and secular beneficiaries on a nondiscriminatory basis,"[215] then any effects upon religion are merely incidental.[216] Such reasoning has been used to uphold many programs which may have resulted in incidental benefits to religion but were "made available generally without regard to the sectarian-nonsectarian, or public-nonpublic nature of the institution benefited" under criteria that are "in no way skewed towards religion."[217]

This legal doctrine has permitted many courts to acknowledge the anti-religious implications of teaching neo-Darwinism and yet permit it to be taught. In *Kitzmiller*, the plaintiffs, who vigorously contended that evolution was science, freely admitted that the teaching of Darwinian evolution is offensive to certain religious beliefs[218] and indeed, their arguments that the Dover school board had religious motivation were based upon these alleged conflicts.[219] Moreover, as noted, many neo-Darwinists have openly

213. *McGowan v. Md.*, 366 U.S. 420, 442 (1961).

214. *Lynch v. Donnelly*, 465 U.S. 668, 683 (1984) ("[N]ot every law that confers an indirect, remote, or incidental benefit upon [religion] is, for that reason alone, constitutionally invalid.") (citations and internal quotation marks omitted).

215. *Agostini v. Felton*, 521 U.S. 203, 231 (1997).

216. *Id.* at 220, 231 (noting that under previous case law, "The Court separated its prior decisions evaluating programs that aided the secular activities of religious institutions into two categories: those in which it concluded that the aid resulted in an effect that was indirect, remote, or incidental (and upheld the aid); and those in which it concluded that the aid resulted in a direct and substantial advancement of the sectarian enterprise (and invalidated the aid)," but explaining that in the current circumstances, "the aid is less likely to have the effect of advancing religion") (citations and internal quotation marks omitted).

217. *Witters v. Wash. Dept. of Servs. for the Blind*, 474 U.S. 481, 487–88 (1986) (quotation marks omitted); *Zobrest v. Catalina Foothills Sch. Dist.*, 509 U.S. 1, 10–11 (1993) (quotation marks omitted); *see also Mitchell v. Helms*, 530 U.S. 793, 809–10 (2000).

218. Pl.'s Opposition to Mot. for S.J. at 58, *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707 (M.D. Pa. 2005).

219. *Kitzmiller*, 400 F. Supp. 2d at 765.

stated anti-theistic implications of their theory.[220] Yet because evolution is a scientific theory, courts have treated the religious implications of scientific theories such as neo-Darwinism as merely an incidental effect of the secular purpose of teaching students about a scientific theory.[221] For example, in *McLean v. Arkansas Board of Education*, Judge Overton found that if creation science were a scientific theory, it could have been taught because any touching upon religion would have been a secondary effect: "Secondary effects which advance religion are not constitutionally fatal. Since creation science is not science, the conclusion is inescapable that the only real effect of Act 590 is the advancement of religion."[222]

This approach was followed in *Crowley v. Smithsonian Institution*, in which a federal judge rejected arguments that Smithsonian exhibits on evolution established "secular humanism" because the "impact [on religion] is at most *incidental* to the primary effect of presenting a body of scientific knowledge."[223] Similarly, in *Peloza v. Capistrano Unified School District*, high school biology teacher John Peloza challenged a requirement that he teach evolution on the grounds that it constituted a religious belief.[224] The dismissal of Peloza's complaint was affirmed by the Ninth Circuit because "[e]volution is a scientific theory based on the gathering and studying of data, and modification of new data."[225] Because evolution is based upon science, any effects upon religion would not bar its teaching.

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220. *See supra* nn. 206, 208–12 and accompanying text; *infra* nn. 249–59 and accompanying text.

221. [I]f a theory has scientific value and evidence to support it, its primary effect would be to advance knowledge of the natural world, not to advance religion. The ultimate goal of schools is to educate students. Where a theory has scientific value and supporting evidence, it provides a basis for knowledge. Whether it coincidentally advances [or inhibits] religion should not matter.

Theresa Wilson, *Evolution, Creation, and Naturally Selecting Intelligent Design out of the Public Schools*, 34 U. Tol. L. Rev. 203, 232 (2003). Wilson's point obviously applies to the opposite case where the teaching of a scientific theory inhibits a religion, since the effect prong of the *Lemon* test forbids both advancing and inhibiting religion. *Lemon v. Kurtzman*, 403 U.S. 602, 612 (1971) ("its principal or primary effect must be one that neither advances nor inhibits religion") (citations and internal quotation marks omitted).

222. *McLean v. Ark. Bd. of Educ.*, 529 F. Supp. 1255, 1272 (E.D. Ark. 1982).

223. *Crowley v. Smithsonian Inst.*, 462 F. Supp. 725, 727 (D.C. 1978) (emphasis added).

224. Peloza, an evangelical Christian, took issue with evolution because he claimed it "is based on the assumption that life and the universe evolved randomly and by chance and with no Creator involved in the process." *Peloza v. Capistrano Unified Sch. Dist.*, 37 F.3d 517, 519 (9th Cir. 1994).

225. *Id.* at 521.

The "incidental effect" approach has also been applied in cases dealing with other curricular topics. In *Grove v. Mead School District*, parents complained that a classroom reader established secular humanism.[226] The court rejected the plaintiffs' contentions because the curricular materials had only an "indirect, remote, or incidental"[227] effect upon religion due to the secular reasons for their inclusion in the curriculum, and their lack of explicit endorsement of any religious viewpoint.[228] After all, "even the Bible may occupy a place in the classroom, provided education and exposure do not become advocacy or endorsement."[229] In *Malnak v. Yogi*, Judge Adams's concurrence called the Big Bang a teachable scientific "astronomical interpretation of the creation of the universe," despite the fact that it "may be said to answer an 'ultimate' question."[230] Thus, when a curricular subject, such as evolution or the Big Bang, is properly recognized as a scientific theory, courts treat the advancement of any religious implications of the scientific theory as merely secondary, or incidental, effects.

Neutrality toward religion requires that ID should be treated similarly. Despite any religious implications ID may have for some people, if it makes its claims based upon the neutral, secular methods of science, then any effects upon religion should be counted as incidental. But Judge Jones treated the religious implications of ID as if they were primary effects, allowing him to classify it as religion, not secondary or incidental effects to the scientific basis underlying ID.[231]

B. Failure to Treat the Theistic Beliefs of ID Proponents in a Neutral Fashion Compared to Those of Theistic Evolutionists

In his opinion, Judge Jones relies heavily on what should have been irrelevant testimony of Dr. Barbara Forrest, who he claims "thoroughly and exhaustively chronicled the history of ID in her book and other writings."[232] Barbara Forrest's book, *Crea-*

226. *Grove v. Mead Sch. Dist.*, 753 F.2d 1528 (9th Cir. 1985) (*aff'd in part, vacated in part, rev'd in part on other grounds by Tahoe-Sierra Preservation Council, Inc. v. Tahoe Regl. Plan. Agency*, 911 F.2d 1331 (9th Cir. 1990)).

227. *Id.* at 1539 (citations and internal quotation marks omitted).

228. *Id.*

229. *Id.* at 1539–40.

230. *Malnak v. Yogi*, 592 F.2d 197, 209 (3d Cir. 1979) (Adams, J., concurring).

231. *Supra* nn. 105–24 and accompanying text.

232. *Kitzmiller v. Dover Area Sch. Dist.*, 400 F. Supp. 2d 707, 719 (M.D. Pa. 2005).

tionism's Trojan Horse: The Wedge of Intelligent Design,[233] does little more than chronicle the religious activities of individuals and organizations interested in ID while ignoring all of their scientific endeavors, and then ascribes to those individuals and organizations the sinister motive of trying to "undermine public support for the teaching of evolution and other natural science supporting evolution."[234]

Is Dembski not allowed freedom to discuss his personal religious beliefs? Relying upon Forrest, Judge Jones even cited a quote from Dembski's book, aimed at a Christian audience, entitled *Intelligent Design: The Bridge Between Science and Theology*, stating that "Christ is never an addendum to a scientific theory but always a completion."[235] Yet never quoted by Forrest or Judge Jones are Dembski's statements *from the same book*, which explain how "[a] scientist can investigate aspects of the world without reference to Christ,"[236] and also how ID does not try to address non-empirically based questions about whether the designer is supernatural:

> By contrast, intelligent design nowhere attempts to identify the intelligent cause responsible for the design in nature, nor does it prescribe in advance the sequence of events by which this intelligent cause had to act. . . . Intelligent design is modest in what it attributes to the designing intelligence responsible for the specified complexity in nature. For instance, design theorists recognize that the nature, moral character and purposes of this intelligence lie beyond the remit of science. As Dean Kenyon and Percival Davis remark in their text on intelligent design: "Science cannot answer this question; it must leave it to religion and philosophy."[237]

As noted above, it is undisputed that the evidence for design (or for mechanisms that produce the appearance of design without intelligent agency) is of interest to many people because of its philosophical, theological and cultural implications.[238] And it is therefore not surprising that individuals who have formed beliefs about whether God exists (from William Dembski to Richard Dawkins) will have expressed themselves on those topics. Yet Judge Jones treated as riveting testimony, as though it were the

233. Barbara Forrest & Paul R. Gross, *Creationism's Trojan Horse: The Wedge of Intelligent Design* (Oxford U. Press 2004).

234. *Id.* at 16.

235. *Kitzmiller*, 400 F. Supp. 2d at 719-20.

236. William A. Dembski, *Intelligent Design: The Bridge between Science and Theology* 209 (InterVarsity Press 1999).

237. *Id.* at 247–48.

238. Claudia Willis, *The Evolution Wars*, 166 Time Mag. 26 (Aug. 15, 2005).

result of crack investigative reporting, the notion that one of ID's critics "thoroughly and exhaustively chronicled . . . history of ID" which provided a "wealth of statements by ID leaders that reveal ID's religious, philosophical, and cultural content."[239] Indeed, he made a point of observing that ID advocates not only have a tendency to say (in other contexts) that they believe in God, but that they are Christians.[240]

However, Judge Jones found it unremarkable that evolutionists who are Christians commonly make the same theistic interpretations of neo-Darwinism. For example, in his volume *Perspectives on an Evolving Creation*, evolutionary paleontologist and evangelical Christian Keith B. Miller writes regarding evolution: "Seeing the history of life unfolding with each new discovery is exciting to me. How incredible to be able to look back through eons of time and see the panorama of God's evolving creation! God has given us the ability to see and watch his creative work unfold."[241]

Similarly, plaintiffs' expert witness Kenneth R. Miller explains in his book *Finding Darwin's God* how he believes evolution coheres with his Catholic faith: "But this much I think is clear: Given evolution's ability to adapt, to innovate, to test, and to experiment, sooner or later it would have given the Creator exactly what He was looking for—a creature who, like us, could know Him, and love Him . . . ."[242] Supporters of evolution readily grasp that such religious expressions from defenders of Darwin's theory do not disqualify evolution from being science. In fact, Kenneth Miller anticipated this kind of objection to evolution during his testimony at the *Kitzmiller* trial, explaining that "[e]verything that a scientist writes or says is not necessarily a scientific statement or a scientific publication."[243] Apparently Judge Jones accepted this rule for proponents of evolution, but not for proponents of ID.

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239. *Kitzmiller*, 400 F. Supp. 2d at 719.

240. "The writings of leading ID proponents reveal that the designer postulated by their argument is the God of Christianity." *Id.* "Moreover, it is notable that both Professors Behe and Minnich admitted their personal view is that the designer is God and Professor Minnich testified that he understands many leading advocates of ID to believe the designer to be God." *Id.* at 718 (citations omitted).

241. Keith B. Miller, *Worshipping the Creator of the History of Life*, in *Perspectives on an Evolving Creation* 205, 205 (Keith B. Miller ed., Erdman Press 2003).

242. Kenneth R. Miller, *Finding Darwin's God: A Scientist's Search for Common Ground between God and Evolution* 238–39 (HarperCollins 1999).

243. Transcr. of Procs. Morn. Sess. at 56:2–4 (Sept. 26, 2005), *Kitzmiller*, 400 F. Supp. 2d 707.

Judge Jones set forth a double standard by considering how design proponents have interpreted ID within the context of their own religious beliefs, but ignored the fact that evolutionists have done precisely the same thing by interpreting evolution within the context of their religious (or anti-religious) beliefs.

C. Failure to Treat Theistic Versus Anti-Theistic Motives in a Neutral Fashion

Judge Jones devoted extensive space to recounting the allegedly religious motives of members of the "IDM" as stated in the so-called "Wedge Document,"[244] implying this is relevant to a determination of whether ID is religion.[245] Judge Jones asserted that "[a] careful review of the Wedge Document's goals and language throughout the document reveals cultural and religious goals, as opposed to scientific ones."[246] Yet he could only make this statement while ignoring that the document lists as its five-year goal "[t]o see intelligent design theory as an accepted alternative in the sciences and scientific research being done from the perspective of design theory," and as its twenty-year goal "[t]o see intelligent design theory as the dominant perspective in science."[247]

But what if some members of the "IDM" do have religious motives? Would this cause ID to shift from science to religion? The answer should have been no, unless Judge Jones wishes evolution to come under constitutional attack: many leading evolution advocates have clearly stated anti-religious motives which were documented to Judge Jones in an amicus brief:[248]

- Eugenie Scott, executive director of NCSE, and called by the journal *Nature* as "perhaps the nation's most high-profile Darwinist,"[249] is a "Notable Signer" of the "Humanist Manifesto III" which aspires to create a world with "a progressive philosophy of life . . . without supernaturalism" because "[h]umans are . . . the result of unguided evolutionary change. Humanists recognize nature as self-existing."[250]

244. Discovery Inst., *The "Wedge Document:" "So What?"*, http://www.discovery.org/scripts/viewDB/filesDB-download.php?id=349 (accessed Dec. 21, 2006) [hereinafter Discovery Inst., *Wedge*].

245. *Kitzmiller*, 400 F. Supp. 2d at 720.

246. *Id.*

247. Discovery Inst., *Wedge*, *supra* n. 244, at 15.

248. *See* Biologists Brief at 15–17, *Kitzmiller*.

249. Geoff Brumfiel, *Who Has Designs on Your Students' Minds?* 434 Nature 1062 (2005).

250. Am. Humanist Assn., *Humanism and Its Aspirations, Notable Signers*, http://www.americanhumanist.org/3/HMsigners.htm (accessed Oct. 15, 2006); Am. Humanist

- Nobel Laureate Steven Weinberg, a public activist in favor of evolution education[251] explains his scientific career is motivated by a desire to disprove religion[252] and hopes that science will help bring "priests and ministers and rabbis and ulamas and imams and bonzes and bodhisattvas . . . to an end."[253]
- Even plaintiffs' expert witness Barbara Forrest sits on the Board of Directors of the New Orleans Secular Humanist Association,[254] an associate member of the American Humanist Association,[255] which publishes the Humanist Manifesto III.[256]
- In 1996, the American Humanist Association named Richard Dawkins as its "Humanist of the Year."[257] During his acceptance speech, he stated that "faith is one of the world's great evils, comparable to the smallpox virus but harder to eradicate."[258] Dawkins himself is Charles Simonyi Professor in the Public Understanding of Science at Oxford University.[259]

Judge Jones accepted the plaintiffs' arguments that the motives behind pursuing ID can make it a religious viewpoint while ignoring the potential anti-religious motives associated with prominent advocates of evolution. Not only does this represent a non-neutral treatment of theistic religious motives versus anti-theistic religious motives, but it proposes a rule which, if applied consistently, could even threaten the teaching of evolution.

D. Imposing Religious Orthodoxy

The *Kitzmiller* opinion itself also reflects a basic misunderstanding of the nature of religious liberty. In his conclusion, Judge Jones makes the following statement:

Assn., *Humanism and Its Aspirations*, *Humanist Manifesto III*, *A Successor to the Humanist Manifesto of 1933*, http://www.americanhumanist.org/3/HumandItsAspirations.htm (accessed Oct. 15, 2006) [hereinafter Am. Humanist Assn., *Manifesto*].

251. Dr. Weinberg testified before the Texas State Board of Education in support of teaching only the evidence for evolution. Forrest Wilder, Opinion, *Academics Need to Get More Involved*, Daily Texan (U. of Tex., Austin) (Oct. 2, 2003) (available at *archives* http://www.dailytexanonline.com).

252. Stephen Weinberg, *Freethought Today*, *"Free People from Superstition"*, http://www.ffrf.org/fttoday/2000/april2000/weinberg.html (accessed Sept. 26, 2006).

253. *Id.*

254. New Orleans Secular Humanist Assn., *Who's Who*, *NOSHA's Board of Directors*, http://www.nosha.secularhumanism.net/whoswho.html (accessed Sept. 26, 2006).

255. New Orleans Secular Humanist Assn., *About Us*, http://www.nosha.secularhumanism.net/index.html (accessed Oct. 14, 2006).

256. Am. Humanist Assn., *Manifesto*, *supra* n. 249.

257. Richard Dawkins, *Is Science A Religion?* 57 Humanist (Jan./Feb. 1997) (available at http://www.thehumanist.org/humanist/articles/dawkins.html); *see also* Richard Dawkins, *The God Delusion* (Bantam Press 2006).

258. *Id.*

259. U. of Oxford, *The Current Simonyi Professor*, *Professor Richard Dawkins*, http://www.simonyi.ox.ac.uk/dawkins/index.shtml (accessed Sept. 26, 2006).

> Both Defendants and many of the leading proponents of ID make a bedrock assumption which is utterly false. Their presupposition is that evolutionary theory is antithetical to a belief in the existence of a supreme being and to religion in general. Repeatedly in this trial, Plaintiffs' scientific experts testified that the theory of evolution represents good science, is overwhelmingly accepted by the scientific community, and that it in no way conflicts with, nor does it deny, the existence of a divine creator.[260]

Thus Judge Jones ruled that the view "that evolutionary theory is antithetical to a belief in the existence of a supreme being" is "*utterly false*."[261] In other words, he declared that to see conflict between religion and evolution is a religious heresy. Judge Jones seems to have forgotten the cardinal rule that the government will never decide disputes about what is orthodox religion and what is heretical.[262]

To understand the enormity of Judge Jones's error on this point, imagine a situation in which a hypothetical federal judge was faced with the question of whether the Constitution requires that a prison inmate be offered a kosher diet. Suppose the judge based his or her opinion upon the following statement: "It is utterly false to claim that one cannot be a good Jew (or Muslim) without refraining from eating pork." Or imagine the opposite: "It is utterly false to assert that one can be a good Jew while eating pork." Because adherents to Judaism include both those who affirm the continuing validity of the kosher dietary laws and those

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

261. *Id.* (emphasis added).

262. Under the principle of religious neutrality, courts are forbidden from passing judgment upon the validity of religious beliefs:

> "The law knows no heresy, and is committed to the support of no dogma, the establishment of no sect." . . . Freedom of thought, which includes freedom of religious belief, is basic in a society of free men. It embraces the right to maintain theories of life and of death and of the hereafter which are rank heresy to followers of the orthodox faiths. Heresy trials are foreign to our Constitution. 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 religious views espoused by respondents might seem incredible, if not preposterous, to most people. But if those doctrines are subject to trial before a jury charged with finding their truth or falsity, then the same can be done with the religious beliefs of any sect. When the triers of fact undertake that task, they enter a forbidden domain. The First Amendment does not select any one group or any one type of religion for preferred treatment. It puts them all in that position.

U.S. v. Ballard, 322 U.S. 78, 86–87 (1944) (citations omitted).

who believe they are outdated,[263] such a statement would be a blatant intrusion of the federal judiciary into questions of theology consistently recognized as lying beyond a court's competence or authority to decide.[264] Similarly, imagine a federal judge trying to decide whether or not same-sex marriages are constitutionally mandated by claiming: "It is utterly false to claim that same-sex marriage is antithetical to Christian teaching." Or, just the opposite: "It is utterly false to claim that same-sex marriage is consistent with Christian teaching."[265] Whatever issues the judge might be required to resolve in order to rule, no judge should issue a statement of the kind just mentioned.

Judge Jones should not have pretended that he had the authority to declare the proper relationship between religious faith and evolution. Not only did he do so, but he stated the proposition in such emphatic terms (anyone who disagrees with him is saying something "utterly false") that one can doubt whether he is even aware of a contrary view.

VIII. CONCLUSION

The opinion in *Kitzmiller* is a misguided attempt on the part of a federal judge to settle controversies over science and religion that properly belong to practicing scientists and religious groups, respectively. Beyond determining the right of the plaintiffs to the legal relief that they sought (an injunction against the policy adopted by the Dover school board), Judge Jones had no authority to displace other institutions wrestling with the questions about

263. Religion Facts, *Keeping Kosher: Jewish Dietary Laws*, *Kosher Observance Today*, http://www.religionfacts.com/judaism/practices/kosher.htm (updated Jan. 22, 2005); Shayna M. Sigman, *Kosher without Law: The Role of Nonlegal Sanctions in Overcoming Fraud within the Kosher Food Industry*, 31 Fla. St. U. L. Rev. 509, 538 (2004).

264. In *Thomas v. Rev. Bd. of Ind. Empl. Sec.*, 450 U.S. 707, 716 (1981), the Supreme Court rejected the power of an unemployment board to determine whether the refusal of a Jehovah's Witness to work on military equipment violated his faith: "Particularly in this sensitive area, it is not within the judicial function and judicial competence to inquire whether the petitioner or his fellow worker more correctly perceived the commands of their common faith. Courts are not arbiters of scriptural interpretation." For a discussion of courts' consistent refusal to decide theological questions, refer to David K. DeWolf, *State Action under the Religious Clauses: Neutral in Result or Neutral in Treatment?* 24 U. Rich. L. Rev. 253 (1990).

265. *Compare* Sidney Callahan, *Why I Changed My Mind. (About Gay Marriage)*, 121 Commonweal 6 (Apr. 22, 1994) *with* Sen. Rpt. 123 (Sept. 10, 1996) (reprinted in 142 Cong. Rec. S10108-10109) (daily ed., Sept. 10, 1996) ("Indeed thousands of years of Judeo-Christian teaching leave absolutely no doubt as to the sanctity, purpose, and reason for the union of man and woman. One has only to turn to the Old Testament and read the word of God to understand how eternal is the true definition of marriage.").

how to handle scientific and religious controversies. Instead of promoting a constructive conversation over the relative merits of competing viewpoints, Judge Jones attempted to substitute his own answers. His decision relies upon a highly selective recitation of the facts, an obviously inadequate understanding of the scientific issues involved, and a distorted understanding of the principle of religious neutrality. As a result, Judge Jones's opinion will serve future judges only with an example of how *not* to analyze the issues that were presented to him.

We have come full circle from the days when critics of evolution thought they could stifle the teaching of evolution through the force of law.[266] Now it is Darwin's defenders who are trying to ban any public expression of dissent from Darwinian theory. They are seeking to stop debate over Darwin not only through the courts, but also through discrimination and intimidation. At George Mason University, biology professor Caroline Crocker made the mistake of favorably discussing ID in her cell biology class. She was suspended from teaching the class, and then her contract was not renewed.[267] At the Smithsonian Institution, evolutionary biologist Richard Sternberg, editor of a respected biology journal, faced retaliation by Smithsonian executives in 2004 after accepting for publication a peer-reviewed article favoring ID.[268] Investigators for the U.S. Office of Special Counsel later concluded that "it is . . . clear that a hostile work environment was created with the ultimate goal of forcing [Dr. Sternberg] . . . out of the [Smithsonian Institution]."[269] At the Mississippi University for Women, chem-

266. *See Scopes v. State*, 289 S.W. 363 (Tenn. 1927).

267. Natl. Pub. Radio, All Things Considered, *Intelligent Design and Academic Freedom*, (Nov. 10, 2005) (transcript available at http://www.npr.org/transcripts); P.M. Fisher, *Cast Out from Class*, 434 Nature 1064, 1064 (2005).

268. *Supra* n. 183 (discussing acceptance of peer-reviewed articles).

269. Ltr. from James McVay, Atty., U.S. Office of Special Counsel, to Dr. Richard von Sternberg, *Re: OSC File No. MA-05-0371 and MA-05-0015* (Aug. 5, 2005) (available at http://rsternberg.net/OSC_ltr.htm); *see also* David Klinghoffer, Opinion, *The Branding of a Heretic*, Wall St. J. W11 (Jan. 28, 2005). The Smithsonian's National Museum of Natural History (NMNH) "explicitly acknowledged in emails their intent to pressure Sternberg to resign because of his role in the publication of the Meyer paper and his views on evolution." *Staff Report*, *supra* n. 182, at 4. The report further found that "NMNH officials revealed their intent to use their government jobs to discriminate against scientists based on their outside activities regarding evolution" and concluded that "scientists who are known to be skeptical of Darwinian theory, whatever their qualifications or research record, cannot expect to receive equal treatment or consideration by NMNH officials." *Id.* For more information about the controversy surrounding publication of the journal article supportive of ID, see Discovery Inst., *Sternberg, Smithsonian, Meyer, and the Paper that Started It All*, http://www.discovery.org/scripts/viewDB/index.php?command=view&id=2399, and Richard Sternberg, *Home Page of Dr. Richard Sternberg*, http://rsternberg.net/ (Aug. 19, 2005).

istry professor Nancy Bryson was removed as head of the division of natural sciences in 2003 after merely presenting scientific criticisms of biological and chemical evolution to a seminar of honors students. "Students at my college got the message very clearly, do not ask any questions about Darwinism," she explained later.[270]

These politically-correct efforts to purge the scientific community of Darwin's critics are fueled by increasingly toxic rhetoric on the part of some evolutionists. Rather than defend the scientific merits of evolution, these Darwinists have become obsessed with stigmatizing their opponents as dangerous zealots hell-bent on imposing theocracy. In many states, it has become routine to apply the label of "Taliban" to anyone who supports teaching scientific criticisms of Darwinian theory.[271] Biology professor Paul Z. Myers at the University of Minnesota, Morris, has even demanded "the public firing and humiliation of some teachers" who express their doubts about Darwin.[272] He also says that evolutionists should "screw the polite words and careful rhetoric. It's time for scientists to break out the steel-toed boots and brass knuckles, and get out there and *hammer* on the lunatics and idiots."[273] These defenders of evolution who claim to oppose blind zealotry have come to practice the very intolerance they claim to despise.

Such intolerance should raise concerns for people of good will from across the political spectrum. True liberals—those who favor free and open debate—should be disturbed by the efforts to

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270. Tex. St. Bd. of Educ. Hrg. Transcr. at 505:4–6 (Sept. 10, 2003).

271. *See e.g.* Brian Leiter, *The Leiter Reports: Editorials, News, Updates, Biology Textbooks under Attack*, http://webapp.utexas.edu/blogs/archives/bleiter/000146.html#000146 (Aug. 11, 2003) (accessed Feb. 21, 2007); Ohio Citizens for Science, *Statement of the Reverend Mark Belletini, Senior Minister of the First Unitarian Universalist Church of Columbus*, http://www.ohioscience.org/state-belletini.shtml (accessed Oct. 16, 2006); William Saletan, *Slate*, *Unintelligible Redesign*, http://www.slate.com/id/2062009/ (Feb. 13, 2002) ("According to scientists, teachers, and civil libertarians, the Taliban has invaded Ohio."); Jodi Wilgoren, *Politicized Scholars Put Evolution on the Defensive*, 154 N.Y. Times A1 (Aug. 21, 2005) ("The group [Discovery Institute] is also fending off attacks from the left, as critics liken it to . . . the Taliban.").

272. PZ Myers, *The Panda's Thumb*, *A New Recruit*, http://www.pandasthumb.org/archives/2005/06/a_new_recruit.html#comment-c35130 (June 14, 2005). While Myers' statement mentions intelligent design, he also references proposed changes to the Minnesota Science Standards which did not mention intelligent design and only entailed implementing scientific critique of Darwin in Minnesota. Thus presumably Myers would apply his persecution to any teacher that simply dissents from Darwin. *See* Ltr. from Members of Minority Rpt. Writing Comm., to The Hon. Cheri Pierson Yecke, Commr. of Educ. Minn. Dept. of Educ., *Subject: Minnesota Science Standards Minority Report* (Dec. 7, 2003).

273. PZ Myers, *Pharyngula, Perspective, John Hawks Thinks There's Too Much "Foaming at the Mouth" over Bush's Support for Intelligent Design Creationism*, http://pharyngula.org/index/weblog/comments/perspective/ (Aug. 4, 2005).

silence academic critics of Darwinism just as much as conservatives. Whatever one's personal view of Darwin's theory, the current atmosphere is unhealthy for science, and it is unhealthy for a free society.

In the end, the debate over ID in nature cannot be resolved through either coercion or court decisions. ID arose because of new scientific evidence in cosmology and the life sciences, and this scientific evidence cannot be ruled out of existence by court order. As biochemist Michael Behe has observed of Judge Jones's ruling,

> [it] does not impact the realities of biology, which are not amenable to adjudication. On the day after the judge's opinion, December 21, 2005, as before, the cell is run by amazingly complex, functional machinery that in any other context would immediately be recognized as designed. On December 21, 2005, as before, there are no non-design explanations for the molecular machinery of life, only wishful speculations and Just-So stories.[274]

ID will survive *Kitzmiller* not only because the ruling itself is unpersuasive and is owed no deference, but because the scientific evidence pointing to design in nature is just as powerful today as it was before Judge Jones ruled.

274. Michael J. Behe, *Whether ID is Science: A Response to the Opinion of the Court in* Kitzmiller vs. Dover Area School District, in DeWolf et al. *Traipsing*, *supra* n. 65, at app. A, 92.