

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

TAMMY J. KITZMILLER, *et al.*)

Plaintiffs,)

v.)

Civil Action No. 4:04-CV-2688

DOVER AREA SCHOOL,)

DISTRICT and DOVER AREA)

SCHOOL DISTRICT BOARD OF)

DIRECTORS,)

Defendants,)

Hon. John E. Jones, III

**BRIEF OF AMICI CURIAE BIOLOGISTS AND OTHER
SCIENTISTS IN SUPPORT OF DEFENDANTS**

DAVID K. DEWOLF*
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- Gordon Moran, *Silencing Scientists and Scholars in Other Fields: Power, Paradigm Controls, Peer Review, and Scholarly Communication* (Greenwich, Connecticut: Ablex Publishing Corporation, 1998). 18
- National Academy of Sciences, *Teaching about Evolution and the Nature of Science: A view from the National Academy of Sciences* (National Academy Press 1998). 17
- National Academy of Sciences, *Science and Creationism: A View from the National Academy of Sciences* (2nd edit. National Academy Press, 1999). 17

INTRODUCTION

Amici curiae are scientists who oppose any attempt to define the nature of science in a way that would limit their ability to follow the evidence wherever it may lead. Since the identification of intelligent causes is a well established scientific practice in fields such as forensic science, archaeology, and exobiology,¹ Amici urge this Court to reject plaintiffs' claim that the application of intelligent design to biology is unscientific. Any ruling that depends upon an outdated or inaccurate definition of science, or which attempts to define the boundaries of science, could hinder scientific progress.

INTEREST OF AMICI CURIAE

Amici are professional scientists who support academic freedom for scientific research into the scientific theory of intelligent design. Some Amici are scientists whose research directly addresses design in biology, physics, or astronomy. Other Amici are scientists whose research does not bear directly upon the intelligent design hypothesis, but feel it is a viable conclusion from the empirical data. Finally, some Amici are skeptics of intelligent design who believe that protecting the freedom to pursue scientific evidence for intelligent design stimulates the advance of scientific knowledge. All Amici agree that courts should decline to rule on the scientific validity of theories which are the subject of

vigorous scientific debate.

SELECTED LIST OF AMICI CURIAE

NOTE: Scientists are listed by academic affiliation or doctoral degree. A complete list of all 85 Amici Curiae is attached as Appendix A.

Philip Skell
Member, National Academy of Sciences
Emeritus, Evan Pugh Professor of Chemistry
Pennsylvania State University

Lyle H. Jensen
Fellow, American Association for the Advancement of Science
Professor (Emeritus), Department of Biological Structures and Department of
Biochemistry, University of Washington

Russell W. Carlson
Professor of Biochemistry and Molecular Biology
Executive Technical Director, Plant and Microbial Carbohydrates
Complex Carbohydrate Research Center
University of Georgia

Dean H. Kenyon
Emeritus Professor of Biology
San Francisco State University

Ralph W. Seelke
Professor of Molecular & Cell Biology
University of Wisconsin-Superior

Gary Maki
Director, Center for Advanced Microelectronics and Biomolecular Research
University of Idaho.

¹ See William A. Dembski, *The Design Inference* (Cambridge University Press, 1998).

Ronald Larson
George Granger Brown Professor of Chemical Engineering
Chair, Department of Chemical Engineering
University of Michigan

Gregory J. Brewer
Professor of Neurology, Medical Microbiology, Immunology and Cell Biology
Southern Illinois University School of Medicine

Frederick N. Skiff
Professor, Department of Physics and Astronomy
University of Iowa

Wesley L. Nyborg
Professor of Physics (emeritus)
University of Vermont

Michael R. Egnor
Professor and Vice-Chairman
Department of Neurological Surgery
State University of New York at Stony Brook

M. Harold Laughlin
Professor & Chair, Department of Biomedical Sciences
University of Missouri

Bruce D. Evans
Chair, Department of Biology
Huntington University

Wusi Maki
Research Assistant Professor
Department of Microbiology, Molecular Biology, and Biochemistry University of
Idaho

Granville Sewell
Professor of Mathematics
University of Texas, El Paso

Christian M. Loch
Ph.D. Biochemistry & Molecular Genetics
University of Virginia

I. Caroline Crocker
Ph.D. Immunopharmacology
University of Southampton

Lisanne D'Andrea-Winslow
Associate Professor of Biology
Northwestern College

Mark E. Fuller
Ph.D. Microbiology
University of California, Davis

Christopher P. Williams
Ph.D. Biochemistry
The Ohio State University

Scott H. Northrup
Professor of Chemistry
Tennessee Tech University

Richard M Anderson
Assistant Professor of Environmental Science and Policy
Duke University

Stephen Meyer
Ph.D. Philosophy of Science
Cambridge University

Jonathan Wells
Ph.D. Molecular & Cell Biology
University of California (Berkeley)

SUMMARY OF ARGUMENT

Courts are ill-suited to resolve debates over the validity of controversial scientific theories. In particular, the scientific theory of intelligent design should not be stigmatized by the courts as less scientific than competing theories. The advance of scientific knowledge depends on uninhibited, robust investigation seeking the best explanation. Over time, new evidence and new perspectives on existing evidence may require the modification of existing theories or even the abandonment of previously accepted theories that have lost their explanatory power.

The method of identifying intelligent causes is well established in many scientific fields.² As a result, Amici assert that the hypothesis of intelligent design can be an appropriate topic for discussion in a curriculum that addresses biological origins as well as for investigation in the laboratory. Efforts to ban the scientific theory of intelligent design from the classroom, whether by a narrow definition of science or by a discriminatory attack on the personal motives of the scientists conducting scientific research into intelligent design, should be rejected by the Court.

² *Id.* These areas include archaeology, and the Search for Extra-Terrestrial Intelligence (SETI) Project, which seeks to detect intelligently designed radio signals coming from space.

Finally, litigation should not usurp the laboratory or scientific journals as the venue where scientific disputes are resolved. Doubts as to whether a theory adequately explains the evidence should be resolved by scientific debate, not by court rulings. Amici urge the Court to avoid a ruling limiting the nature of science, as it would have far-reaching detrimental effects beyond the schoolhouse doors and into the laboratories and careers of many legitimate scientists

ARGUMENT AND CITATIONS OF AUTHORITY

I. THE NATURE OF SCIENCE IS NOT A QUESTION TO BE DECIDED BY THE COURTS.

Intelligent design, while admittedly a minority view, is currently being vigorously debated by scientists. For example, Cambridge University Press recently published a volume entitled “Debating Design,” in which scientists on both sides of the issue stated their respective cases.³ Whether or not intelligent design is ultimately widely accepted as the most persuasive explanation for particular scientific phenomena, design theorists have formulated their theory based upon a scientific evaluation of the empirical evidence. The current formulation of intelligent design theory by its proponents, and its application to recent scientific discoveries, is still in its youth compared to many other scientific theories. For that very reason it is premature to conclude that one side has

³ Michael Ruse and William Dembski, eds., *Debating Design* (Cambridge University Press, 2004).

triumphed and the other has lost. Simply because one group of scientists favors one interpretation, we must not relegate the other side to a category of “non-scientists” who are ineligible to state their case. Amici strenuously object to appeals to the judiciary to rule on the validity of a scientific theory or to rule on the scope of science in a manner that might exclude certain scientific theories from science. These questions should be decided by scientists, not lawyers.

II. SCIENTIFIC PROGRESS DEPENDS ON AN UNINHIBITED SEARCH FOR TRUTH.

a. Dissent within Science is Healthy.

The scientific enterprise advances when scientists make new discoveries correcting or overturning previously held theories. Scientists in many fields operate under a “paradigm,” an overarching theory that provides a framework for interpreting data, performing experiments, and doing further research.⁴ Paradigms are typically unquestioned by most scientists and reign over thinking in scientific fields much like established law reigns over a society.

The history of science is replete with examples of novel ideas which were given birth when scientists realized that the empirical data conflicted with reigning

⁴ Thomas Kuhn, *The Structure of Scientific Revolutions* (2nd edit., 1970, University of Chicago Press).

paradigms.⁵ Scientists who observe data that conflicts with popular scientific paradigms form innovative theories to explain the new data. Scientists propounding these new theories often experience sharp opposition from their peers. It is crucial that advocates of the new scientific theories be granted freedom of inquiry to question reigning scientific ideas if scientific progress is to be possible.

b. Existing Scientific Establishments Are Sometimes Unable to Admit Possibility of Error.

The history of science also 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.⁶ 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.⁷

⁵ *Id.* For example, Einstein’s theories of relativity helped explain why Newton’s classical laws of motion made inaccurate predictions when dealing with objects moving at very high speeds.

⁶ *Id.*

⁷ *Id.* at 24.

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.⁸

This opposition to intelligent design within the scientific establishment is more often based on pride and prejudice than an impartial evaluation of the evidence. A case in point is the resolution opposing intelligent design issued by the board of the American Association for the Advancement of Science (AAAS) in 2002.⁹ The AAAS declaration reads like an imperial edict, asserting without any discussion of the evidence that “the ID movement has failed to offer credible scientific evidence to support their claim that ID undermines the current scientifically accepted theory of evolution.” Notably, several AAAS board members who voted for the resolution were later unable to cite even one article they had read by an intelligent design proponent.¹⁰ In other words, they had voted to condemn intelligent design as unscientific without bothering to investigate it for themselves. The AAAS resolution is little more than a political document that seeks to substitute political consensus for scientific demonstration. When the votes

⁸ See Michael Ruse and William Dembski, *Debating Design* 3-4 (Cambridge University Press, 2004).

⁹ AAAS News Archives, “AAAS Board Resolution on Intelligent Design Theory,” aaas.org/news/releases/2002/1106id2.shtml (last visited September 23, 2004).

¹⁰ John West, “Intelligent design could offer fresh ideas on evolution,” *Seattle Post Intelligence*, December 6, 2002,

of scientific organizations, acting in a political capacity, are substituted for the give-and-take of public argument and refutation, science loses. To convert such votes into a coercive rule of law would only compound the error. Amici ask the Court not to erode the right of all scientists to pursue scientific inquiry regardless of the views of the current scientific majority.

c. Even Theories that are Eventually Proven Erroneous may Benefit Science by Requiring Reexamination of Long-Held Assumptions.

Whether or not intelligent design is adopted as an explanation for biological origins, science benefits from the competition of alternate hypotheses. Amici see great value to design theory simply because it forces scientists to confront evidence which conflicts with the Neo-Darwinian paradigm, and to finally provide better answers for the origin of highly complex and machine-like biological features.

Even eminent critics of design concede that the possible conclusion of design influences their thinking. The co-discoverer of the structure of DNA, Francis Crick, contended that “[b]iologists must constantly keep in mind that what they see was not designed, but rather evolved.”¹¹ Though himself critical of design, the President of the National Academy of Sciences, Bruce Alberts, has acknowledged that cells resemble human-designed machines:

seattlepi.nwsourc.com/opinion/98810_idrebut06.shtml (last visited September 13, 2005).

¹¹ Francis H. C. Crick, *What Mad Pursuit* 138 (Basic Books, 1990).

The entire cell can be viewed as a factory that contains an elaborate network of interlocking assembly lines, each of which is composed of a set of large protein machines. . . . Why do we call the large protein assemblies that underlie cell function protein *machines*? Precisely because, like machines invented by humans to deal efficiently with the macroscopic world, these protein assemblies contain highly coordinated moving parts.¹²

Evolutionary biologist Ernst Mayr explained that the “core of Darwinism ... is the theory of natural selection. This theory is so important for the Darwinian because it permits the explanation of adaptation, the ‘design’ of the natural theologian, by natural means ...”¹³ Finally, prominent evolutionary biologist and intelligent design critic Richard Dawkins writes that “[b]iology is the study of complicated things that give the appearance of having been designed for a purpose.”¹⁴ Thus evolutionary biologists are sensitive to arguments to design and in fact realize that arguments for design pose challenges to their theories.

Amici reiterate that even incorrect scientific theories advance scientific progress by challenging the scientific community to better explain the natural world. Moreover, dissenting scientific viewpoints should not be suppressed. The freedom of scientists to pursue the scientific evidence to its logical conclusion must be protected so that a better explanation, when it emerges, can be accepted.

¹² Bruce Alberts, "The Cell as a Collection of Protein Machines: Preparing the Next Generation of Molecular Biologists," *Cell*, 92: 291, February 6, 1998 (emphasis in original).

¹³ Ernst Mayr, *Foreword*, Michael Ruse, *Darwinism Defended* xi-xii (1982).

The Court should oppose any requests to define intelligent design as unscientific or to place it outside of the scope of science.

III. AD HOMINEM ATTACKS ON SCIENTISTS SHOULD NOT BE THE BASIS FOR EXCLUDING THEIR SCIENTIFIC CLAIMS.

As this litigation demonstrates, opponents of intelligent design frequently resort to ad hominem attacks, asserting that because some scientists hold religious views, their scientific work should be dismissed as merely “religious.”¹⁵

Creationism's Trojan Horse, co-authored by Dr. Barbara Forrest (one of plaintiffs' experts), epitomizes the argument that because many intelligent design theorists are devoutly religious, therefore intelligent design proponents intend to pass off religion as science and are not offering design as a scientific theory.¹⁶

Forrest's book devotes little space to evaluating the science of intelligent design, but is full of documentation of irrelevant connections (sometimes concrete and sometimes highly tenuous) between intelligent design proponents and religious organizations. Such harping upon the religious affiliations of design proponents and their allegedly deceitful scholarship is bigoted as well as beside the point.

¹⁴ Richard Dawkins, *The Blind Watchmaker* 1 (New York: W.W. Norton & Company, 1986).

¹⁵ See Barbara Forrest and Paul Gross, *Creationism's Trojan Horse* (Oxford University Press, 2004).

¹⁶ “A movement based on religion does not need the credibility afforded by scientific evidence.” *Id.* at 314.

This “*Trojan Horse*” method of critique encourages discrimination against intelligent design proponents by fostering a stereotype among academics that supporters of design are incompetent scientists who use deceitful methods to peddle religion as though it were science.¹⁷ Such a prejudicial tactic would never be permitted if the alleged agenda of the accused group were, say, feminism or gay rights. Indeed, no other group of academics face attacks on their professional careers based primarily on their alleged personal beliefs.¹⁸ Arguments employing such *ad hominem* attacks on the supposed religious beliefs of design theorists should be decisively rejected by this Court.

a. Religious Motivations are Irrelevant to the Scientific Merits of a Hypothesis.

The motivations and religious views of scientists have nothing to do with the scientific validity of their discoveries. For example, the eminent scientists Isaac Newton and Johannes Kepler were devoutly religious and believed God created a rationally comprehensible universe. Despite their religious motivations, their scientific investigations led to accurate explanations of motion which became the bedrock of physical mechanics. Amici thus assert that motivations for conducting scientific investigations have no bearing upon the empirical validity or scientific

¹⁷ See *infra* notes 45-51 and accompanying text for documentation of the discrimination leveled at Dr. Guillermo Gonzalez.

¹⁸ See *infra*, notes and 35-56 and accompanying text, for a discussion of the discrimination faced by intelligent design sympathizers.

nature of the conclusions obtained therein.

Additionally, any religious affiliations or beliefs of intelligent design proponents are protected by their First Amendment rights of freedom of religion and association. Regardless of their associations or motivations, intelligent design theorists do not base their arguments on theological premises:

The design theorists' critique of Darwinism begins with Darwinism's failure as an empirically adequate scientific theory, not with its supposed incompatibility with some system of religious belief. This point is vital to keep in mind in assessing intelligent design's contribution to the creation - evolution controversy. Critiques of Darwinism by creationists have tended to conflate science and theology, making it unclear whether Darwinism fails strictly as a scientific theory or whether it must be rejected because it is theologically unacceptable. Design theorists refuse to make this a Bible-science controversy. Their critique of Darwinism is not based upon any supposed incompatibility between Christian revelation and Darwinism.¹⁹

Highly probative of this account is the fact that notable sympathizers of intelligent design are not religious. For example, the famous British atheist, Antony Flew, announced in 2004 that he had been persuaded by the empirical data supporting design. Although Flew continued to espouse no religious commitments after his intellectual shift, he stated "[i]t now seems to me that the findings of more than fifty years of DNA research have provided materials for a new and enormously

¹⁹ William A. Dembski, *Intelligent Design: The Bridge Between Science and Theology* 112 (InterVarsity Press, 1999).

powerful argument to design.”²⁰ This Court should rule that the motivations and religious beliefs of design proponents are irrelevant to the empirical validity or epistemological nature of design theory.

b. Scientists and Advocates on All Sides of this Issue have Religious (or Anti-Religious) Motivations.

Although Amici emphasize that the religious beliefs and motivations of scientists are irrelevant when evaluating the scientific nature of their arguments, Amici feel compelled to point out that leading opponents of intelligent design are not without their own religious (or anti-religious) motivations.

For example, Eugenie Scott, director of a leading activist organization opposing the teaching of design, the National Center for Science Education (“NCSE”), is a “Notable Signer” of the “Humanist Manifesto III.” The Manifesto makes broad theological (or “anti-theological”) claims that “[h]umans are ... the result of unguided evolutionary change. Humanists recognize nature as self-existing.”²¹

Another public opponent of intelligent design is Nobel Laureate Steven

²⁰ See biola.edu/antonyflew/page2.cfm (last visited September 10, 2005).

²¹ Humanist Manifesto III Public Signers, americanhumanist.org/3/HMsigners.htm (last visited September 10, 2005); Humanism and its Aspirations, americanhumanist.org/3/HumandItsAspirations.htm (last visited September 10, 2005).

Weinberg.²² Weinberg explains his scientific career is motivated by a desire to disprove religion:

I personally feel that the teaching of modern science is corrosive of religious belief, and I'm all for that! One of the things that in fact has driven me in my life, is the feeling that this is one of the great social functions of science—to free people from superstition.²³

Lest there be any doubt about Weinberg's meaning, he expresses his hope that “this progression of priests and ministers and rabbis and ulamas and imams and bonzes and bodhisattvas will come to an end, that we'll see no more of them. I hope that this is something to which science can contribute and if it is, then I think it may be the most important contribution that we can make.”²⁴

Plaintiff's expert Barbara Forrest is on the Board of Directors of the New Orleans Secular Humanist Association (NOSHA).²⁵ NOSHA is also an affiliate of the Council for Secular Humanism which it describes as “North America's leading organization for non-religious people.”²⁶ NOSHA's links page boasts “The Secular Web,” whose “mission is to defend and promote metaphysical naturalism,

²² Dr. Weinberg testified in support of teaching only the evidence for evolution before the Texas State Board of Education. See Forrest Wilder, “Academics need to get more involved,” Opinion, *The Daily Texan*, October 2, 2003. dailytexanonline.com/media/paper410/news/2003/10/02/Opinion/Academics.Need.To.Get.More.Involved-510574.shtml (last visited September 15, 2005).

²³ “Free People from Superstition,” ffrf.org/fttoday/2000/april2000/weinberg.html (last visited September 15, 2005).

²⁴ *Id.*

²⁵ NOSHA Who's Who, nosha.secularhumanism.net/whoswho.html (last visited September 10, 2005).

the view that our natural world is all that there is, a closed system in no need of an explanation and sufficient unto itself.”²⁷ Most notably, NOSHA is an associate member of the American Humanist Association,²⁸ which publishes the Humanist Manifesto III.²⁹ In 1996, this American Humanist Association named Richard Dawkins as its “Humanist of the Year.”³⁰ To help underscore the anti-religious mindset of these humanist organizations, in his acceptance speech for the award before the American Humanist Association, Dawkins stated that “faith is one of the world’s great evils, comparable to the smallpox virus but harder to eradicate.”³¹

Even the eminent National Academy of Sciences, which has issued various booklets against teaching intelligent design,³² has a membership of biologists who (according to surveys) are 95% atheists or agnostics.³³ Amici detail these affiliations not because religious (or anti-religious) beliefs are relevant to a

²⁶ *Id.*

²⁷ *Id.*

²⁸ *Id.*

²⁹ See americanhumanist.org/3/HumandItsAspirations.htm (last visited September 10, 2005).

³⁰ See thehumanist.org/humanist/articles/dawkins.html (last accessed Sept 10, 2005).

³¹ *Id.*

³² See National Academy of Sciences, *Teaching about Evolution and the Nature of Science and Science and Creationism: A view from the National Academy of Sciences* (National Academy Press, 1998); National Academy of Sciences, *Science and Creationism: A View from the National Academy of Sciences* (2nd edit. National Academy Press, 1999).

³³ Edward J. Larson and Larry Witham, “Scientists and Religion in America,” *Scientific American* 281:88-93, September, 1999.

scientific argument, but to demonstrate that the legal rule proposed by the plaintiffs would jeopardize the scientific contributions of many critics of intelligent design just as much as the contributions of some intelligent design proponents. It would also inspire a never-ending succession of irrelevant *ad hominem* attacks. Amici urge the Court to reject such a deeply flawed rule that is so inimical to free inquiry.

IV. EFFORTS TO DISCRIMINATE AGAINST INTELLIGENT DESIGN PROPONENTS HAVE ALREADY BEGUN.

The concern that acceptance of the plaintiffs' claims could adversely affect the freedom of scientists to pursue the truth is hardly a remote contingency. The Court should be aware that opponents of intelligent design, including some of the witnesses testifying in this case, already have sought to hinder the careers and academic freedom of scientists who are sympathetic towards intelligent design. The following examples demonstrate the potential for the plaintiffs' requested relief to become the basis for further efforts to stifle the intelligent design viewpoint.³⁴

Richard Sternberg is a trained evolutionary biologist,³⁵ and former editor of the peer-reviewed biology journal, *Proceedings of the Biological Society of*

³⁴ For an account of modern-day persecution of scientists, See Gordon Moran, *Silencing Scientists and Scholars in Other Fields: Power, Paradigm Controls, Peer Review, and Scholarly Communication* (Greenwich, Connecticut: Ablex Publishing Corporation, 1998).

³⁵ Dr. Sternberg holds Ph.D.'s in molecular evolution and theoretical biology. See rsternberg.net/CV.htm (last visited September 9, 2005).

Washington (“PBSW”). As a PBSW editor, in 2004 Dr. Sternberg oversaw the publication of a peer-reviewed technical article which supported the hypothesis of intelligent design.³⁶ Although the article was reviewed and published using normal procedures,³⁷ Dr. Sternberg subsequently experienced retaliation by his co-workers and superiors at the Smithsonian, including transfer to a hostile supervisor, removal of his name placard from his door, deprivation of workspace, subjection to work requirements not imposed on others, restriction of specimen access, and loss of his keys.³⁸ Smithsonian officials also tried to smear Dr. Sternberg’s reputation³⁹ and even investigated his religious and political affiliations in violation of his privacy and First Amendment rights.⁴⁰ According to an investigation by the U.S. Office of Special Counsel (OSC), these efforts were aimed at creating “a hostile work environment... with the ultimate goal of forcing [Sternberg]... out of the [Smithsonian].”⁴¹ Furthermore, the OSC found that the pro-evolution NCSE

³⁶ Stephen Meyer, “The Origin of Biological Information and the Higher Taxonomic Categories,” *Proceedings of the Biological Society of Washington* 117:213-239, 2004.

³⁷ See rsternberg.net/ (last visited September 9, 2005). See also rsternberg.net/OSC_itr.htm (last visited September 9, 2005).

³⁸ *Id.*

³⁹ Michael Powell, “Editor Explains Reasons for 'Intelligent Design' Article,” *Washington Post*, August 19, 2005, A19, washingtonpost.com/wp-dyn/content/article/2005/08/18/AR2005081801680_3.html (last visited September 15, 2005).

⁴⁰ *Id.*

⁴¹ See rsternberg.net/ (last visited September 9, 2005). See also rsternberg.net/OSC_itr.htm (last visited September 9, 2005).

helped devise the strategy to have Dr. Sternberg “investigated and discredited.”⁴² NCSE executive director Eugenie Scott later indicated to the *Washington Post* that Sternberg was lucky he was not fired outright: “If this was a corporation, and an employee did something that really embarrassed the administration... how long do you think that person would be employed?”⁴³ Dr. Sternberg was singled out because he permitted an open discussion of a dissenting scientific viewpoint, despite the fact that he is neither a proponent of intelligent design nor a creationist.⁴⁴

Another target of intimidation is Guillermo Gonzalez, an astronomer at Iowa State University (ISU). In a recent book, Dr. Gonzalez postulated that the laws of the universe were intelligently designed to permit the existence of advanced forms of life.⁴⁵ Some of Dr. Gonzalez’s astronomical work fundamental to his design hypotheses appeared on the cover of *Scientific American*.⁴⁶ In retaliation against

⁴² *Id.*

⁴³ Michael Powell, “Editor Explains Reasons for 'Intelligent Design' Article,” *Washington Post*, August 19, 2005, A19, [washingtonpost.com/wp-dyn/content/article/2005/08/18/AR2005081801680_3.html](http://www.washingtonpost.com/wp-dyn/content/article/2005/08/18/AR2005081801680_3.html) (last visited September 15, 2005).

⁴⁴ See Michael Powell, “Editor Explains Reasons for 'Intelligent Design' Article,” *Washington Post*, August 19, 2005, A19, [washingtonpost.com/wp-dyn/content/article/2005/08/18/AR2005081801680.html](http://www.washingtonpost.com/wp-dyn/content/article/2005/08/18/AR2005081801680.html) (last visited September 15, 2005).

⁴⁵ Guillermo Gonzalez and Jay W. Richards, *The Privileged Planet: How Our Place in the Cosmos is Designed for Discovery* (Regnery Publishing, 2004).

⁴⁶ Guillermo Gonzalez, Donald Brownlee, Peter D. Ward, “Refuges for Life in a Hostile Universe,” *Scientific American*, October, 2001.

Dr. Gonzalez's application of design to astronomy, his opponents at ISU circulated a petition signed by over 120 faculty members "denouncing 'intelligent design...'"⁴⁷ The leader of the intimidation campaign—also faculty adviser for the ISU Atheist and Agnostic Society⁴⁸—accused Gonzalez of having a hidden religious agenda. Others similarly "charged him with forcing his scientific evidence into a religious prism, fingering him as an academic fraud."⁴⁹ Thus the thesis of "religious and cultural agenda"—the *Trojan Horse* stereotype—has spurred efforts to impede scientific research. Like Sternberg, Gonzalez's attempts to focus on science have been futile: "I don't bring God into science. I've looked out at nature and discovered this pattern, based on empirical evidence."⁵⁰ After initiating the campaign of harassment, Gonzalez's chief accuser castigated Gonzalez for declining to appear at a "forum" sponsored by critics determined to denounce intelligent design.⁵¹ Since he is coming up for tenure in the near future,

⁴⁷ Jamie Schuman, "120 Professors at Iowa State U. Sign Statement Criticizing Intelligent-Design Theory," *Chronicle of Higher Education*, August 26, 2005, chronicle.com/temp/email.php?id=7d6oum55u2gs4xgz0zoqckkx4ulkgoy6 (last visited September 9, 2005).

⁴⁸ *Id.*

⁴⁹ Reid Forgrave, "Life: A universal debate," *Des Moines Register*, August 31, 2005, dmregister.com/apps/pbcs.dll/article?AID=/20050831/LIFE/%20508310325/1001/LIFE (last visited September 12, 2005).

⁵⁰ *Id.*

⁵¹ Lisa Livermore, "Intelligent design' faces ISU opposition," *Des Moines Register*, August 26, 2005,

Gonzalez is especially vulnerable to this effort to create a hostile work environment.

Other faculty have experienced similar retribution for their pro-design views. Dr. Caroline Crocker was a biology professor at George Mason University until she mentioned intelligent design in a class and was then banned from teaching both intelligent design *and* evolution.⁵² Subsequently, her contract was not renewed. Leading design theorist Dr. William Dembski was banned from teaching at Baylor University and forced into a “five-year sabbatical.”⁵³ This followed after Barbara Forrest wrote letters to dissuade scholars from associating with Dembski’s Polanyi Center at Baylor because it was “the most recent offspring of the creationist movement.”⁵⁴ Finally, Dr. Nancy Bryson was removed as head of the Division of Science and Mathematics at Mississippi University for Women, without explanation, the day after she taught an honors forum entitled “Critical Thinking on Evolution.”⁵⁵ Such incidents have a chilling effect on the freedom of

desmoinesregister.com/apps/pbcs.dll/article?AID=/20050826/NEWS02/508260394/1001 (last visited September 9, 2005).

⁵² Geoff Brumfiel “Cast out from class,” *Nature*, 434:1064, April 28, 2005.

⁵³ *Id.*

⁵⁴ *Barbara Forrest*, Letter to Simon Blackburn, designinference.com/documents/2005.05.ID_at_Baylor.htm (last visited September 9, 2005).

⁵⁵ Transcript of Proceedings before Kansas State Board of Education, ksde.org/outcomes/sc hearing05072005am.pdf (last visited September 15, 2005).

pro-design scientists to voice their scientific views.⁵⁶

By pursuing tactics reminiscent of the McCarthy era, opponents of design have put the integrity of scientific research in jeopardy. These examples illustrate the need for this Court to reject the narrow definition of science proffered by plaintiffs, and to affirm the law's respect for the normal process of scientific debate to generate answers to scientific controversies.

⁵⁶ *Id.* This effort to deny academic freedom to intelligent design proponents is fostered by rhetoric from the leading critics of intelligent design. In *Creationism's Trojan Horse*, for example, Forrest and Gross express a "final hope [] that readers will consider seriously the question of what they ought to be doing about" the supposed threat from intelligent design. Barbara Forrest and Paul Gross, *Creationism's Trojan Horse* 315 (Oxford University Press, 2004).

CONCLUSION

The plaintiffs have invited this Court to determine the status of intelligent design as science. Because the definition of science and the boundaries of science should be left to scientists to debate, this Court should reject the relief requested by the plaintiffs, and affirm the freedom of scientists to pursue scientific evidence wherever it may lead.

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Counsel certifies that this brief complies with the type-volume limitation set forth in Local Rule 7.8 (b)(2) of the Local Rules for the United States District Court for the Middle District of Pennsylvania. According to the word-processing system used to prepare it, this brief contains 4,691 words.



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

No. 4:04-CV-2688

Tammy J. Kitzmiller *et al.*
Plaintiffs

v.

Dover Area School District and Dover Area School District Board of Directors
Defendants

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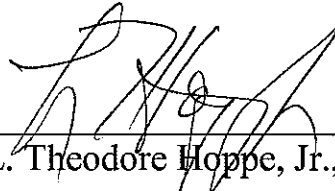
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