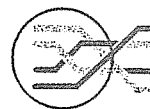


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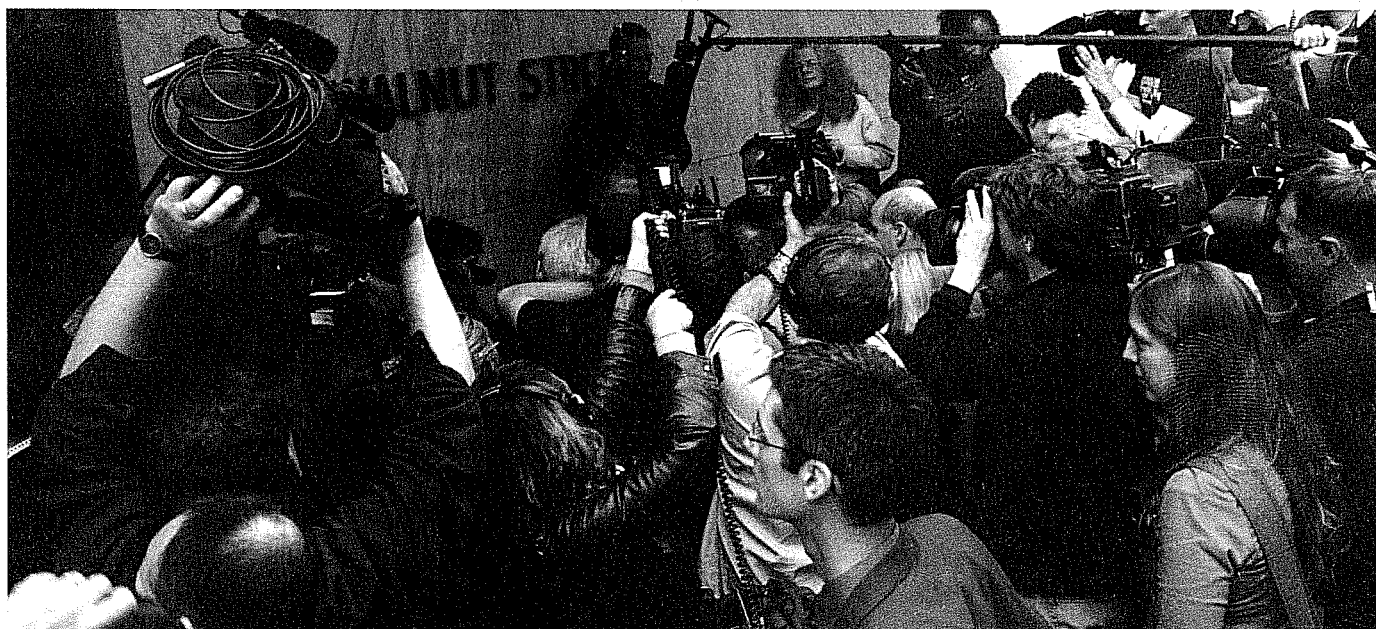
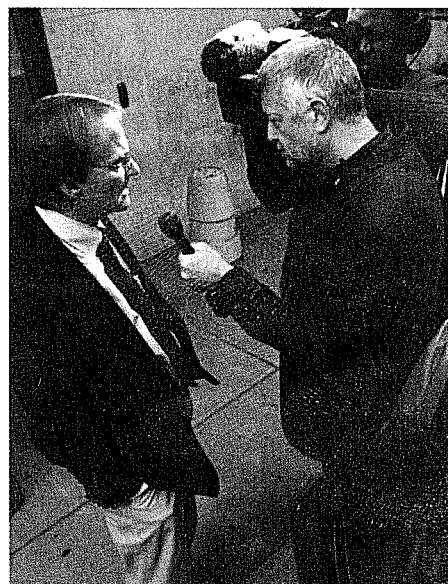
NATIONAL CENTER FOR SCIENCE EDUCATION

DEFENDING THE TEACHING OF EVOLUTION IN THE PUBLIC SCHOOLS

Volume 26, Numbers 1-2

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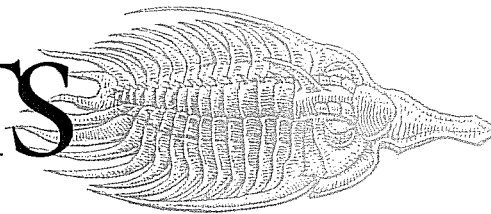
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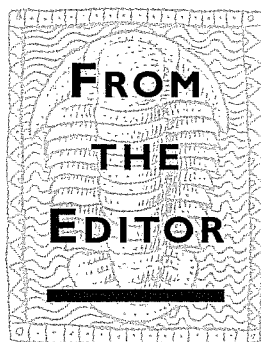
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Wesley R Elsberry

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For more information on Ray's work explore his website at <www.trollart.com>.



The much-anticipated court case over “intelligent design” was decided on December 20, 2005. As most RNCSE

readers know, the case was a disaster for “intelligent design” and its proponents, as Judge John E Jones III characterized the policy and rationale of the Dover Area School Board with the unambiguous phrase “breathtaking inanity”. In this issue, we present a number of news and feature articles focused on the trial, its preparation, and its aftermath. In this issue, readers will be able to see the involvement of NCSE in this case, and how our resources and expertise helped the plaintiffs to prevail.

We begin with excerpts from Judge Jones’s decision, so readers can see how Jones rendered the opinion (the complete decision is available on-line). In this special section of Dover news, we also include the closing arguments from Eric Rothschild of Pepper Hamilton LLP, a member of the legal team that represented the plaintiffs.

NCSE’s Nick Matzke provides an overview of the development of the case, beginning with an ordinary day at the office fielding complaints about a local school board’s pushing creationist ideas. Nick writes that there was nothing much about the original “flare-up” that had “trial of the century” qualities about it, but things sure changed quickly. This article shows how NCSE helped the plaintiffs, the legal team, the press, and the expert witnesses to identify the key issues at stake in the trial and to convey those accurately, completely, and concisely.

NCSE’s Wesley R Elsberry writes in more detail about the roles of expert witnesses in this case. One of the more remarkable series of events was the depletion of the expert-witness roster for the defendants, as one “intelligent design” luminary after another declined to be deposed or testify in court.

Three members of NCSE’s board of directors were among the team of expert witnesses for the plaintiffs. Barbara Forrest,

Kevin Padian, and Brian Alters provide their own perspectives on their roles in the trial and their experiences and impressions over the six weeks of testimony.

Of course, NCSE members and staff were not the only people paying attention to Dover. Look at the first page of our centerfold to read excerpts from editorials in major newspapers around the country in response to Jones’s decision. We also have included references to and excerpts from a number of other articles throughout the issue.

One remarkable outcome was the publication of a book by fellows and staff of the Discovery Institute responding to the Dover decision. Tim Beazley reviews this book for us, and his conclusion is that the book continues in the “intelligent design” movement’s tradition of deficient scholarship, quote mining, poorly supported arguments, and weak inference. It is a prime example of desperate argumentation in the face of the complete and utter rejection at trial of all the legal, scientific, and educational arguments presented on behalf of “intelligent design” by its proponents.

... AND THAT’S NOT ALL

Although Dover has been on our minds and dominating the resources and talent of NCSE and others who support evolution around the nation, there are dozens of other flare-ups and actions still going on. In many of these, our members are instrumental in providing advice and resources as a first line of defense in local communities where evolution is under attack. A few of them were thanked with NCSE’s “Friend of Darwin” award for 2004, as Glenn Branch reports.



Design on Trial: How NCSE Helped Win the *Kitzmiller* Case

Nick Matzke, NCSE Public Information Director

JUST ANOTHER FLARE-UP

Kitzmiller v Dover is now famous as the first test case on the constitutionality of teaching "intelligent design" (ID) in public schools, involving a six-week trial in Harrisburg, Pennsylvania, dozens of lawyers and witnesses, nine expert witnesses, 342 filed legal documents, 400 exhibits, national and international media, subpoenas, depositions, lies, videotape, bacterial flagella, the Constitution, civil rights, education, science, religion, history, evolution, the meaning of life, divine intervention, and one recently appointed federal judge. However, it began as just another "flare-up" for the NCSE staff.

A major part of the day-to-day work at NCSE consists of monitoring flare-ups around the country.

Nick Matzke is Public Information Project Director at NCSE and thus often the first to know at NCSE when a "flare-up" occurs. He spent most of 2005 working on the Kitzmiller case and spent all six weeks of the trial in Pennsylvania working with the plaintiffs' legal team.

In 2004, this included about a dozen anti-evolution bills proposed in state legislatures, several battles over evolution in science standards, and 50 or more local level flare-ups, usually school-board controversies over teaching evolution.

When I first became aware of the Dover situation, I had only been working at NCSE for five months. On June 8 and 9, 2004, news articles from the *York Daily Record* and *York Dispatch* appeared on my computer screen, reporting on a controversy at a June 7 meeting of the Dover Area School Board (DASB). The controversy was over whether or not the school district would purchase a new edition of the mainstream textbook *Biology*, by Ken Miller and Joe Levine. A school board member named William Buckingham claimed that *Biology* was "laced with Darwinism," that "[i]t's inexcusable to teach from a book that says man descended from apes and monkeys," and "[w]e want a book that gives balance to education." Buckingham and

another board member, Alan Bonsell, both expressed support for finding a book that would teach both creationism and evolution. Addressing Max Pell, a recent graduate of Dover Area High School who noted during the public comment period that teaching creationism would violate the separation of church and state, Buckingham asked, "Have you ever heard of brainwashing?" and declared, "If students are taught only evolution, it stops becoming theory and becomes fact." Buckingham said that the separation of church and state was "a myth." Apparently to emphasize the point, Buckingham claimed, "This country wasn't founded on Muslim beliefs or evolution," adding "This country was founded on Christianity, and our students should be taught as such."

The June 9 article in the *York Dispatch* contained an accurate summary of the legal situation, noting that a 1987 Supreme Court decision (*Edwards v Aguillard*) had barred teaching creationism in public school science classrooms.

much of the 18th century, Pennsylvania was the only place under British rule where Catholics could legally worship in public.

In his declaration of rights, William Penn stated, "All men have a natural and indefeasible right to worship Almighty God according to the dictates of their own consciences. No man can of right be compelled to attend, erect, or support any place of worship or to maintain any ministry against his consent. No human authority can, in any case whatever, control or interfere with the rights of conscience,

and no preference shall ever be given by law to any religious establishment or modes of worship."

In defiance of these principles which have served this state and this country so well, this board imposed their religious views on the students in Dover High School and the Dover community. You have met the parents who have brought this lawsuit. The love and respect they have for their children spilled out of that witness stand and filled this courtroom.

They don't need Alan Bonsell, William Buckingham, Heather

Geesey, Jane Cleaver, and Sheila Harkins to teach their children right from wrong. They did not agree that this board could commandeer the religious education of their children, and the Constitutions of this country and this Commonwealth do not permit it.

[The preceding is a lightly edited version of Eric Rothschild's closing argument in Kitzmiller v Dover, delivered in Harrisburg, Pennsylvania, on November 4, 2005. For the official transcript of the day's proceedings, visit <http://www2.ncseweb.org/kvd/trans/2005_1104_day_21_pm.pdf>.]



It's a party: Chub Wilcox of Pepper Hamilton talks with NCSE's Eugenie C. Scott, while Richard Katskee of Americans United for Separation of Church and State adjusts his camera.

The article also quoted Rob Boston, a spokesperson for the civil liberties group Americans United for Separation of Church and State, who stated the obvious: "Creationism isn't a science, it's religion, and any attempts to introduce creationism into public school science classes would most likely spark a lawsuit." He added, "The district would almost certainly lose a lawsuit like that. It's not even worth wasting the time and energy to consider."

In retrospect, all of these statements are highly significant, and sometimes prophetic, but at the time they did not seem particularly remarkable. It may sound surprising, but such news stories are not uncommon at the NCSE office. Demagogic politicians issuing bluster uninformed anti-evolution rhetoric are a dime a dozen. The fact that "intelligent design" was not even a part of the discussion early on indicated that the anti-evolutionism in Dover was of a fairly crude and unreconstructed sort. Talk of "monkeys" and "balance" — echoes, respectively, of the Scopes Monkey Trial and the creation scientists' "Balanced Treatment" legislation in the 1980s — only confirmed this impression.

Because the *Edwards* decision makes the law clear in this area, proposals to teach "creationism" typically fade away when the proponents learn that the Supreme Court settled the issue in 1987. The Dover situation simmered along throughout the summer and fall of 2004, but the opposition to the anti-evolutionists appeared to

be strong, and the legal situation appeared to be deterring rash action. The Miller and Levine textbook was adopted after an acrimonious board meeting, and although the ID textbook *Of Pandas and People* was donated to the school a few weeks later, the newspapers seemed to indicate that a reasonable compromise had been reached. In October 2004, I was about to close the file on Dover. But on October 18, the DASB voted 6-3 to pass a policy inserting "intelligent design" into Dover's biology curriculum, using *Pandas* as a reference. On the morning of October 19, the front page of the *York Daily Record* screamed, in big bold type, "Intelligent Design' voted in." Someone immediately faxed the headline to the NCSE office.

I distinctly recall walking into the office that morning. Genie Scott was already on the phone with someone about Dover, and she waved the newspaper headline at me as I walked past her office. In a true Homer Simpson moment, I slapped my forehead in shock. Evidently the DASB was bound and determined to bring a test case on the constitutionality of "intelligent design".

SET-UP

Little did we know that fights over evolution had been going on behind the scenes in Dover for years before outsiders learned about it. We also did not know that the Thomas More Law Center had been seeking a test case on "intelligent design" for at least five years, and that it was TMLC that had encouraged the board to adopt the "intelligent design" terminology and the ID textbook *Of Pandas and People* as a recommended text, on the understanding that they would represent the school district when the inevitable court challenge came. Because of these behind-the-scenes facts, Dover was destined to develop into the famous case that attracted attention around the world, and by virtue of having been assigned the Dover flare-up at the NCSE office, I was put right in the middle of it.

The Dover ID policy and the initial steps in the *Kitzmiller* case, filed on December 14, 2004, were

described in a previous article, "Design on trial" (*RNCSE* 2005 Sep/Oct; 24 [5]: 4-9). In late 2004, NCSE joined the plaintiffs' legal team as a *pro bono* consultant and was included as a core part of the team from the start. Over a dozen lawyers and legal staffers eventually participated in the case. The lead attorneys were Eric Rothschild and Steve Harvey of Pepper Hamilton, Vic Walczak of the Pennsylvania ACLU, and Richard Katskee of Americans United for Separation of Church and State. The lawyers were superb in every way, but it is worth noting that NCSE also made some early contributions to the language of the initial complaint, and to the philosophy of the case, that in retrospect proved very important.

Everyone knew that this case would be about "intelligent design". However, NCSE staff repeatedly emphasized the bigger picture, which was that language reflecting the "evidence against evolution" approach (the "gaps/problems" and "theory, not fact" wording in the Dover policy) also needed to be addressed in order to minimize problems associated with dealing with this argument in the future. We argued that because ID is easier to defeat than "evidence against evolution" language, we should try to discredit the latter by linking it with the former. We pointed out that the legal team should take advantage of the link in the Dover policy between the "gaps/problems" and "intelligent design" language since we might not again have the opportunity to connect them in some future lawsuit.

A supporting point we made was that ID itself, as exemplified in *Pandas* and other ID literature, consists almost entirely of "evidence against evolution", with only a vague argument from analogy presented as the positive explanation for biological complexity. These points became themes in the trial, and were emphasized in the plaintiffs' Proposed Findings of Fact and Conclusions of Law. Judge Jones accepted this reasoning, issuing a massive and devastating 139-page opinion that ruled broadly against ID and the various anti-evolution euphemisms in the Dover policy. The ruling was hailed internationally, and the aftershocks are still being

felt. For example, the *Kitzmiller* ruling clearly contributed to the overturning of Ohio's "critical analysis of evolution" lesson plan in February 2006 (details to follow in the next issue of *RNCSE*). Various other aftershocks may yet come.

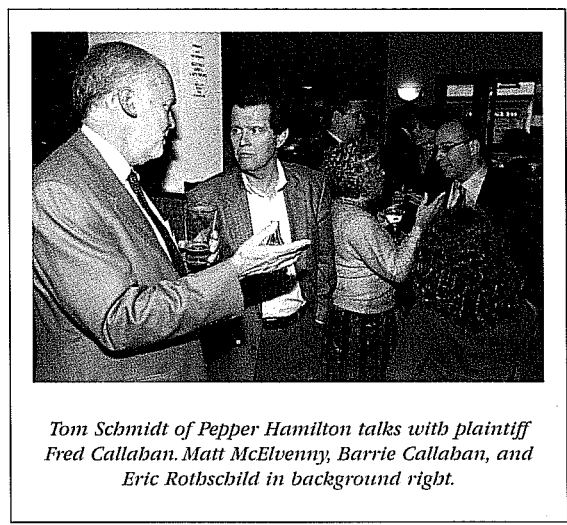
How was this amazing result achieved? It was clearly the result of coordinated action on the part of many involved people and organizations. I will concentrate here on my own work in this case, which made up perhaps 5% of the total. Much of the other 95% I only learned about while sitting through the trial, and some of it I am still learning about as I review the case history and legal filings. Imagine an artistic masterpiece such as a famous painting or symphony, the culmination of a lifetime of training and practice. Then imagine getting twenty such masterpieces from lawyers, academics, and creationism nerds and somehow putting it together seamlessly into a court case. Melodramatic this may be, but it gives you some idea of how the *Kitzmiller* decision came about.

EXPERTS

In the spring of 2005, I was given two main assignments: helping to prepare the plaintiffs' expert witnesses and helping to prepare the lawyers to cross-examine the

defense experts. After the *Kitzmiller* case was filed, Judge Jones put the case on an expedited schedule, setting the trial for the coming fall. The discovery period of the case, when each side may gather evidence through document requests, subpoenas, depositions, and so on, ran through June 15. Expert witnesses would have to be declared on March 1, and expert reports stating the content of their trial testimony would have to be produced on April 1. Rebuttal experts, if any, would be declared by April 15. Sworn depositions would be conducted in May and June.

NCSE suggested the experts for the plaintiffs, whom the legal team discussed. The lawyers chose Kenneth Miller (biology), Robert Pennock (philosophy of science), Jack Haught (theology), Brian Alters (education), Barbara Forrest (history of ID), and Kevin Padian (paleontology). Jeffrey Shallit (mathematics and probability) was added later as a rebuttal expert. Alters and Forrest, of course, are on the NCSE board of directors, and Kevin Padian is president of the board. The ID expert list originally consisted of the A-team: Michael Behe (biochemistry), Scott Minnich (microbiology), William Dembski (philosophy and mathematics), John Angus Campbell



Tom Schmidt of Pepper Hamilton talks with plaintiff Fred Callaban. Matt McElvenny, Barrie Callaban, and Eric Rothschild in background right.

(rhetoric of science), Warren Nord (religion in education), Dick Carpenter (education), with Stephen Meyer (philosophy of science) and Steve Fuller (philosophy of science) added as rebuttal experts. This list included five Discovery Institute fellows and most of the "heavy hitters" in the ID movement.

THE STORY OF THE DRAFTS

Starting with the plaintiffs' experts, I primarily worked with Barbara Forrest, on the history of ID, and with Kenneth Miller, our anti-Behe expert. Eric Rothschild and I knew that defense expert Michael Behe was the scientific centerpoint of

IMMUNOLOGY IN KITZMILLER

The scientific discipline of immunology played a major role in the *Kitzmiller v Dover* trial in which the unconstitutionality of teaching "intelligent design" in the public schools was established, as Andrea Bottaro, Matt Inlay, and NCSE's Nicholas J Matzke explain in their commentary "Immunology in the spotlight at the Dover 'Intelligent Design' trial," published in *Nature Immunology* (2006; 7: 433-5; available on-line at <<http://www.nature.com/ni/journal/v7/n5/pdf/ni0506-433.pdf>>), one of the most prestigious scientific journals in its field.

They write, "In his 1996 book *Darwin's Black Box*, a commonly cited example of ID-based 'science', [Michael] Behe devotes an entire chapter to the immune system, pointing to several of its features as being particularly refractory to evolutionary explanations. ... In fact, Behe confidently declares that the complexity of the immune system 'dooms all Darwinian explanations to frustration'. About the scientific literature, Behe claims it has 'no answers' as to how the adaptive immune system may have originated."

At the trial, however, Behe was presented with "a thick file of publications on immune system evolution, dating from 1971 to 2006, plus several books and textbook chapters. Asked for his response, Behe admitted he had not read many of the publications presented (a small fraction of all the literature on evolutionary immunology of the past 35 years), but summarily rejected them as unsatisfactory and dismissed the idea of doing research on the topic as 'unfruitful.' The significance of the exchange was not lost on Judge Jones (see the excerpt from his decision on p 20).

Bottaro, Inlay, and Matzke conclude with the thought that "the Dover case shows that no scientific field is too remote from the hotly debated topics of the day and that no community is too small and removed from the great urban and scientific centers to be relevant. Immunologists must engage their communities and society at large in events related to public perceptions about science. Now more than ever, the participation of scientists is essential for the crafting of rational policies on scientific research and science education."



Plaintiffs Tammy Kitzmiller (left), Christy Rehm (right), and Bryan Rehm (right) at the end-of-trial party.

the whole case — if Behe was found to be credible, then the defense had at least a chance of prevailing. But if we could debunk Behe and the “irreducible complexity” argument — the best argument that ID had — then the defense’s positive case would be sunk. Kenneth Miller prepared an excellent expert witness report, but I suggested that he reference a number of recent papers that had been published on the evolution of new genes, the flagellum, blood-clotting, and particularly the immune system. Since expert testimony is technically limited to the contents of the expert report, it was important to include every topic that might be important to discuss. When we got to trial, Miller included segments on each of these topics, all of which were used in Jones’s opinion as refuting the arguments of the ID movement and of Behe specifically.

Barbara Forrest was the expert who would have to make the connection between the ID movement and creationism. She had, of course, co-authored *Creationism’s Trojan Horse*, on the origins and history of the Discovery Institute, the “Wedge document”, and the leaders of the ID movement. However, the Discovery Institute only established the Center for the Renewal of Science and Culture in 1996. *Of Pandas and People*, which is the first book to use the terms “intelligent design” and “design proponents” systematically, and which presents all of the modern ID arguments, was published in 1989. The creationist origin of *Pandas* and the “intelligent

design” phraseology was not covered in detail in previous works on the history of ID, so my job was to dig up everything we could possibly find on the origin of *Pandas* and “intelligent design”. The NCSE archives contain several files on *Pandas* and on the publisher of the book, the Foundation for Thought and Ethics (FTE).

Because Frank Sonleitner and John Thomas had done significant work analyzing the book and tracking FTE’s activities in the 1980s and 1990s (see <<http://www.ncseweb.org/article.asp?category=21>>), I gathered advice and old files from both of them. I also rummaged through the relevant files in NCSE’s archives and looked up various books and articles published by the *Pandas* authors, working through NCSE’s collection of old creationist magazines and newspapers. Finally, I examined three recent books that give histories of the ID movement — Larry Witham’s *By Design* and *Where Darwin Meets the Bible*, and Thomas Woodward’s *Doubts About Darwin: A History of Intelligent Design*. Although the role of *Pandas* in the ID movement is minimized in these sources, they nevertheless contained various useful tidbits from interviews with the “academic editor” of *Pandas*, Charles Thaxton, and other early players in the ID movement.

Examination of all of these sources together — apparently something that no one had taken the time and trouble to do before — revealed some interesting facts about the history of *Pandas*: (1) Thaxton and the book’s authors were working on *Pandas* for about a decade before it was actually published in 1989; (2) in early references to the *Pandas* project in the 1980s, Thaxton and FTE’s president Jon Buell described themselves and

their work as “creationist” and about “creation” — not “intelligent design”; and (3) the label “intelligent design” was chosen for *Pandas* very late in the evolution of the book, almost as the last change made before publication. This all built a nice circumstantial case that ID developed from creationism, and this case is made in Barbara Forrest’s first expert report, filed on April 1, 2005.

On about April 8, NCSE’s then archivist Jessica Moran came across another document in a file in the NCSE archives: a prospectus for a book entitled *Biology and Origins*, sent to a textbook publisher in 1987. Somehow this ended up in the files of the late Thomas Jukes, a prominent molecular biologist and longtime NCSE supporter. In 1995, Jukes sent the page to NCSE with the handwritten note “I found this in an old file, but it is certainly fascinating!” The prospectus document indicated that *Biology and Origins* existed in draft form in 1987, and furthermore had been sent to school districts for testing as well as to prospective publishers. The existence of unpublished drafts of *Pandas* should have been obvious from the evidence mentioned in the previous paragraph, and references to *Biology and Origins* were known, but we thought of it as just a working title for *Pandas*. The prospectus document made it clear that *Biology and Origins* was an actual draft that was widely reproduced and sent out to publishers and reviewers, and also explicitly indicated that the book would “give students the scientific rationale for creation from the study of biology.”

This discovery shed light on a rather important historical fact that had somehow been omitted from all previous histories of the origin of the “intelligent design”

INTERVIEW WITH DOVER TEACHER

Dover science teacher Jennifer Miller was interviewed about the “intelligent design” controversy in her school on WNYC radio’s The Leonard Lopate show on April 17, 2006. To download the show in MP3 format or to listen on-line, visit <<http://www.wnyc.org/shows/lopate/episodes/2006/04/17>> and scroll down to “Controversy in the Classroom.”

movement. It has always been obvious that ID arguments derived from creationist sources, but never in the wildest dreams of creationism watchers had it occurred to anyone that the phrase “intelligent design” had quite literally originated as a switch in terminology in an actual physical draft of an explicit-ly creationist textbook.

I summarized the situation, as I understood it at the time, to the legal team as follows, in a discussion of Dembski’s expert report:

Dembski doesn’t mention the “version 0” of *Pandas, Biology and Origins*, which is mentioned in some of the 1980s FTE fundraising letters and other material. I am reasonably sure that the word “creation” would be substituted for “design” or “intelligent design” at many points within that manuscript. This would prove our point in many ways. We have a couple written sources indicating that picking the words “intelligent design” was one of the very last things that Charles Thaxton did during the development of *Pandas*.

We don’t know:

(a) Whether any copies of *Biology and Origins* still exist, e.g. at FTE in Texas or in the files of Thaxton, Davis or Kenyon;

(b) Whether Dembski has seen them (based on the expert report, Dembski either doesn’t know the prehistory of *Pandas*, or is leaving that out).

At the time, it was far from clear that creationist drafts of *Pandas* still existed. But Eric Rothschild knew what to do. He immediately issued a subpoena to the Foundation for Thought and Ethics for any documents relating to the origin and development of *Biology and Origins* and *Of Pandas and People*.

After a failed attempt to quash the subpoena, FTE coughed up the documents in early July. To our amazement, five major drafts were uncovered, and we were able to trace the switch in terminology

from creationism to “intelligent design” to just after the Supreme Court’s *Edwards v Aguillard* decision in 1987. Barbara Forrest included all of this in a supplementary expert report and in her testimony at trial, and it became a key piece of Judge Jones’s opinion.

Although the *Pandas* drafts were obviously important in the *Kitzmiller* case, it is only slowly dawning on everyone just how significant they are. The drafts are nothing less than the smoking gun that proves exactly when and how “intelligent design” originated. This was probably the biggest discovery in creationism research since the finding that the Coso Artifact was actually a 1920s sparkplug (see *RNCSE* 2004 Mar/Apr; 24 [2]: 26–30). They prove that the cynical view of ID was exactly right: ID really is just creationism relabeled, and anyone who thought otherwise was either naively misinformed or engaging in wishful thinking.

IRREDUCIBLE COMPLEXITY ON TRIAL

The other half of the expert case was the cross-examination of the defense experts. NCSE staff divided up the defense experts to prepare our legal team for their depositions and cross-examination. I took Michael Behe and Scott Minnich, the two biology/irreducible complexity witnesses, and attended their depositions in May.

Three Defense expert witnesses — Discovery Institute fellows William Dembski, Stephen Meyer, and John Angus Campbell — dropped out of the case and therefore did not testify, much to the disappointment of the NCSE staff assigned to their depositions (and presumably to the dismay of the defense). The reasons for this remain mysterious, although apparently the last news that Dembski received before withdrawing from his deposition was that Wesley Elsberry and Jeff Shallit planned to attend and pass questions to the lawyer (see “Can I keep a witness?” p 45).

When Eric Rothschild flew out to Berkeley for Kevin Padian’s deposition, we discussed how to deal with Behe. One key result was convincing Rothschild that Behe’s biggest weakness was the evolu-



Kate Henson and Eric Rothschild of Pepper Hamilton share a joke with Jessica Kitzmiller.

tion of the immune system. This developed into the “immune system episode” of the Behe cross-examination at trial, where we stacked up books and articles on the evolution of the immune system on Behe’s witness stand, and he dismissed them all with a wave of his hand. This clearly made a negative impression on Judge Jones, who mentioned the episode in his opinion. The details of this episode are reviewed in an essay I recently co-authored in *Nature Immunology* (2006; 7: 433–5; available on-line at <<http://www.nature.com/ni/journal/v7/n5/pdf/ni0506-433.pdf>>).

THE TRAIN RIDE

Everyone knows that the trial did not go well for the defense, and that the judge’s decision was devastating, but what is not well known is that the case was actually lost between January and September 2005. A real trial, in front of the judge and the media, is like a train ride — by the time the trial gets going, it is too late to change course, find new evidence, or bring new passengers on the ride. In desperate circumstances, people can be thrown off the train (such as when the defense dropped two more expert witnesses, Warren Nord and Richard Carpenter), but that is about it.

The trial began on September 26, 2005, and lasted for six weeks. My role was to observe the trial, work with the lawyers in the evenings and weekends, and prepare for the next day. I also spent a fair amount of time talking to the media, being careful not to provide



NCSE's Nick Matzke with Hedy Aryani and Kate Henson of Pepper Hamilton.

details that would harm the case. However, few details were needed, because the daily events were so amazing and so damning for the defense and the ID movement that very little "spin" was needed.

It was clear throughout the trial that things were going badly for the defense. Whether the witness was an expert or fact witness, whether the topic was biochemistry or school board votes, ID was taking hits every time a plaintiffs' attorney was asking the questions — and sometimes when the defense attorneys were asking questions also. The plaintiffs' experts all gave the performances of their careers, bringing to bear years of actual experience and research on exactly the topics the ID movement loves to yammer on about: fossils, irreducible complexity, philosophy of science, and so on. Every scientific point was documented with scientific articles, usually from *Science* or *Nature*, and each article was put on the screen for everyone to see, and then entered into evidence as an exhibit. *Of Pandas and People* took fire from all directions as just another poorly informed anti-evolution polemic with some last-minute editing to introduce the "intelligent design" terminology. Barbara Forrest made a massively documented case that ID really was — as her book had said long before the *Pandas* drafts were discovered — "creationism's Trojan horse." On cross-examination, the plaintiffs' experts if anything outdid themselves. The Thomas More Law Center lawyers would try the usual ID talking points, but our

experts had heard every single one dozens of times before, and would reply with a thorough analysis of the claim and the evidence against it.

The fact side of the case was equally impressive. For some reason, the defense insisted that every single one of the 11 Dover parents who were plaintiffs testify in court. As a result, all of them took the stand and explained exactly why they had joined the suit. Each had a powerful reason — protecting their children's education and their right to teach their children religion themselves. Outsiders might naively think that Dover's one-minute ID statement was not a big deal, but the impact on the Dover community was enormous, precisely because the core issue was that the government was getting involved in promoting particular religious beliefs. The community was torn apart over the issue, and plaintiffs and their children were accused of being atheists and unpatriotic.

After three weeks of continuous bombardment, the defense finally got its chance to attempt a reply, leading off with their star witness, Michael Behe. Due to the withdrawal of the other leading ID experts, it was up to Behe to make the entirety of the case for ID, and apparently he saw his testimony as his chance to prove all of his critics wrong once and for all. The result was a confused mishmash of standard ID talking points and graphics, continuations of old arguments with his numerous critics, argument-by-quote-mine, and soporific bits of biochemistry that I am pretty sure made sense to no one in the court room. One thing Behe did not present was any empirical research testing the ID claims — something that the plaintiffs had repeatedly emphasized as important in their direct case, presenting examples where evolutionary models had been tested and the results published in the research literature. Complaints about your opponents do not a scientific case make. And unfortunately for Behe, "complaining" really describes his testimony rather well. Unlike the cheerful plaintiffs' experts, Behe came across as embittered and downright angry at

the scientific community at large — particularly the National Academy of Sciences — for not taking his objections to evolution seriously.

Behe's direct testimony went on for nearly two full days. By the time he got to talking about how Kenneth Miller had wronged him in a debate about the *lac* operon back in 1999, the courtroom was asleep. Then the cross-examination began.

Unbeknown to Behe, Eric Rothschild had been plotting his cross-examination for months, with help from Kenneth Miller, Kevin Padian, me, and numerous others, including random members of the public offering unsolicited e-mail suggestions ("When you get Behe on the stand, you *have* to ask him this ..."). Rothschild had assembled several dozen lines of questioning that would dissect the irreducible complexity argument, its various supporting examples, and perhaps more importantly the indignant rhetoric that Behe uses to give the impression of an impressive scientific case. Rothschild showed numerous contradictions between Behe's statements and the published evidence (for example, the immune system episode), and between different statements made by Behe. A particularly impressive example of the latter involved blood-clotting.

Rothschild noticed something that I had not in the 1993 edition of *Pandas*: in 1993, Behe (who wrote the blood-clotting section on p 141–6 of the 1993 *Pandas*, although he is not listed as an author) defined the irreducibly complex blood-clotting system *differently* than he did in his 1996 *Darwin's Black Box*. In 1993, Behe said that if an organism had only the four core components of the blood-clotting system ("Stuart factor and his friends," as Rothschild put it), it would have a nonfunctioning system and would die. However, in 1996, Behe, presumably having become aware of the fact that there is a fair bit of variability in vertebrate blood-clotting systems, said that those four proteins *constituted* "the system", and furthermore at trial, Behe criticized Ken Miller for ignoring this definition. Rothschild, with mock innocence and a big grin, pointed

out the discrepancy, and then let Behe attempt to invent a rationale on the fly. Behe ended up coming up with yet another definition of “the system”, but the point was made — Behe protected his irreducible complexity argument from what would otherwise be a clear falsification by redefining the “irreducibly complex system” at will. Contradictory evidence was dodged with word games, rather than accepted. Rothschild set up example after example of this sort of thing, and each time Behe would exercise his substantial powers of rationalization to paper over the problem, or define it away, or provide some excuse about why evolution had produced the scientific goods and ID had not.

Although the pretrial preparation work was the bulk of my contribution to the case, I was able to provide a little more help on the scene. For example, during his direct testimony, Behe claimed vehemently that *Darwin’s Black Box* had received *more* peer-review than the typical journal article. He even named the reviewers. One was Michael Atchison, a veterinary professor at the University of Pennsylvania. However, I remembered reading an on-line article written by Atchison that told a different story. I gave the Atchison article to Rothschild, who read it to Behe during cross. In short, Atchison never read Behe’s book; instead, he spent ten minutes on the phone with Behe’s publisher in 1994. According to Atchison, “It sounded like this Behe fellow might have some good ideas, although I could not be certain since I had never seen the manuscript” (see <<http://www.leaderu.com/real/ri9902/atchison.html>>). The implication of this and numerous other vignettes in Rothschild’s cross was not that Behe was dishonest, but rather that he viewed the evolution debate through a set of filters so thick that no contradictory evidence could ever convince him he was wrong.

After the downfall of the mighty Michael Behe, the defense case was probably hopeless, but they gamely staggered on. Unfortunately every day just dug the hole deeper. The defendants —

the pro-ID members of the Dover Area School Board — were shown to be either ignorant, liars, or in some cases, bigoted liars. Although the expert side of the case was important, the real heart of the case turned out to be William Buckingham and Alan Bonsell versus the beleaguered Dover science teachers. Cross-examination of the defense witnesses revealed step-by-step how the DASB had applied the screws to the teachers to attempt to get them to stop teaching evolution, despite the fact that teaching evolution was the teachers’ job as mandated by the Pennsylvania science education standards. This, not any of the expert testimony, was the most important part of the case: for once, the outright intimidation of biology teachers — by far the most common, though rarely reported, anti-evolution problem in the US — was exposed in all its ugly glory, in open court for everyone to see.

Steve Harvey of Pepper Hamilton cross-examined Buckingham. Harvey is the nicest man you could ever meet, but somewhere deep down there is a bit of the classic movie lawyer — think of Tom Cruise in *A Few Good Men*. It was the movie lawyer who conducted the cross-examination of Buckingham. It turned out that Buckingham, who had said at his deposition that he didn’t know who had donated the money to buy the *Pandas* books for the Dover school, had actually stood up in front of his church and taken up a collection to purchase the books. Harvey confronted Buckingham with a copy of the check that Buckingham had written, saying, “Mr Buckingham, you lied to me at your deposition on January 3rd, 2005. Isn’t that true?” After a few minutes of Buckingham’s quivering on the stand under such questions, Judge Jones had seen enough, saying “Mr Harvey ... I get the point, and you’ve made the point very effectively.”

Alan Bonsell, also caught lying by Harvey, did not experience a tongue-lashing from Harvey, because in this case Judge Jones was so annoyed he stepped in and interrogated Bonsell himself. When a witness lies in court, the integrity of the entire justice system is com-



Steve Harvey of Pepper Hamilton, flanked by plaintiffs Beth Eveland and Barrie Callaban.

promised, and Jones raised his voice for the only time in the entire six-week trial to point this out personally to Bonsell, who was reduced from confident gum-chewing to meek apologies.

Against this backdrop, the testimony of the two surviving defense experts, though genuine, had an air of unreality about it. Steve Fuller, a prolific professor from the United Kingdom who studies the sociology of science and who is a fellow traveler with the ID movement, attempted to make the case that it was those in the scientific establishment who were the “meanies” — a bizarre argument in light of the events in Dover. Fuller did not help the Defense case much when he conceded that, yes, ID was creationism, nor when he stated that he believed science needed to have “an affirmative action strategy with regard to disadvantaged theories”.

In the last week of the case, everyone began to realize that they were living through and participating in a piece of history. Analogies to the Scopes trial and the *McLean v Arkansas* trial were a regular feature of discussions. The presence of national media and several documentary filmmakers added to this feeling (one of the journalists/documentarians was Matthew Chapman, a great-great-grandson of Charles Darwin himself — and frankly looking a bit like the pre-beard Darwin in his 50s — who regularly sat at the front end of the jury box, glowering at the ID witnesses as if the very spirit of Darwin had showed up to observe the proceedings). As if that weren’t enough, Robert Gentry, the final creation-science



NCSE's Eugenie C. Scott and Pepper Hamilton's Eric Rothschild share a laugh.

witness in *McLean*, pitched up in Harrisburg to watch the last few days of the *Kitzmiller* trial. He even held a press conference in the nearby state capitol building, giving the same old lines about how polonium halos proved a young earth and how the judge and Brent Dalrymple snubbed him back in 1981.

Scott Minnich, the final witness, probably performed the best of any of the defense witnesses, mostly through his reasonable demeanor and much shorter presentation. However, he had nothing new to add beyond what Behe said and was much less adept at dancing away from contradictory evidence than was Behe. The most memorable episode on cross came with Harvey's first questions, in which Harvey put up young-earth creationist articles (another NCSE contribution), showing that they used the bacterial flagellum in exactly the same way that Behe did, years and even decades before Behe's 1996 book. The ID jig was clearly up at this point in the case and the plaintiffs were just running up the score. This is probably why little attention was paid when Minnich gave away the store yet again. In response to a question from Harvey about evil designs in nature — such as the Type III secretion system, which the bubonic plague bacterium uses to inject toxins into human cells, and which Minnich studies for a living — Minnich replied that such issues were questions of "theodicy". Theodicy is the part of theology that deals with defending the benevolence and omnipotence of God in the face of suffering and

evil; Minnich's remark thus bolstered the plaintiffs' case that ID was all about God after all.

On Friday afternoon of the sixth week, Rothschild and Gillen gave closing arguments for each side. Rothschild masterfully wove together all of the threads of the case, putting special emphasis on the eerie parallels between the local situation in Dover, where the school board had adopted ID and denied they wanted to teach creationism, despite abundant written evidence to the contrary, and the national ID movement, which had performed exactly the same operation on a grand scale after the 1987 *Edwards* decision (see p 26). Gillen's closing argument was not particularly memorable, but he redeemed himself just as the judge was about to close the proceedings:

THE COURT: Counsel, do you have anything further before we adjourn these proceedings? From the plaintiffs?

MR. ROTHSCHILD: No, Your Honor. Thank you.

THE COURT: From the defendants?

MR. GILLEN: Your Honor, I have one question, and that's this: By my reckoning, this is the 40th day since the trial began and tonight will be the 40th night, and I would like to know if you did that on purpose.

THE COURT: Mr. Gillen, that is an interesting coincidence, but it was not by design.

(Laughter and applause.)

With that, I declare the trial portion of this extended case adjourned.

Everyone in the fully-packed courtroom stood up, clapping, as the judge walked out. At this point I halfway expected a movie director to emerge and shout, "Cut it, print it!" This was one of those moments where real life and fiction merged.

A long press conference followed outside the courthouse, where the plaintiffs and their legal team finally felt that they could speak freely to the press without "giving away" any elements of the

case. Then followed the post-trial party in downtown Harrisburg where the ACLU handed out little stuffed monkey dolls.

POST-TRIAL

After the trial was finished we still had several weeks of work as the lawyers assembled the Proposed Findings of Fact and Conclusions of Law, a massive task in a six-week case. Primarily I helped the lawyers with the science aspects of these documents (I recall clarifying for one lawyer that organisms and organs are not the same — your NCSE dollars at work!). Once all of this was done, we had a few weeks where we could attempt to catch up with other business. On December 20, 2005, the decision came down, a grand slam home run. I was particularly gratified to see the science section of the case, which contains an amazingly erudite discussion of the science of evolution and the scientific problems with the ID arguments. I imagine that *Kitzmiller* is the only decision in existence where "exaptation" makes an appearance. December 20 was certainly the biggest media day in NCSE history, with the phone ringing off the hook from 8 AM until the evening. Staff participated in several television interviews that week as well as many radio shows.

As I mentioned at the beginning, the aftershocks to *Kitzmiller* continue. The case was for "intelligent design" exactly what *McLean* was for "creation science" — the beginning of the end. It is hard to say if there will be an *Edwards*-like Supreme Court case for ID. The current situation in Kansas could potentially end up there, but first creationist members of the Kansas board of education have to survive the 2006 elections. Regardless, history shows that anti-evolutionism does not disappear after defeat in the courts: it merely evolves. But when it does, NCSE will be there to keep an eye on it.

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