



# DARWIN *Devolves*

**BONUS CHAPTER**

Even Dilbert Has to Do His Homework

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## Even Dilbert Has to Do His Homework

### *Comments on the 2005 Kitzmiller vs Dover Intelligent Design Trial*

#### *Author's Note:*

This bonus chapter addresses the Dover Trial of 2005— a time when the idea of Intelligent Design (or ID) was at the center of a media and political frenzy. The glimpse the chapter provides of the intense feelings that ID can generate makes clear why everyone has to do their own homework on controversial issues and make up their own mind.



The publication of *Darwin's Black Box* in 1996 arguably started the broad discussion of the modern scientific case for intelligent design. Although of course the notion of design is at least as ancient as the early Greek philosophers, and although incisive books skeptical of Darwinism and friendly to design were written earlier,<sup>1</sup> *Darwin's Black Box* made an explicit argument for purposeful design based on the latest science—the molecular

machinery of life. The book was reviewed in a wide variety of publications, including academic journals, trade bulletins, and magazines of general interest. The *New York Times*, *Wall Street Journal*, *Nature*, *Christianity Today*, *Skeptic*, *Chronicle of Higher Education*, *Philosophy of Science*, and *Quarterly Review of Biology*—even *Aboard*, the in-flight magazine of the Bolivian national airlines!—all ran reviews or discussions. (Of course not all reviews were, shall we say, completely positive.)

Over the ensuing years the ideas in the book gradually made their way into the public consciousness, and some people decided to use those ideas for their own purposes. In 2004 the school board of the tiny town of Dover, Pennsylvania, near the state capital of Harrisburg, voted to have a (surprisingly poorly written) statement concerning evolution read to high school students in biology class.<sup>2</sup> The statement was frankly skeptical of Darwin's theory and informed the students that there was a book in the school library—*Of Pandas and People*—that discussed intelligent design.<sup>3</sup>

All hell broke loose. The ACLU sued on behalf of several parents. Reporters from all over the globe descended on Harrisburg

for the federal trial, including a great-great-grandson of Charles Darwin and assorted oddballs. The judge basked in the publicity, granting press interviews even while the trial was in progress in order to let the world know he was brushing up on the issues by watching *Inherit the Wind*—the fictionalized, highly tendentious 1960 movie based on the 1925 Scopes Monkey trial.<sup>4</sup>

It transpired that some members of the school board were Biblical creationists—a segment of society that is rarely portrayed with sympathy by the press—and had taken up a collection in church to purchase *Of Pandas and People* for the school library. It wasn't hard for the plaintiffs' attorneys to show that the creationists had a religious motive for their action, which is disallowed for government officials who administer American public schools. The judge ruled for the plaintiffs.

Fair enough. It's no more appropriate for that school board to urge students to read a book explicitly because they think it supports their theistic views than for another school board to assign

*The Blind Watchmaker* because they agree with Richard Dawkins's atheism.

But the ruling went much further than simply determining that the school board acted out of inappropriate motives. The judge, a man named John Jones, issued an expansive opinion declaring that the very idea of intelligent design itself was not scientific, that it was in fact necessarily religious, and that design arguments offered by expert witnesses for the defense did not stand up to criticism. The publicity-amenable judge was lionized for his ruling by all the right people, including the staff at *Time* magazine, who honored Jones with a place on its 2006 *Time 100* list of the "100 men and women whose power, talent, or moral example is transforming our world."

As an expert witness for the defense, I myself was on the stand with a lawyer in my face for three straight six-hour days, so it was hard for me to gauge the general public's perception of the affair. Nonetheless, one likely common view is that of Scott Adams, creator of the Dilbert comic about the eponymous brilliant engineer who's trapped in a brainless corporate world. Adams

maintains a blog wherein he writes with a philosophical bent about all manner of things. In one post in 2006 he touched on intelligent design and the Dover trial:<sup>5</sup>

Intelligent Design was put to the test in the Dover trial and failed miserably in convincing a judge it should be considered science. If you read the judge's opinion, he heard from both sides (as few people ever have) and it wasn't even a close call. That's good enough for me. Until that verdict, I was having a hard time with the obvious biases on both sides. I considered all sources unreliable.

In other words, probably like many people, Adams had a hard time sorting out competing claims about design in the cacophonous marketplace of ideas. But thankfully a wise judge heard from both sides, carefully weighed the arguments, and issued a thoroughly objective, informed opinion that sober citizens could take as a reliable guide. That's an understandable point of view on Adams's

part. Unfortunately (but perhaps appropriately for Dilbert), it's comically mistaken. In fact, as we'll see, there's no evidence to show that the judge—formerly a lawyer and unsuccessful candidate for Congress, as well as the politically appointed head of the Pennsylvania Liquor Control Board—comprehended any of the expert testimony at the trial, for either the plaintiffs or defendants.

### **A bit of background**

To set the context for evaluating the trial let me go back to the beginning of my public involvement with design. In the early 1990s, as I began thinking about writing the book that became *Darwin's Black Box*, I realized that anyone in my intellectual position had a big problem. Darwinists famously gloss over profound difficulties with simplistic tales of how even the most sophisticated organs of life might have evolved. Darwin himself set the example with his hand-waving explanation of eye evolution (discussed in Chapter 2 of *Darwin Devolves*). Often dubbed “Just-So Stories” (after Rudyard Kipling's children's book with stories

such as How the Elephant Got His Trunk), even Darwinists themselves sometimes make fun of such tales.<sup>6</sup>

On the other hand, to show that facile stories can't seriously explain the phenomenal intricacy of the molecular foundation of life, a writer like me has to rub the reader's nose in that complexity. Here's how I explained the quandary in the preface of *Darwin's Black Box*.<sup>7</sup>

Several years ago, Santa Claus gave my oldest son a plastic tricycle for Christmas. Unfortunately, busy man that he is, Santa had no time to take it out of the box and assemble it before heading off. The task fell to Dad. I took the parts out of the box, unfolded the assembly instructions, and sighed. There were six pages of detailed instructions: line up the eight different types of screws, insert two twelve-inch screws through the handle into the shaft, stick the shaft through the square hole in the body of the bike, and so on. I didn't want to



even read the instructions because I knew they couldn't be skimmed like a newspaper—the whole purpose is in the details.

Unfortunately, much of biochemistry is like an instruction booklet, in the sense that the importance is in the details. People who suffer with sickle cell anemia, enduring much pain in their shortened lives, know the importance of the little detail that changed one out of 146 amino acid residues in one out of the tens of thousands of proteins in their body. The parents of children who die of Tay-Sachs or cystic fibrosis, or suffer from diabetes or hemophilia, know more than they want to know about the importance of biochemical details.

So, as a writer who wants people to read my work, I face a dilemma; people hate to read details, yet the story of the impact of biochemistry on evolutionary theory rests solely in the details. Therefore, I have to write the kind of book people don't like to read in order to persuade them of the ideas that push me to write. Nonetheless, complexity must be experienced to be appreciated. So, gentle reader, I beg your patience; there are going to be a lot of details in this book.

If the *very point* a guy is trying to make is how *complex* a system is, then he can't *simplify* the description! Simplified descriptions of life are fodder for Darwinian Just-So stories, not for illustrating sophisticated engineering. So the implicit pact that an author (me) makes with a reader (you) is that the reader will make an earnest effort to understand how some biological systems work at the molecular level, and in return I will show the reader the unexpectedly grave obstacles they present to Darwin's theory. Any person of course is perfectly free to decide not to read the argument, or to skim it but not pay attention to the particulars, or even to lose heart while wading through the details and zone out. But, of course, such folks then have no intellectual standing to judge the argument.

### **Testimony**

Which brings us to the Dover trial. I was the lead witness for the defense, appearing right after the plaintiffs' lawyers had finished

their several weeks of presentations. One of the biochemical systems I discussed on the stand was one I had not included in *Darwin's Black Box*, something called the “lac operon,” which is responsible for making the right components needed by bacteria at the right time to metabolize the milk sugar lactose. The lac operon has been investigated since the mid-twentieth century and is one of the *simplest* textbook examples of genetic regulation. The reason I selected it is that Brown University biology professor Kenneth Miller (who was the lead witness for the plaintiffs in the Dover trial) had featured it in his 1999 anti-intelligent design book *Finding Darwin's God*. With his signature salesmanship, Miller had emphatically assured his readers that a then-fifteen-year-old laboratory evolution experiment on the system—done well before my own book came out—had already conclusively demonstrated that irreducible complexity was wrong: “By the very same logic applied by Michael Behe to other systems, therefore, we could conclude that the system had been designed. Except we *know* that it was *not* designed. We know it evolved because we watched it happen right in the laboratory!”<sup>8</sup> (Emphases in the original.)

As I responded in a web post,<sup>9</sup> (which I urge everyone to read since I won't describe the system here), in fact the work Miller recounted showed little about Darwinian evolution, but did clearly demonstrate the need for the intelligence and involvement of the researcher—that is, the absolute need for intelligent design. The researcher, Barry Hall of the University of Rochester, had purposely set up the experiment with contrived conditions explicitly to guide it to the result he was looking for, and he never claimed anything remotely like what Miller claimed for the experiment—quite the opposite. Miller had turned Hall's good, careful, modest work on its head to spin a Darwinian fairy tale.

I thought this would be a grand example to show the judge the complexity of the system, its resistance to Darwinian evolution, and the way Darwinists such as Miller often distort or badly spin research results to favor their theory. But, as I wrote above, it all depends on the willingness of the audience to make an effort to understand. I naively thought that would be pretty much guaranteed at a federal trial. Boy was I wrong.

Here's how Lauri Lebo, then a reporter for the *York Daily Record*, described my testimony in her unsympathetic 2008 book on the trial, *The Devil in Dover: An Insider's Story of Dogma v. Darwin in Small-town America*:<sup>10</sup>

"This might be hard to explain," Behe said. "[The evidence indicates that either AS-92 and cys-trp 977] are the only acceptable amino acids at those positions, or that all of the single based substitutions that might be on the pathway to other amino acid replacements at those sites are so deleterious that they constitute a deep selective valley that has not been traversed in the two billion years since those proteins emerged from a common ancestor." [Lebo neglected to tell her readers that the above was a passage that I quoted from a paper by Barry Hall, not my own words.]

[Back to my words.] "Now, translated into more common language, that means that a very similar protein could only work if it became even more similar to the betagalactosidase that it replaced, and if you then also knock out that EBG-

galactosidase, no other protein was able to substitute for the beta galactosidase. So the bottom line, the bottom line is that the only thing demonstrated was that you can get tiny changes in preexisting systems, tiny changes in preexisting systems, which of course everybody already had admitted.”

Behe’s testimony continued like this for hours. Reporters, at first, valiantly tried to follow along. But as Behe continued, their hands, scribbling notes, gradually...slowed, one by one, and finally paused, hovered over notebooks, then, at last defeated, dropped. The writer next to me dozed. Utterly lost, the rest of us in the jury box began to giggle helplessly. Judge Jones kept his face studiously composed and ignored us....

After Behe exhausted his repertoire on the lac operon, [defense attorney Robert] Muisse turned to Judge Jones and said, “Your Honor, we’re about to move into the blood clotting system, which is really complex.”

“Really?” Jones said, facetiously.

“We’ve certainly absorbed a lot, haven’t we?”

“We certainly have, Your Honor,” Muise gushed. “This is Biology 2.”

Lebo seemingly wanted to give her readers the impression that I had made no effort to make the science understandable to intelligent lay people, so she quoted a passage that in isolation sounds the most obscure. A more typical passage is the following where, after giving some background, I referred to a color PowerPoint slide on a screen in the courtroom that showed all of the components of the system:<sup>11</sup>

This little thing marked Y codes for something called a permease. Now, a permease it turns out is a protein who's job it is to allow the lactose to enter the bacterial cell. The bacterial cell is surrounded by a membrane which generally acts as a barrier to largish molecules, and there's this specialized protein, this specialized machine called a permease which, when lactose is around, grabs the lactose from outside the cell, turns it around, and allows it to enter to the inside of the cell.

If a person is unwilling to try to follow along with a description even at that basic level, then they have little tolerance, or even respect, for *actual* science—as opposed to amusing Just-So stories. A person who won't invest any more effort than that needed to, say, close her eyes and imagine a fish with stubby legs crawling onto a prehistoric beach, will never comprehend the argument for design from biochemistry. Apparently most reporters covering the trial weren't willing to make that effort to understand Biology 2 (as Robert Muike put it), including Lebo herself, even after several years to think about it.

### **The Pointy-haired Boss**

But how about the judge? Was *he* willing to make the effort to learn Biology 2? After all, the reporters didn't have the same somber obligation he did. Perhaps at least a sense of duty would make him more attentive than the media. The quote above, however, where Lebo characterizes the judge as “facetiously” responding to the prospect of having to learn about even more



biological complexity, does not bode well. And Lebo was not the only one with such an impression. Two expert participants for the plaintiffs' side in the trial later wrote, "Defence attorney Robert Muike led [Behe] through a tortuously detailed explanation of the bacterial flagellum and numerous other molecular systems that appeared to make the judge's eyes glaze over."<sup>12</sup> Yet biochemical details, such as the teeny-tiny ones that lead to deadly diseases, are crucial to understanding the vacuity of Darwinian claims.

To better appreciate what the judge himself did or didn't understand as he sat silently on the bench, let's take a peek inside some of the peculiar workings of our legal system. I'm no lawyer, so I was surprised to find out that after a trial attorneys for both sides each give the judge a document outlining in detail exactly how they want him to rule. Only after receiving those documents does the judge issue his opinion. Here's an excerpt from the opinion that put Judge Jones's face on the cover of *Time* magazine:<sup>13</sup>

Indeed, the assertion that design of biological systems can be inferred from the “purposeful arrangement of parts” is based upon an analogy to human design. Because we are able to recognize design of artifacts and objects, according to Professor Behe, that same reasoning can be employed to determine biological design. Professor Behe testified that the strength of the analogy depends upon the degree of similarity entailed in the two propositions; however, if this is the test, ID completely fails.

And here’s an excerpt from the plaintiffs’ lawyers’ document.<sup>14</sup>

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depends on the degree of similarity entailed in the two propositions. If this is the test, intelligent design completely fails.

Astonishingly, Jones simply *copied the text he was given!*<sup>15</sup>

Whenever the topic concerned the testimony of any of the academic witnesses—whether scientists, philosophers, or theologians, whether for the plaintiffs or for the defendants—the very same language from the lawyers’ document was inserted into the opinion with copy-and-paste efficiency, sometimes very lightly copyedited. Tellingly, when the opinion shifted to mundane matters, such as school board meetings or local newspaper editorials, he used his own voice, apparently perfectly comfortable writing for himself on those topics.

Now, let’s ask ourselves why lifting material from somebody else is a bad idea. Why are reporters and politicians disgraced if they’re caught doing so? Perhaps more to the point, why are students at all levels taught it’s very wrong to plagiarize the work of another person? One reason is that a teacher wants to see if a

student understands a topic, and is able to restate arguments in such a way that indicates comprehension. After all, even Dilbert's clueless Pointy-haired Boss could copy from a book on a difficult topic such as, say, quantum mechanics or Aristotle's *Metaphysics*. But copying the text surely doesn't show that the clueless boss understands the material. Apparently the legal system exempts itself from the standards that the rest of us follow.<sup>16</sup>

The dilemma, however, remains. If a judge simply copies a text on a complicated matter, there's no evidence to show he understands it. In such a case the losing side may justifiably suspect that it didn't really get its day in court—that the judge's choice of text to copy had little to do with the inherent logic of the arguments. What's more, as we'll see below, in the particular case of the Dover trial there's every reason to think that John Jones was completely at sea. It is doubtful that the former liquor-store bureaucrat grasped the distinction between such pivotal technical topics as flagellin and prothrombin, gene duplication and point mutation, Thomas Aquinas and David Hume, or random mutation and common descent.

If the Pointy-haired Boss were in a similar situation, what might he do? A person who can't make his own distinctions on such specialized matters might defer to assertions of the prestigious scientific establishment, to things like, say, a widely ballyhooed—and then quickly disavowed—wacky claim that the bacterial flagellum evolved stepwise from a single prodigy gene,<sup>17</sup> or a confident affirmation by an eminent Darwinist that mice missing a certain blood clotting factor were normal, even though the mice hemorrhaged to death.<sup>18</sup> (Both of those cases are discussed in the Appendix of *Darwin Devolves*.) Even some people who could know better if they made the effort—such as the academics who publicly vouched for those mistaken claims—defer to scientists outside their own immediate fields. After all, if you agree with the smartest people around, that shows you're smart too, right? Or at least not dumb.

The Pointy-haired Boss might think like that. Yet the question of whether the prestigious scientific establishment might be mistaken or prejudiced was at the core of what Judge Jones was supposed to decide impartially.

### **We're not in Kansas anymore**

In a lecture series titled “Difficult Dialogues” held the year after the trial at the University of Kansas, which separately featured several of the participants in the trial (including me), the good judge spoke for a half hour on the topic of the need for everyone to respect the judiciary. Curiously, he declined to answer any questions on the intellectual arguments at Dover, protesting that the trial featured “mind-numbingly” technical presentations.<sup>19</sup> Yet if Jones’s mind was numbed by the testimony, how could he have reached a justified decision?

The judge also begged off when questioned in Kansas because “The highly technical scientific testimony...is rapidly becoming a distant memory.”<sup>20</sup> There’s actually good reason to think that the highly technical scientific testimony became a distant memory for him even while the trial was underway. For example, Jones noted at the University of Kansas that “[Professor Behe’s] cross-examination went on for a very long period of time, as did his

direct examination.”<sup>21</sup> Yet the opinion—copied virtually word-for-word from the opposing lawyers’ document—states:<sup>22</sup>

Professor Behe was questioned concerning his 1996 claim that science would never find an evolutionary explanation for the immune system. He was presented with fifty-eight peer-reviewed publications, nine books, and several immunology textbook chapters about the evolution of the immune system; however, he simply insisted that this was still not sufficient evidence of evolution, and that it was not “good enough.”

“*Simply insisted*”? During my very long three days on the stand I had discussed *every single paper* on immunology that had previously been raised in the plaintiffs’ expert-witness testimony and showed that it was either terminally speculative, concerned only with common descent rather than with Darwin’s mechanism, or both. (The above-referenced “fifty-eight peer-reviewed publications [and] nine books” suffered from the same defects.) In fact, as I had testified, *none* of the papers even contained the

phrases “random mutation” or “natural selection,” let alone reported experiments testing that process.<sup>23</sup> You’d think that, while copying material for his opinion, the judge might have scratched his head and vaguely recalled what I had said. I guess not. Apparently since the plaintiffs’ lawyers (whose job is to make the other side look as bad as possible<sup>24</sup>) didn’t write my testimony on the immunology literature into their own document, it didn’t appear in the judge’s opinion either. “A distant memory,” indeed.

What’s more, when it did occasionally refer to my testimony Jones’s opinion badly mischaracterized it. The quote above essentially paints a picture of me flailing my arms, crying obnoxiously that all that hard scientific work on immunology—all those 58 papers and 9 books is not “good enough.” But in fact those were the words of *the opposing lawyer* cross-examining me, not my words.<sup>25</sup> (I had testified that “They’re wonderful articles. They’re very interesting. They simply just don’t address the question that I pose.” In other words, they didn’t address the question of Darwin’s mechanism.) The lawyers’ document stuffed *his* words into *my* mouth—and the judge *copied* them.



Now consider the following excerpt from the Dover court decision. The only original writing by Judge Jones is the italicized sentence-fragment (including the conjunction “Although”), which acts as a vacuous link between two substantive (if misleading) arguments lifted from the plaintiffs’ lawyers’ document.<sup>26</sup>

Science cannot be defined differently for Dover students than it is defined in the scientific community as an affirmative action program, as advocated by Professor Fuller, for a view that has been unable to gain a foothold within the scientific establishment. *Although* ID’s failure to meet the ground rules of science is sufficient for the Court to conclude that it is not science, *out of an abundance of caution and in the exercise of completeness, we will analyze additional arguments advanced regarding the concepts of ID and science.*

ID is at bottom premised upon a false dichotomy, namely, that to the extent evolutionary theory is discredited, ID is confirmed. This argument is not brought to this Court

anew, and in fact, the same argument, termed “contrived dualism” in McLean, was employed by creationists in the 1980’s to support “creation science.”

Isn’t that precious: “out of an abundance of caution ... we will analyze additional arguments.” Such snippets sprinkled throughout the opinion could easily lead sincere people such as Scott Adams or even *Time*’s 2006 committee to choose the “100 men and women whose power, talent, or moral example is transforming our world”—to conclude that the wise judge himself held all the facts of the trial in his head, carefully considered them, and then came to an independent judgment.

For what it’s worth, my view is that a judge who is either unwilling or unable to follow crucial technical discussions in a trial should either recuse himself or remain silent about those issues in his written opinion, perhaps deciding the case on other grounds if possible. A judge who can’t follow technical testimony but nonetheless pretends to understand it by copying documents written by someone else is a sham and a disgrace.

### **Take-home lesson**

By the time the whole thing was finished I had a lot more sympathy for the protagonist of Franz Kafka's novel *The Trial*, and a much sharper understanding of the term *Kafkaesque*: "Marked by surreal distortion." On reflection I've concluded that it pretty much didn't matter what I said on the stand, nor what any of the other expert witnesses on either side said. The outcome of the case was decided long before the trial began. It was decided when the hoopla started, when the media cast the whole affair in terms of stereotypical heroes and villains, and when the judge consulted old Hollywood films for better perspective. A courtroom is no place to discuss intellectual issues.

That circus left town long ago. The practical point I want to make here is that *Dilbert's* Scott Adams is mistaken. Think of any substantive topic on which you hold a strong point of view and about which you think a court case was wrongly decided. Did you change your views because of the court's decision? Probably not, and for good reason. Judges aren't philosopher-kings, and they're

as likely as anyone else to have blind spots and biases on controversial issues. I think Adams himself would quickly see the absurdity of settling an engineering dispute between Dilbert and his coworker Wally by having the Pointy-haired Boss—dressed solemnly in judge’s robes—choose which of their proposals to copy. No one should simply cede to another party his responsibility to decide an important question, especially on a topic as central as the design of life. There’s no substitute for doing your own homework: read widely and think independently.

### **Game Over**

Court pronouncements and bureaucratic rulings notwithstanding, as an objective matter the question of the role of randomness in evolution is now settled. At this point in science’s investigation of life it seems like just a cruel taunt to challenge Darwinian biologists to experimentally justify the ability of random mutation and natural selection to make an irreducibly complex molecular machine. The results are already in. The many arduous studies by leading researchers that I recount in *Darwin Devolves* show that

Darwin's mechanism strains mightily to account for even the *simplest* cooperative molecular feature. The fact that the large majority of even *beneficial* mutations either *degrade* genes or outright break them indicates that, while Darwin's mechanism does permit species to adapt to particular environments, that adaptation results in ever-decreasing flexibility, making evolution self-limiting. Darwinian processes *consume* genetic information as fodder; they don't *produce* it.

The conclusion is inescapable. Starting with the 1872 book *On the Genesis of Species* by the eminent English biologist St. George Jackson Mivart, the dissident biologists were right all along: Darwin's mechanism can produce modest changes in already-extant life, but it cannot build much of anything. Some simple genetic changes can yield visually impressive or medically significant results at an everyday scale, giving a superficial appearance of significant advance, but modern investigations at the molecular level have unmasked them as pretenders.

Something else must explain the functional complexity of life. And *that* is the subject of my new book, *Darwin Devolves*.

## Endnotes

1. Denton, M. 1986. *Evolution: A Theory in Crisis*. Adler & Adler: Bethesda, MD; Johnson, P. E. 1991. *Darwin on Trial*. Regnery Gateway: Washington, D.C.
2. The entirety of the statement is the following: "Because Darwin's Theory is a theory, it is still being tested as new evidence is discovered. The Theory is not a fact. Gaps in the Theory exist for which there is no evidence. A theory is defined as a welltested explanation that unifies a broad range of observations. Intelligent design is an explanation of the origin of life that differs from Darwin's view. The reference book, *Of Pandas and People* is available for students to see if they would like to explore this view in an effort to gain an understanding of what intelligent design actually involves. As is true with any theory, students are encouraged to keep an open mind." Of such molehills are federal cases made. <https://www.aclu.org/files/evolution/legal/complaint.pdf>
3. Davis P.W., et al. 1993. *Of Pandas and People: the Central Question of Biological Origins*. Dallas: Haughton Pub.
4. Worden, A. October 16, 2005. Bad Frog Beer to "intelligent design": The controversial ex-Pa. liquor board chief is now U.S. judge in the closely watched trial. In *Philadelphia Inquirer*.
5. Scott Adams, Dilbert. Blog, March 2006.
6. <https://web.archive.org/web/20130417085349/http://bahfest.com>
7. Behe, M.J. 1996. *Darwin's black box: the biochemical challenge to evolution*. The Free Press, New York, pp. xi-xii.
8. Miller, K.R., 1999. *Finding Darwin's God: a scientist's search for common ground between God and evolution*. Cliff Street Books, New York, p. 146

9. Behe, M. J. 2000. "A True Acid Test." <https://www.discovery.org/a/441/>; Behe, M. J. 2001. "Comments on Ken Miller's Reply to My Essays." <https://www.discovery.org/a/579/>
10. Lebo, Lauri. 2008. *The Devil in Dover: an Insider's Story of Dogma v. Darwin in Small-town America*, pp. 150-151.
11. <https://www.aclupa.org/files/7613/1404/6696/Day10PM.pdf>
12. Padian, K., Matzke, N. 2009. Darwin, Dover, "Intelligent Design" and textbooks. *The Biochemical Journal* 417, 29-42.
13. <https://law.justia.com/cases/federal/districtcourts/FSupp2/400/707/2414073/>
14. [https://www.aclupa.org/download\\_file/view\\_inline/261/294](https://www.aclupa.org/download_file/view_inline/261/294)
15. A detailed comparison of the court opinion versus the plaintiffs' lawyers' document can be accessed at the website of the Discovery Institute. <http://www.discovery.org/a/3828>
16. Indeed, in the legal system it is not considered "plagiarism" for a judge to copy parts of the brief of a party, but I am told that extensive copying is strongly frowned upon by the legal community, as well it should be.
17. Liu, R., Ochman, H. 2007. "Stepwise formation of the bacterial flagellar system." *Proc. Natl. Acad. Sci. USA* 104, 7116-7121.
18. Bugge, T. H., et al. 1996. "Loss of fibrinogen rescues mice from the pleiotropic effects of plasminogen deficiency." *Cell* 87, 709-719.
19. Jones, J. 2006. "Judicial Independence and Kitzmiller v. Dover, et al." <http://archive.news.ku.edu/2006/july/31/difficultdialogues.shtml>

20. Jones, 2006.

21. Jones, 2006.

22. <https://law.justia.com/cases/federal/districtcourts/FSupp2/400/707/2414073/>

23. <https://www.aclupa.org/files/8013/1404/6696/Day11AM.pdf>

24. In what at the time I took as a dumb courtroom stunt, the opposing lawyers dumped a pile of textbooks and folders of papers on immunology on a table close in front of me, apparently in a bit of kabuki theater to act out the moral “Look at all of this scholarship that opposes the heretic.” The fact that none of the papers showed how Darwin’s mechanism could build an immune system was irrelevant to the drama. It reminded me of the scene in the old 1940s movie *Miracle on 34<sup>th</sup> Street*, where the lawyer for a man who claimed to be Santa Claus had the post office deliver bags of letters addressed to the North Pole to the courtroom and pile them on the judge’s desk, arguing that if the federal post office thought the defendant was Santa Claus, then who was the judge to disagree? The judge—a local politician up for re-election—was happy to have the newspapers report that he ruled for Santa Claus. In my naiveté I thought part of the job of a real judge was to roll his eyes at such shenanigans and focus on the legal and intellectual issues. But Judge Jones seems to be a fan of old movies.

25. The attorney tried to bait me, asking me several times “Is that your position today that these articles aren’t good enough, you need to see a step-by-step description?” and variations on that. Richard Dawkins helped spread the false quote to millions of people. Dawkins, R. 2006. *The God Delusion*. New York, Houghton Mifflin, p. 160.

26. <https://law.justia.com/cases/federal/districtcourts/FSupp2/400/707/2414073/>





*Revolutionary* tells the story of biochemist Michael Behe and the revolution he helped spark with his book *Darwin's Black Box*, inspiring a new generation of scientists and thinkers who are challenging Darwinian evolution and exploring evidence in nature of intelligent design. Learn about Behe's journey; how those opposed to his ideas tried to kill intelligent design in federal court; and how recent scientific discoveries have vindicated and extended his work.

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