

1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE MIDDLE DISTRICT OF PENNSYLVANIA
3 HARRISBURG DIVISION

3 TAMMY KITZMILLER, et al., : CASE NO.
4 Plaintiffs : 4:04-CV-02688
5 vs. :
6 DOVER SCHOOL DISTRICT, : Harrisburg, PA
7 Defendant : 27 September 2005
8: 9:00 a.m.

9
10 TRANSCRIPT OF CIVIL BENCH TRIAL PROCEEDINGS
11 DAY 2, MORNING SESSION
12 BEFORE THE HONORABLE JOHN E. JONES, III
13 UNITED STATES DISTRICT JUDGE
14

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I N D E X
Kitzmiller vs. Dover Schools
4:04-CV-2688
Trial Day 2, Morning session
27 September 2005

PROCEEDINGS

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1 P R O C E E D I N G S

2 THE COURT: Be seated, please. Good morning
3 to all. We welcome you to Day 2, and we're
4 going to continue with cross examination.

5 Mr. Muise, you're prepared I assume?

6 MR. MUISE: Thank you, Your Honor.

7 THE COURT: You may proceed.

8 CONTINUED CROSS EXAMINATION BY MR. MUISE:

1 9 Q. Good morning, Dr. Miller.

10 A. Good morning, Mr. Muise.

2 11 Q. Sir, is evolution random and undirected?

12 A. I don't think that that is an appropriate
13 scientific question. First of all, evolution
14 most definitely is not random. There are
15 elements of evolutionary change that are
16 unpredictable, but the principal force driving
17 evolution, which is natural selection is most
18 definitely a non-random force, and then the
19 second part of your question, undirected, that
20 requires a conclusion about meaning and purpose
21 that I think is beyond the realm of science.
22 So my answer for different reasons to both parts
23 of your question is no. Or excuse me, perhaps
24 more aptly put, science cannot answer the second
25 part of the question. I think that's a more

1 accurate way to put it.

3 2 Q. Is a student believes that this was a
3 scientific complaint -- let me strike that.

4 If a student believes that this was a scientific
5 claim, would that be a misconception?

6 A. If a student believed that it was a
7 scientific claim that evolution was random
8 and undirected, would that be a misconception?

9 And I think my answer to that is yes, that would
10 be a misconception of what science can state
11 about evolution.

4 12 Q. Sir, in your 1995 edition of Biology,
13 I believe it's the Elephant Book?

14 A. That's correct. It's generally known by
15 that name.

5 16 Q. Did it not state in that book, "It is
17 important to keep this concept in mind.
18 Evolution is random and undirected," and the
19 part "evolution is random and undirected" was
20 in bold print?

21 A. To be perfectly honest, which of course I
22 swore to be, I don't remember if it was in bold
23 print or ordinary print, but I'm sure you have a
24 copy of that book, and I'm sure that you'll show
25 it to me and refresh my memory.

6 1 Q. You're very perceptive. May I approach
2 the witness, Your Honor?

3 THE COURT: You may.

7 4 Q. I hand you what's been previously marked
5 as Defendant's Exhibit 210.

6 A. And in response to your question, sir, I
7 note under Section 30-2 on the second page of
8 the document you gave me, the complete sentence
9 reads, "As we do so it's important to keep this
10 concept in mind," and it is indeed in boldface,
11 "Evolution is random and undirected," that's
12 correct. So yes, sir, it does say that.

8 13 Q. Now, isn't it true when you write your
14 textbook, a boldfaced sentence is a way of
15 telling the students that this is a key idea?

16 A. Yes, sir, it is.

9 17 Q. Now, you testified previously that that's
18 not a scientific concept, correct?

19 A. I did indeed, sir.

10 20 Q. Why was it in your book?

21 A. It was in my book because as I'm sure
22 you've also looked at, that statement was not
23 in the first edition of the book, it was not in
24 the second edition, it was not in the fourth
25 edition, it was not in the fifth edition. It

1 was not --

11 2 Q. My question is why is it in this edition?

3 A. I'm trying to set the context so I can give
4 a full and complete answer to your question. So
5 the interesting thing is that this is the only
6 edition of any of the books that we have
7 published, and probably eleven different
8 editions, that contains that statement, and
9 the reason for that quite simply is that I work
10 with a co-author whose name is Joseph Levine,
11 and Joe and I work together on many of the
12 chapters in the book, but many of them we write
13 separately and individually, and this was a
14 statement that Joe inserted when we did a
15 rewrite of many sections of this book for the
16 third edition.

17 I have to say that I missed the statement
18 as I was going through Joe's chapters, and I
19 feel very badly about that. When this was first
20 pointed out to me, the third edition of this
21 book was in print, I immediately went to Joe, I
22 said Joe, I think this is a bad idea, I said I
23 think this is a non-scientific statement, I
24 think it will mislead students. Joe agreed.
25 We immediately took it out of the book, and

1 that's why I emphasized that it did not appear
2 in subsequent editions. So what you're looking
3 at, sir, is a mistake.

12 4 Q. Isn't it true that he put that in there
5 because he was influenced by the writings of
6 Steven J. Gould?

7 A. We had a conversation about that, and among
8 the reasons that Joe cited was that he had read
9 one of Steve Gould's books called "Wonderful
10 Life" in which Gould emphasized what Gould
11 regarded as the indeterminate character of
12 evolution, and from that I think Joe made what
13 I still think is a misinterpretation of Gould's
14 central idea in "Wonderful Life," which is to
15 say the indeterminate or the unpredictable
16 nature of evolution Joe misinterpreted to say
17 random and undirected, and I think Joe agreed
18 that he had made a mistake, and that's one of
19 the reasons why we changed it in the next
20 edition, sir.

13 21 Q. Now, I believe you testified that about 35
22 percent of high schools in the United States
23 use your textbook, one variation or version or
24 another?

25 A. Yes, sir, I did.

14 1 Q. Is the 1995 elephant book still being used
2 by high schools?

3 A. I'm sure you can find a few, but because
4 the average book is used by a high school in the
5 United States for about six to seven years, I
6 think it's fair to say that very few school
7 districts use the third edition of this book.

15 8 Q. Do you know if Prentice Hall is still
9 selling this version as a science textbook?

10 A. I wouldn't be at all -- I wouldn't know
11 that for a fact, sir. I wouldn't be at all
12 surprised it's on what is called the back list
13 so that people can buy additional copies of
14 older editions. So I wouldn't be at all
15 surprised that they are still selling.

16 16 Q. Do you receive royalties still for the old
17 editions?

18 A. Yes, sir.

17 19 Q. I believe on direct you made a reference to
20 Richard Dawkins in a statement that he made in
21 The Blind Watchmaker, "Darwin made it possible
22 to become an intellectually fulfilled atheist."
23 Are you familiar with that quote?

24 A. I'm certainly familiar with that quote.

18 25 Q. And who is Richard Dawkins?

1 A. Richard Dawkins is an evolutionary
2 biologist and a professor at Oxford University
3 in England.

19 4 Q. He's considered a prominent scientist?

5 A. Yes, sir.

20 6 Q. Is that claim that he made, the quote that
7 I just read to you, is that a scientific claim?

8 A. No, sir, it's not.

21 9 Q. I understand that you were good friends
10 with the late Steven J. Gould?

11 A. Yes, sir. Steve and I were personal
12 friends. We were both, I was briefly on the
13 faculty at Harvard and I got to know Steve
14 there.

22 15 Q. And he was a paleontologist from Harvard?

16 A. Yes. Steven was actually a professor of
17 geology, and his specialty was paleontology.

23 18 Q. Now, you have no difficulty believing that
19 he would have made a comment such as, "Before
20 Darwin we thought that a benevolent god had
21 created us"?

22 A. You're giving me a statement and asking
23 would I have trouble believing he said that.
24 It would help me to know if in fact I'm being
25 given a hypothetical quote or if this is an

1 actual quote from an actual article or book of
2 Dr. Gould.

24 3 Q. Well, I can represent to you it was from
4 "Ever Since Darwin," but if you have a question
5 you may want to refer to your deposition
6 testimony at page 174.

7 A. Okay. I noticed that my answer in the
8 deposition was pretty much identical to the
9 answer I gave you now, which is you asked me if
10 I was familiar with it, and I read, and I'm
11 reading from my deposition, "Answer: No, I'm
12 not. Do you know where that quote comes from?"
13 And then you said, "I don't know if it was
14 quoted out of The Blind Watchman, I may have
15 been incorrect. Are you aware that he's made
16 any statements similar to that?" So again I'm
17 still asking where that quote might have come
18 from.

25 19 Q. Okay, read the next answer.

20 A. Sure. "I'm perfectly willing to believe
21 that Gould might have said that, but I don't
22 know the context."

26 23 Q. Today are you perfectly willing to believe
24 that Gould would have made that statement?

25 A. Would have and might have are actually

1 different constructions, and what I will tell
2 you is that I'm willing to believe that Gould
3 might have made that statement, but I reiterate
4 my quest to know the context for it.

27 5 Q. Is that statement a scientific statement?

6 A. No, I don't think so. I think it's an
7 observation of -- it's an observation about
8 history, and it's really a comment about society
9 and popular imagination. It's certainly not a
10 scientific statement.

28 11 Q. Do you know who the late George Gaylord
12 Simpson was?

13 A. Yes, sir, I do.

29 14 Q. And who was he?

15 A. George Gaylord Simpson was a very well
16 known paleontologist and evolutionary biologist
17 and evolutionary theorist.

30 18 Q. Now, I'll ask you do you think this quote
19 that I'm about to state is something that you
20 believe G.G. Simpson would have said, "Man is
21 the result of a purposeless and materialistic
22 process that did not have in mind he was not
23 planned."

24 A. Now, I will once again ask you for the
25 context of that statement, and that would help

1 me to understand if G.G. Simpson might have said
2 that.

31 3 Q. And again I represent to you it was from a
4 book written called "The Meaning of Evolution."
5 Again if you have a question I refer you to your
6 deposition transcript at page 175.

7 A. Okay. Thank you for telling where the
8 quote comes from. I certainly am willing to
9 believe the George Gaylord Simpson might have
10 said that. You asked me would I prefer to say
11 he certainly might have said that.

32 12 Q. Is that a scientific claim?

13 A. No, sir, it is not.

33 14 Q. These three scientists that I just
15 mentioned, Richard Dawkins, Steven J. Gould,
16 and George Gaylord Simpson, are they considered
17 prominent scientists?

18 A. Two of them certainly were when they were
19 alive, and Richard Dawkins certainly is.

34 20 Q. In your direct testimony you gave a
21 definition of intelligent design, and I want
22 to make sure I'm clear on what your definition
23 is, and I don't have exact recall from your
24 direct testimony at this point.

25 A. Neither do I, counselor.

35 1 Q. But I can refer you to your answer in your
2 deposition transcript, and I want to state what
3 that answer is here and you can compare it on
4 page 93 if you'd like to, and I want to see if
5 that is the working definition that you are
6 using for the purposes of this case.

7 A. The page was 93?

36 8 Q. 93.

9 A. Okay.

37 10 Q. Here's the definition, "Intelligent design
11 is the proposition that the basic mechanism of
12 evolution does not work and that the complexity
13 of life, the changes that appear in living
14 things and natural history, and the organization
15 of living things are all best explained by the
16 actions of an intelligent, creative force,
17 acting outside, and you might say above, acting
18 outside of the natural world, and that by
19 definition that creative force lies outside of
20 scientific explanation."

21 A. I believe that you've certainly read
22 properly from the deposition. I believe that
23 in my direct testimony yesterday, having thought
24 a few months more about how to summarize things
25 briefly so as not to tax the patience of the

1 court, I used a more succinct definition, and I
2 think the definition I used is intelligent
3 design is the proposition that some aspects of
4 living things are too complex to have been
5 evolved and therefore must have been produced by
6 an outside creative intelligence force acting
7 outside the laws of nature, and I would suspect,
8 sir, that both definitions are in agreement with
9 each other, even one is a little more verbose.

38 10 Q. Isn't it true that you believe that there's
11 a danger with attributing natural phenomena to
12 supernatural causes, and that danger is that
13 science will stop seeking natural explanations?

14 A. I'm not sure if I would put it in exactly
15 those terms. I do think that the proposition
16 that every unsolved problem in the natural world
17 should be attributed to causes and forces which
18 layout side the purview of science, outside the
19 natural world, into what I would call the
20 supernatural world, is a science stopper, and
21 what I mean by that is that once one says the
22 only way we can explain this or that or the
23 other is by the actions of a creator or a
24 designer working outside of nature there's no
25 point to do any more research on these problems,

1 and that's why I would characterize it as a
2 science stopper.

39 3 Q. And to make this point in your deposition
4 you used the example of the force that powers
5 the sun which, according to your testimony,
6 at one time was considered a supernatural
7 phenomena. Is that accurate?

8 A. It may be an accurate reflection of the
9 deposition, which I have not reread on that
10 point, but the way I would phrase it if you
11 asked me a similar question today is simply to
12 point out --

40 13 Q. Sir, I asked you a question.

14 A. Yes.

41 15 Q. And if you want to refer to your deposition
16 testimony at 229, that might help you answer
17 that question.

18 A. Sure, I appreciate that. Oh, well, now
19 that I see the deposition my answer is no,
20 I did not say that.

42 21 Q. Look at page 228 sir.

22 A. Uh-huh.

43 23 Q. You'll read from line 4 where it begins
24 with "in other words"?

25 A. Yes.

44 1 Q. Do you see that on line 4?

2 A. Yes, I do.

45 3 Q. Then read until line 3 of page 229.

4 A. Sure. I'd be glad to. "In other words,
5 they are advocating supernatural progressive
6 creation as the default explanation for anything
7 that cannot currently be explained by science,
8 and I'll give you an example, because I think
9 this is an important to make. If we were having
10 a discussion in 1880 and we were talking about
11 what is the force that powers the sun, where
12 does sunlight, heat, warmth, and so forth from
13 the sun come from, we can take the science at
14 the time and we could rule out the notion that
15 the sun was a big ball of flame made up of
16 burning oil or burning wood or burning wax or
17 any other known chemical reaction in 1880, and
18 we could do that, because we could calculate the
19 amount of energy the sun puts out, we could
20 calculate over many years the fact that the
21 sun's diameter, if it's decreasing it's
22 decreasing only very slightly, and if the sun
23 was made of any fuel that powered a known
24 chemical reaction, it's diameter should be
25 increasing much more quickly.

1 "Therefore in 1880 we could rule out the
2 possibility," okay, I think I may have said a
3 few things in this deposition that make no
4 sense, "Therefore in 1880," oh, sorry, no, I
5 didn't. "Therefore, in 1880 could we rule out
6 the possibility that the sun's actions were due
7 to some sort of divine intervention, the answer
8 is absolutely no, we could not rule that out."
9 Now, I'm sure the court reporter can correct my
10 recollection of your question, but I think your
11 question was did you state that in the 19th
12 century the actions of the sun were attributed
13 to divine intervention, and of course what I
14 just read to you didn't say that. It said we
15 couldn't rule out the possibility. That's not
16 the same thing as saying they were attributed,
17 and that's why I said no, sir, I did not say
18 that in my deposition.

46 19 Q. Read on from page 229, from lines 4 through
20 16.

21 A. Gladly. "As you know, 25 years later there
22 was a scientific explanation put forward for the
23 power of the sun, and that turns out to be
24 thermonuclear fusion, a force unsuspected by
25 nature," and a strange way to put it. "So if

1 at the time in 1880 science had simply thrown
2 up its hands and said the explanation lies
3 outside of nature, science would have stopped
4 and we never would have done the investigatory
5 work that was actually necessary to understand
6 where the sun's power actually came from."

47 7 Q. Keep reading, sir.

8 A. Oh, sorry. "That's the danger of
9 attributing natural phenomena to supernatural
10 causes, or for that matter to design, which is
11 essentially a call to say let's stop seeking
12 natural explanations." Go on or --

48 13 Q. I believe that covers the point.

14 A. Okay.

49 15 Q. You make that point in your deposition that
16 by attributing something that you might not have
17 an explanation for at the time to a supernatural
18 cause, then we just may throw up our hands and
19 then science will never have an explanation for
20 these natural phenomena, is that correct?

21 A. That's exactly the point that I made there,
22 yes, sir.

50 23 Q. And you used the example of the force that
24 powers the sun to demonstrate that if science
25 had just thrown up their hands, then we would

1 have never come up with this notion of
2 thermonuclear fusion.

3 A. Yes, that's correct, sir.

51 4 Q. But you also said thermonuclear fusion was
5 a force that was unsuspected at the time by
6 nature.

7 A. And as I read that I also said that's a
8 very strange way to put it. I'm sure the court
9 will understand the deposition went on for nine
10 and one half hours, and I may once or twice have
11 said something that doesn't quite make sense,
12 and what I should have said in that exact
13 context was a force that was unsuspected in
14 nature, not by nature.

52 15 Q. So there could be a force that was
16 unsuspected in nature at a time, through further
17 scientific development may actually be a natural
18 explanation such as thermonuclear fusion?

19 A. That's correct.

53 20 Q. And the fact back in 1880 that we didn't
21 know about thermonuclear fusion didn't mean
22 that science stopped?

23 A. It certainly did not mean that science
24 stopped precisely because physicists around the
25 world sought a natural explanation for the

1 phenomenon rather than attributing to it a force
2 outside of nature and beyond scientific
3 investigation.

54 4 Q. So, sir, is your testimony and your
5 opinions regarding intelligent design, is it
6 based on your understanding that intelligent
7 design does require the ruling out of all
8 natural causes for design?

9 A. I'm sorry, not to parse these questions,
10 because they're very carefully worded, and so
11 I want to think about them carefully -- I'm
12 sorry, could you repeat the question?

55 13 Q. Is your testimony and your opinions based
14 on your understanding of intelligent design is
15 that intelligent design rules out all natural
16 explanations for design?

17 A. The question you just asked is does
18 intelligent design rule out all natural
19 explanations? Well, the answer is of course
20 not. What intelligent design presupposes, and
21 I'll repeat the definition is that intelligent
22 design argues that some aspects of living things
23 are too complex to have been produced by
24 evolution and therefore they must be the product
25 of creative action by a designer acting outside

1 of nature.

56 2 Q. So the design would have to be, in your
3 understanding of intelligent design the design
4 would have to be caused by a supernatural
5 causation and no natural cause can be an
6 explanation for design?

7 A. No, sir, I would disagree with that. You
8 say no natural cause can be an explanation for
9 design. I would point out that the snow flake,
10 one of the most beautiful and intricately
11 designed if you wish to say objects in the
12 world, that any person who didn't know snow or
13 understand snow would say it had a beautiful
14 design to it, but I think any chemist, any
15 physical chemist will tell you that the
16 structure of a snow flake is due entirely to
17 natural causes such as the interactions of water
18 molecules through laws of chemistry and physics.

19 So I think you're lumping together certain
20 propositions in what you're asking me to stay,
21 and again I think I have clearly stated that my
22 testimony is based on the definition that I
23 understand of intelligent design as given in
24 "Pandas and People," as explained by Dr. Behe,
25 as explained by William Dembski, as explained by

1 "The Discovery Institute, which is that some
2 feature of living things are too complex to have
3 been produced by evolution, and that means that
4 they must have been the product of creative work
5 by a natural, by an intelligent designer acting
6 outside the laws of nature and beyond
7 investigation. Snow flakes have what most of us
8 would call a design, and they are the products
9 of natural law.

57 10 Q. With regard to the theory of intelligent
11 design, sir, not snow flakes, the theory of
12 intelligent design, is it your testimony that
13 it requires a supernatural intervention?

14 A. My testimony is that --

58 15 Q. Sir, I'm asking you a question.

16 A. And I'm trying to answer that question
17 fully and completely, sir.

59 18 Q. It's a yes or no question. Is it your
19 understanding of the theory of intelligent
20 design that it requires the action of a
21 supernatural power?

22 A. Okay. Again, intelligent design as I
23 understand it presupposes that some features
24 of living things are too complex to have been
25 produced by evolution and therefore, and here's

1 the answer to your question, they must be the
2 product of an intelligent designer acting
3 outside of nature, exercising a creative force
4 to create the design.

60 5 Q. And in that answer then your view of
6 intelligent design means that it requires the
7 action of a super, it requires supernatural
8 action?

9 A. Perhaps it would be useful in giving a
10 direct answer to your question, which I'm trying
11 very hard to do, to define what supernatural
12 means. The word super means above. The word
13 natural of course means natural. The actions of
14 an intelligent designer, as they have been
15 explained to me by the advocate of intelligent
16 design, is the identity, the means of action,
17 and even the time of action of that designer
18 lies outside of scientific investigation. That
19 means to me that it lies above, super, natural
20 law, supernatural, and therefore that designer
21 is supernatural in the ordinary understanding
22 that actions that occur on nature, that occur
23 from a force which is not natural, from a place
24 which is outside of nature, and are not subject
25 to investigation, must be supernatural. To help

1 me frame my questions, because obviously you
2 don't think I'm being entirely responsive to
3 your questions, and I want very much to be
4 responsive to them, perhaps you could explain
5 to me how an intelligence designer could act
6 undetectably, outside of nature, to create order
7 that evolution and natural law cannot, and not
8 be supernatural.

61 9 Q. That's your definition and your straw that
10 you're creating on this definition. Here's my
11 question for you with regards to what is
12 considered supernatural. Do you know who
13 Francis Crick is?

14 A. Yes, sir, I do know who Francis Crick is.

62 15 Q. And who is he?

16 A. Francis Crick is a British physicist and
17 crystallographer who, together with James Watson
18 and Rosalyn Franklin, is the co-discoverer of
19 the double helical structure of DNA.

63 20 Q. And he received the Nobel prize?

21 A. Yes, I believe that he and Watson and
22 Wilkins received the Nobel prize for biology
23 or medicine in 1963.

64 24 Q. Now, he advanced a theory called directed
25 panspermia, correct?

1 A. He wrote a book in which he suggested that
2 the first appearance on life on earth might have
3 been the result of the actions of beings from
4 another planet, scattering life into our world,
5 that's correct.

65 6 Q. And that was a hypothesis put forward by a
7 Nobel laureate?

8 A. That's correct, sir.

66 9 Q. Is that a scientific claim?

10 A. Well, the specifics that Dr. Crick made
11 is a scientific claim, because although it's
12 not immediately a testable claim, it is a
13 potentially testable claim in terms of if we
14 are able to explore larger and larger fractions
15 of the known universe, we may eventually find
16 out if there is life in other places that could
17 have been directed towards us. So it's a
18 scientific claim in the sense that it's
19 potentially testable.

67 20 Q. Is it a supernatural claim?

21 A. That's an interesting point, and in this
22 particular case no, I would not regard that as
23 a supernatural claim.

68 24 Q. So the fact that life forms may have come
25 from an intelligent being from another planet

1 to this earth as I believe you have described,
2 directed panspermia, that is not a supernatural
3 explanation for a natural phenomenon?

4 A. It certainly is a farfetched claim in that
5 many scientists would point out that there's no
6 evidence for it, but as Crick framed it, it
7 certainly would be a claim as I said that is
8 potentially testable and therefore would accord
9 to natural law.

69 10 Q. Are you familiar with a program that NASA
11 has for, and I believe its acronym is SETI,
12 Search for Extra Terrestrial Intelligence?

13 A. I'm familiar with it only as a lay observer
14 who reads the papers and has heard about it.

70 15 Q. From what you have heard about it, is that
16 a scientific exploration?

17 A. Certainly my understanding of how the work
18 in SETI is being conducted is that it follows
19 the scientific methods of explanation.

71 20 Q. Are they seeking a supernatural
21 explanation?

22 A. No, sir, I don't think they are. I think
23 that SETI is seeking evidence of life on other
24 planets, other places in the universe.

25 (Brief pause.)

72 1 Q. Would you agree with this proposition that
2 because presently we may not have a plausible
3 natural explanation is not the same thing as
4 saying that we've ruled out all natural
5 explanations?

6 A. Yes.

73 7 Q. And the example of the power, the forces
8 that power the sun would potentially be an
9 example that fit that claim?

10 A. Yes, sir, I believe it would.

74 11 Q. Sir, intelligent design doesn't require
12 adherence to the six day creation event
13 described in the Book of Genesis, correct?

14 A. I certainly think that there are
15 formulations of intelligent design that
16 don't require adherence to a six-day creation
17 event described in Genesis, that is correct.

75 18 Q. Intelligent design is not sectarian?

19 A. Can you help me, sir, by explaining what
20 you mean by non-sectarian?

76 21 Q. Doesn't adhere to any particular religious
22 dogma.

23 A. I believe that intelligent design does
24 adhere to one particular religious dogma, and
25 that is that life on earth can be attributed to

1 the outside actions a designer whose actions are
2 outside and above nature.

77 3 Q. Well, you need not be a fundamentalist
4 Christian to be a proponent of intelligent
5 design, correct?

6 A. I certainly think that one need not adhere
7 to a particular religious point of view, but as
8 intelligent design has been explained to me as
9 it's described in "Pandas and People" and in
10 the writings of the members of The Discovery
11 Institute whom I've read and whom I regard as
12 authoritative spokesmen for intelligent design,
13 the common thread of intelligent design is
14 attribution of the complex features of living
15 organisms to the creative force of a being
16 acting outside of nature, and that is definitely
17 a theistic point of view.

78 18 Q. Again, sir, my question is you need not be
19 a fundamentalist Christian to be a proponent of
20 intelligent design?

21 A. That certainly is true.

79 22 Q. Dr. Behe for example has the same religion
23 as you, correct?

24 A. That's my understanding.

80 25 Q. And Dr. Behe, an intelligent design

1 proponent, does not adhere to the literal
2 reading of Genesis? Is that your understanding?

3 A. Actually I have never discussed Dr. Behe's
4 view of Genesis with him, so I'm not sure.

81 5 Q. Dr. Behe doesn't dispute the information
6 from geology that the earth is very old,
7 correct?

8 A. If I remember what -- and if I get this
9 slightly wrong I'm sure you'll refresh my
10 memory, I believe that Dr. Behe wrote in
11 "Darwin's Black Box" that he has no particular
12 reason to quarrel with the standard geological
13 interpretation of the earth's history. Is that
14 a fair phrasing, sir?

82 15 Q. Well, my question is to you, sir.

16 A. Well, my understanding then is the indirect
17 quotation which I believe comes from "Darwin's
18 Black Box" that he says he has no reason to
19 argue or to quarrel with it. Now, to my
20 standard of endorsement that's not a ringing
21 endorsement, and it certainly, it certainly
22 doesn't amount to an affirmative answer to your
23 question.

83 24 Q. Sir, young earth creationists are
25 completely unequivocal that the earth has

1 to be between six to ten thousand years old,
2 correct?

3 A. Most of the young earth creationists I have
4 encountered have argued that the earth is less
5 than ten thousand years old, that's correct,
6 sir.

84 7 Q. And that's one of tenets of young earth
8 creationism, correct?

9 A. As I understand them, sir, yes, that's
10 correct.

85 11 Q. Dr. Behe, again an intelligent design
12 proponent, does not adhere to the flood geology
13 point of view advanced by creationists, is that
14 correct?

15 A. I'm not sure whether Dr. Behe adheres to
16 that or not. I haven't heard him state
17 definitively. I have only read in "Darwin's
18 Black Box" that he has no problem with the
19 standard geological chronology.

86 20 Q. And from that statement would you infer
21 that he then has no problem with the flood
22 geology, or he has a problem with the flood
23 geology based on that statement?

24 A. You know, I suppose you could infer that,
25 but you could also infer that like most

1 biochemists he doesn't care too much about
2 geology.

87 3 Q. So that doesn't play into his scientific
4 theories or arguments regarding intelligent
5 design?

6 A. I have not seen Dr. Behe make an argument
7 based on the geological ages in any of his
8 writings or books, one way or another. And
9 therefore I do not wish to presume what his view
10 is of the young earth chronology, and I'm sure
11 that if you bring him to the stand he'll be able
12 to tell you himself.

88 13 Q. In terms of the arguments he's advancing he
14 does not refer to the geological record?

15 A. That is correct, he does not refer to it,
16 and as I said perhaps that's because like most
17 biochemists he just doesn't read geology.

89 18 Q. And so for his arguments it's not necessary
19 that the earth be six to ten thousand years old?

20 A. The arguments that Dr. Behe makes based
21 on the actions of an intelligent designer, to
22 assemble the complex structures within a cell
23 would be consistent with young earth creationism
24 or with special creationism spread over the
25 billions of years of the geological ages. It

1 would be consistent with either one.

90 2 Q. Again, sir, my question was does he rely on
3 the age of the earth being six to ten thousand
4 years old to make a scientific argument?

5 A. No, sir, he does not rely on it, and that's
6 why it would be consistent with either one.

91 7 Q. So it's not a necessary component of his
8 scientific arguments?

9 A. That's right, and that's why it would be
10 consistent with either one.

92 11 Q. Do you know what Barry Palovitz is?

12 A. Yes, I think Barry is a plant geneticist or
13 a plant physiologist at the University of
14 Georgia.

93 15 Q. And he wrote an article which made
16 reference to your book "Finding Darwin's God"
17 that we discussed during your deposition? Do
18 you remember that?

19 A. I do remember he wrote a review, and I will
20 tell you that I try not to take reviews of a
21 book too seriously.

94 22 Q. But do you recall that in the review he
23 claims that one of ideas that you entertained in
24 your book "Finding Darwin's God," which is the
25 notion that the universe may have purpose, was

1 also an idea that was embraced by what he called
2 neocreationism?

3 A. I actually don't specifically remember
4 Dr. Palovitz's review except to note that he
5 didn't like my book much, and I believe he may
6 have made comments like that. So I'm perfectly
7 willing to believe that that's exactly what he
8 said.

95 9 Q. If you look at your deposition, sir, on
10 page 128?

11 A. Got it.

96 12 Q. If you could read, if you look at line 15,
13 and after the sentence, "He calls it a pet
14 rock," and it begins with "saying," could you
15 read that sentence?

16 A. Sure. This I believe is a quotation from
17 the Palovitz review.

97 18 Q. No, this is your answer, sir.

19 A. I'm sorry, which page and which line again?

98 20 Q. Page 128, line 15, starting with the word
21 "saying"?

22 A. Okay, yes. This is my answer. I'm sorry,
23 I was on the wrong page. "Saying the two
24 schools of thought embrace a single idea does
25 not mean that those two schools of thought are

1 exactly the same thing."

99 2 Q. Is that a truthful statement that you made?

3 A. Yes, sir, of course.

100 4 Q. Sir, now, it's fair to say that one of the
5 central arguments of intelligent design is that
6 the evolutionary mechanisms are not sufficient
7 to explain the origin of complex biological
8 structures like the flagellum?

9 A. That's correct, sir.

101 10 Q. Now, you have already testified that you
11 wrote a book called "Finding Darwin's God."

12 A. Several times.

102 13 Q. And in that book you said, "If Darwinism
14 cannot explain the interlocking complexity of
15 biochemistry, then it is doomed." Do you recall
16 making that statement?

17 A. I probably wrote something like that in the
18 book, yes, sir.

103 19 Q. And you also quoted from Darwin in that
20 book, who acknowledged, "If it could be
21 demonstrated that any complex organ existed
22 which could not possibly have been formed by
23 numerous successive slight modifications, my
24 theory would absolutely break down." Correct?

25 A. That is correct, although it's a partial

1 quotation, because the next sentence is, "But
2 I can find no such case."

104 3 Q. Correct. And he wrote, and that was from
4 "On the Origins," correct?

5 A. Yes, sir, that's a quotation, I gave a more
6 complete quotation, but that's from "The Origin
7 of the Species."

105 8 Q. And that was written in 18 when?

9 A. I believe, sir, 1859.

106 10 Q. I believe you already previously testified
11 that the claim that the bacterial flagellum is
12 irreducibly complex is a scientific claim?

13 A. It is a, that is a scientific claim if
14 irreducible complexity is precisely defined, and
15 because Dr. Behe in "Darwin's Black Box" gave a
16 very precise definition that made the claim of
17 irreducible complexity a scientific claim, yes,
18 sir.

107 19 Q. And if irreducible complexity could be
20 demonstrated, that would present an argument
21 against Darwin's theory of evolution, correct?

22 A. If irreducible complexity could be
23 demonstrated in the exact way that Dr. Behe
24 describes, it would present an argument, not
25 a disproof, but an argument, because other

1 scientists have argued that even if one finds
2 truly irreducible complex structures, that does
3 not rule out in principle an evolutionary
4 pathway to them.

108 5 Q. Does it open a question?

6 A. Of course. It is phrased in the form of a
7 question, and yep, it's a question.

109 8 Q. Now, we're referring to Richard Dawkins,
9 and he made a statement, "Biology is the study
10 of complicated things that give the appearance
11 of having been designed for a purpose." Are you
12 familiar with that quote?

13 A. Yes, I am familiar with that quote.

110 14 Q. Do you agree with it?

15 A. I wouldn't put it the same way that Dawkins
16 did. I think biology is the study of a great
17 deal more. I think Dawkins was using hyperbole,
18 a figure of speech, exaggeration for the purpose
19 of emphasis to make a very good point, and that
20 is a first glance at many living organ systems,
21 organisms, compounds, makes it look as though
22 they have such a strong correlation of structure
23 with function that in the human world we would
24 say that they were designed, and that's the
25 metaphorical point that I think Dawkins made,

1 and I agree with that metaphorical point.

111 2 Q. And is that similar to the points which
3 you described as a metaphor in your cross
4 examination testimony yesterday about the cell
5 being a collection of protein machines?

6 A. Yes. In that case it was a different
7 metaphor by Dr. Bruce Albertson, and I think
8 it's essentially the same point.

112 9 Q. Is part of the nature of the controversy
10 that we're discussing in the course of this case
11 is whether the design referred to by Dawkins is
12 the apparent design that he describes or real
13 design that intelligent design proponents
14 advocate?

15 A. Well, to answer that question, sir, we're
16 going to have to break down what we mean by the
17 word design, and the word design is often used
18 in biochemistry and protein structure to simply
19 refer to in shorthand the correlation of
20 structure and function. So for example if you
21 remember I put a slide up on the screen
22 yesterday showing the hemoglobin molecule, the
23 oxygen carrying protein, the inner pocket of
24 that hemoglobin is what physical chemists call
25 hydrophobic, or water hating. It's kind of oily

1 in ordinary terms.

2 That makes it an ideal binding site for an
3 oxygen atom to slip in. The outside of the
4 molecule is strongly hydrophilic. That means
5 it's got a lot of charges on it, and if you will
6 it makes it easy for it to dissolve in water.
7 So a physical biochemist might look at the
8 structure of the molecule and say let's talk
9 about the design of the molecule, it is designed
10 to be soluble in the solution of the blood, and
11 it is designed to have four pockets in which you
12 can tuck an oxygen atom to carry them to the
13 tissue. What he really means by design is the
14 exquisite correlation of the structure of that
15 protein with its oxygen carrying function. So
16 in that respect that design is similar.

113 17 Q. I'm going to give you a definition of
18 irreducible complexity, which I believe is
19 slightly different than the one that you used in
20 "Darwin's Black Box" and I want to ask you if
21 you will accept this definition, "A single
22 system which is necessarily composed of several
23 well matched interacting parts that contribute
24 to the basic function, and where the removal of
25 any one of the parts causes the system to

1 effectively cease functioning."

2 A. I wouldn't agree with that, because
3 that's actually not a complete definition of
4 irreducible complexity. If I remember, the
5 quote that I showed was pretty similar to that,
6 except it went on basically to refine the
7 definition, make it more precise, make it
8 scientifically testable, and that was that one
9 cannot produce an irreducibly complex machine by
10 numerous successive slight modifications of a
11 precursor system because any precursor to an
12 irreducibly complex system that is missing a
13 part is by definition nonfunctional, and I
14 regard that as an essential element of the
15 argument, of the term irreducible complexity,
16 because without it irreducible complexity does
17 not make a strong argument against evolution.

114 18 Q. In your explanation, or I guess reputation
19 of the concept of irreducible complexity, is it
20 true that you argue or you define it so that if
21 a component were removed, the question is
22 whether or not that component itself could still
23 have an independent function?

24 A. I believe what I said was a little more
25 complete than that, and that is rather than a

1 component could be removed, a set of parts or
2 components could be identified within the larger
3 structure which had an independent function of
4 its own, because the central argument that comes
5 from the concept of irreducible complexity is
6 that there are no stepping stones on the way to
7 the evolution of a complex structure. In other
8 words, they have to be fully assembled to have
9 any function, and therefore if one can
10 demonstrate that partial assemblies of the
11 components in fact do have a selectable
12 function, then the argument falls apart. And
13 it does in every case that we examined, in every
14 case we talked about yesterday I should say.

115 15 Q. So is it that a component of the part can
16 have an independent function as opposed to the
17 essential function, that it ceases function,
18 the essential function of the main organism?

19 A. I'm going to ask you to repeat the
20 question, because the question began "is it,"
21 and I'm not sure what "it" is.

116 22 Q. Let's break it apart then.

23 A. Okay.

117 24 Q. Is your argument against irreducible
25 complexity because if you remove a component

1 from a system, that that component or a series
2 of components may itself have an independent
3 function, and therefore the system itself is not
4 irreducibly complex, is that your understanding?

5 A. That certainly is my understanding, and
6 again I would try to put it more completely, and
7 that is that once a collection of parts is
8 claimed to be irreducibly complex, the way in
9 which one analyzes that claim is to see if
10 there's any subset within this larger collection
11 of parts that could have an independent
12 function, and once you identify that you
13 suddenly discover that structure is no longer
14 irreducibly complex.

118 15 Q. And that can be any of the components of
16 the system?

17 A. I would certainly think so, sir. In fact,
18 I think a direct prediction of the argument
19 made from irreducible complexity is that no
20 components of the system should have independent
21 functions. So once you find one, the argument
22 is finished.

119 23 Q. Sir, is it not a standard scientific
24 practice for scientists, and I'll use an example
25 of Dr. Behe, and perhaps you might fit into this

1 example as well, to point to the scientific
2 literature, to point to observations and
3 experiments that have been done by other people
4 and other laboratories, have been peer reviewed,
5 have been published, and to cite to that
6 evidence, cite to those data, and cite to those
7 experiments in their arguments?

8 A. Of course it is.

120 9 Q. And so the question then is not whether
10 Dr. Behe or any other scientist has done
11 experiments in their own laboratory that have
12 produced evidence for a particular claim. The
13 question is whether or not the inferences that
14 they draw in their analysis from that data are
15 supported. Is that true?

16 A. Yes, sir, I certainly think that that is
17 true, and I agree with it, and the point that
18 I would wish to make is that in my testimony
19 yesterday I said that as far as I knew Dr. Behe
20 had never done any work that directly implicated
21 intelligent design. He certainly has written a
22 number of papers and made a number of arguments
23 designed to support the inference of irreducible
24 complexity.

121 25 Q. So there are natural phenomena that cannot

1 be fully explained by materialistic
2 observations, correct?

3 A. There are natural phenomena --

122 4 Q. I can give you some examples.

5 A. Please do. That would help a great deal.

123 6 Q. The origin of life.

7 A. Oh, okay. The answer to your question,
8 sir, is no. And the reason for that is that
9 the question was phrased is there are natural
10 phenomena that cannot be explained, and the
11 reason I said no to your question, I do not
12 agree with that, is I would agree to a question
13 that says there are natural phenomena that have
14 not yet been explained by material or natural
15 causes, and if you then said the origin of life
16 is such a question which has not yet been
17 explained, I would have said yes, sir, that is
18 correct.

124 19 Q. I believe my question, sir, was there are
20 natural phenomena that cannot be fully explained
21 by materialistic observation.

22 A. And again I would still say no, because I
23 hear "cannot be explained" or "cannot fully be
24 explained" to be a claim that they will never be
25 explained, that it's a problem that will never

1 be solved because of some reason and principle,
2 and all that I'm trying to do is to make sure
3 that my answer is phrased in such a way in which
4 it is clear that I, like most scientists,
5 realize that science is filled with unsolved
6 problems. The origin of life I'm quick to say
7 is one of those problems. We do not yet have a
8 complete natural explanation of that particular
9 question.

125 10 Q. Sir, if you'd turn to your deposition, page
11 210?

12 A. Sure.

126 13 Q. And reading from line 7, and to complete
14 the answer for completeness read through to
15 line 19?

16 A. Sure. "Are there natural phenomena that
17 cannot be fully explained by materialistic
18 observations? The answer is yes. You chose the
19 origin of life. I would choose gravity, I would
20 choose dark matter in the universe, and I would
21 use the way in which the vertebrate body is
22 constructed during the development of an embryo,
23 because all of these are questions which cannot
24 be completely answered by science, and to
25 paraphrase an answer I gave earlier in the day,

1 when we have complete explanations for all
2 natural phenomena, people like me, research
3 scientists, will be out of business, because
4 science will be finished. We will have
5 explained everything."

127 6 Q. Is that a correct answer?

7 A. It is a correct answer, but in order to
8 complete the record for the court, may I read
9 from my deposition a few lines further down,
10 just a sentence or two? It's on page 211, and
11 I'd like to start on line 4 if I may, sir.

128 12 Q. Was that a complete answer that you gave to
13 the question that I had asked you during the
14 deposition?

15 A. Sir, I just asked you. May I complete --

129 16 Q. Was that a complete --

17 A. Okay, fair enough. That was the complete
18 answer I gave then.

130 19 Q. Thank you.

20 A. And I note for the record that in my
21 deposition I clarified that --

131 22 Q. Thank you, sir.

23 A. -- the same way I've been doing here.

24 THE COURT: Wait, wait. Let him finish his
25 answer. Finish your answer.

1 THE WITNESS: Thank you, Your Honor.

2 THE COURT: But that is not necessarily a
3 license to go further than what the question
4 was, but if you want to finish that particular
5 answer that you gave, you may do so.

6 THE WITNESS: Okay, at the bottom of page
7 210 I was then asked, and this is the question,
8 "And just to clarify, there has not been, at
9 least I'll put it in terms of your satisfaction,
10 a successful materialistic explanation for the
11 origin of life? Answer: I would expand on that
12 a little bit if you'll allow me to, and the
13 answer, I'm sorry, the answer to that is yes.
14 I regard the origin of life, as I think most
15 scientists do, as an unsolved biological
16 problem.

17 "Now, to say that the problem is unsolved
18 does not say it's a problem about which we know
19 nothing. In fact, we know a great deal, and we
20 know for example that conditions similar to
21 those might have existed on the primitive earth
22 to allow the formation of, the undirected
23 formation of very, very simple building blocks
24 of compounds such as proteins and nucleic
25 acids." That's all I wanted to read. Thank

1 you, Your Honor.

132 2 Q. Are those still scientific questions?

3 A. By "those" you mean what is the origin of
4 life, what's the nature of gravity, how is the
5 vertebrate body put together? Yes, sir, those
6 are all scientific questions.

133 7 Q. Sir, critical thinking is a legitimate
8 pedagogical goal, correct?

9 A. It's a legitimate and I would argue an
10 essential pedagogical goal.

134 11 Q. And an important component of teaching
12 science?

13 A. I think it's a very important component
14 of teaching science.

135 15 Q. Do you agree that the purpose of high
16 school science courses should not be to train
17 scientists but to contribute to the liberal
18 education of students?

19 A. I think that -- I agree with you, because I
20 think contributing to the liberal education of
21 students is a great way to train scientists.

136 22 Q. If a student believes that Darwin's theory
23 of evolution was a fact, would that be a
24 misconception?

25 A. It would certainly be a serious

1 misconception as to the nature of the theory,
2 because theories never become facts. If a
3 student believed that atomic theory was atomic
4 fact, that would be a misconception. Atomic
5 theory is based on factual observations in the
6 same way that evolutionary theory is based on
7 factual observations.

137 8 Q. Is your answer to my question yes, sir?

9 A. The answer to the question is most
10 definitely yes.

138 11 Q. If a student believed that science has
12 answered all questions regarding evolution,
13 would that be a misconception?

14 A. It would be a terrible misconception, sir.

139 15 Q. If a student believed that science has
16 solved the origin of life question, would that
17 be a misconception?

18 A. It would be a terrible misconception.

140 19 Q. You teach a biology course at Brown
20 University, Biology 20, correct?

21 A. I believe I do, that's correct.

141 22 Q. And that's an introductory course?

23 A. Yes, sir.

142 24 Q. And I believe it's for concentrators and
25 non-concentrators? Is that the term you use at

1 Brown?

2 A. Yes, that is the term we use, and for the
3 benefit of the court that means that students
4 who are going to major in science, students who
5 might be pre-med in their studies, or students
6 who are thinking of going into some other field
7 entirely will still take that course.

143 8 Q. Now, your description of the course, and I
9 believe it's in the 2005 syllabus, you state,
10 "In the same way that students of the sciences
11 could not consider themselves fully educated
12 without a knowledge of art, social theory, and
13 literature, students in the humanities and
14 social sciences should approach courses in the
15 sciences as part of their overall educational
16 experience." Is that an accurate statement?

17 A. Yes, sir, it is.

144 18 Q. And in the syllabus you also state, "The
19 intention of this course," meaning the Biology
20 course, "is to establish links between
21 biology and other disciplines and to briefly
22 explore some of the ways in which science is
23 related to popular culture." Is that true of
24 your course?

25 A. Yes, sir, it is true of my course, one of

1 my goals.

145 2 Q. Now, in your biology course you provide
3 supplemental materials for when you give
4 lectures on evolution, is that correct?

5 A. When I teach the course I provide internet
6 links of all sorts that will help students
7 research questions in a variety of ways.

146 8 Q. And some of those internet links are to
9 your web site with some of those articles, "The
10 Flagellum Unspun," the biochemical, I believe
11 there's one about the biochemical challenge to
12 evolution?

13 A. I actually don't think that I, and I'm sure
14 you'll refresh my memory if I'm wrong, I don't
15 think I provided a direct link to those
16 particular essays. I did provide a direct link
17 to a web page that I have, "On Matters
18 Evolution," and on that page there was then
19 links to some articles that I had written about
20 evolution, including the two that you mentioned.

147 21 Q. And those were articles regarding
22 intelligent design?

23 A. Yes, sir, I believe they are articles
24 critical of intelligent design, that's correct.

148 25 Q. And there was also a PBS film clip called

1 "Why is Evolution Controversial?" that you list
2 as supplemental material?

3 A. Yes. That one I think I did link directly
4 from the web page in my course.

149 5 Q. And these supplemental materials allow
6 students to explore supplemental information
7 related to the lecture topic?

8 A. That's certainly my intent.

150 9 Q. And in this case it would be the lecture
10 topic of evolution?

11 A. That's right. Students of course always
12 want to know is it going to be on the test, and
13 supplemental materials are not on the test.
14 They're out there in case they get interested
15 in something.

151 16 Q. And is it true you believe that these
17 materials promote the goal of giving students
18 an opportunity to explore other aspects of
19 evolution and evolutionary theory?

20 A. The best way to answer your question is
21 that I started doing this simply because so many
22 students would say, I talk about RNA, could you
23 give us some links to some other things in case
24 we get interested here and there, and the links
25 I put up on evolution fall into that general

1 category of anticipating student questions.

152 2 Q. Does it also give them a better
3 understanding of the way in which evolution
4 is regarded in the larger society?

5 A. I hope so.

153 6 Q. If you look in your deposition, page 78,
7 please?

8 A. Okay.

154 9 Q. And the question I asked you beginning on
10 line 22 was, "What goal does that promote?" And
11 that's referring to your previous answer, "The
12 way in which evolution is regarded in the larger
13 society" for example was your answer, and then
14 my question was, "What goal does that promote?"
15 And then could you read us your answer starting
16 at line 23 on page 78, continuing through line 7
17 on page 79?

18 A. Sure. Gladly. "I think I've already
19 answered the question, which is to give students
20 an opportunity to explore the implications of
21 some of the material that we cover in lecture
22 and, you know, the generalization that I would
23 apply to any education is, the goal is not to
24 define a set of material to be mastered, but to
25 open a door. And this is one way to open the

1 door and say if you want to walk through that
2 door, take a look, there it is."

155 3 Q. Is that a truthful answer?

4 A. Oh, of course, it's a truthful answer, sir.

156 5 Q. I just want to be accurate that that web
6 page on evolution you had at Brown University
7 included the article "The Flagellum Unspun,"
8 correct?

9 A. Yes, sir, I believe it did.

157 10 Q. And the other article, I believe I
11 misspoke, I believe the title of it is
12 "Answering the Biochemical Argument from
13 Design," is that correct?

14 A. Sounds right, yep.

158 15 Q. Now, your biology course consists of
16 approximately 38 to 40 lectures, is that
17 correct?

18 A. In some years a couple here, but that's in
19 the neighborhood. We have a few exams as well.

159 20 Q. I believe you testified in your deposition
21 approximately three out of those 38 to 40
22 lectures are specifically dedicated to
23 evolution?

24 A. I think that's about right, yes. About
25 10 percent.

160 1 Q. I think we already established you're the
2 co-author of "Biology" by Prentice Hall, and
3 your co-author is Joseph Levine, is that correct?

4 A. That's correct, sir.

161 5 Q. And it's your understanding that the Dover
6 Area School District selected and purchased your
7 2004 edition of "biology" to be used as their
8 textbook for the ninth grade biology class?

9 A. That's my understanding, too.

162 10 Q. And you consider that to be a ringing
11 endorsement of your book I believe is the term
12 you used in your deposition, correct?

13 A. Did I?

163 14 Q. If you'd like to look, page 21 and 22.

15 A. Sure.

164 16 Q. Line 24, starting on page --

17 A. Sorry, the clip is in the way. Yes, okay.

18 I'll just rephrase it so I can explain the
19 context to the court. "Question: I'm assuming
20 you don't have any objections with the school
21 board making that decision," which was to pick
22 out book. Answer, my answer, "No, I was quite
23 pleased. I considered it to be a ringing
24 endorsement of our book," and I have to say that
25 when I said that I was engaging in a bit of flip

1 hyperbole, exaggeration for just the purpose of
2 emphasis. I was very pleased.

165 3 Q. You think that was a good choice?

4 A. A good choice by to engage in flip
5 hyperbole or for the Dover board of education?

166 6 Q. Probably the latter.

7 A. Okay. Yes, I think it was a good choice.
8 Joe and I worked very hard on this book. We
9 think we've written the best possible book.
10 We regard our mission as to turn students on
11 to science, and we think our book does that and
12 we're very happy that the Dover board selected
13 it for the students.

167 14 Q. Does your textbook provide comprehensive
15 coverage of the theory of evolution?

16 A. Yes, sir, I believe it does.

168 17 Q. And you write your textbooks to comport
18 with the academic standards for each of the
19 states, correct?

20 A. Yes, sir, we do. The textbook used in
21 Dover is a national edition, but we routinely
22 consult the science education standards in the
23 various states, including Pennsylvania, to make
24 sure they fit those standards.

169 25 Q. Is it your understanding that your biology

1 book, the 2004 version, comports with the
2 Pennsylvania state academic standards?

3 A. Yes, sir, I believe it does.

170 4 Q. In your opinion does your textbook
5 represent science in a manner that comports
6 with good science pedagogue?

7 A. Yes, sir, I believe it does.

171 8 Q. And it presents science in a way that is
9 proper for a ninth grade biology student?

10 A. Yes, I think that.

172 11 Q. Now, this book, the biology book, includes
12 a section entitled "Strengths and Weaknesses of
13 the Evolutionary Theory," correct?

14 A. Yes, it does include such a section.

173 15 Q. And this section has not appeared in your
16 prior versions of the biology book, is that
17 correct?

18 A. You know, the answer to that is -- not
19 appeared in previous version. Not exactly.
20 It's not exactly a yes or no. That particular
21 heading is new, but some of the statements made
22 under it do appear in earlier printings of the
23 book. But certainly the section exactly as it
24 appears in 2004 I do agree did not appear in the
25 2003 or the 2002 copyright.

174 1 Q. Did you have prior sections that were set
2 out strengths and weaknesses that were under
3 the section on evolution?

4 A. We certainly did describe the strengths and
5 weaknesses of evolutionary theory, but we had
6 not placed them under a heading so they couldn't
7 be missed.

175 8 Q. So this was the first time it was placed
9 under that sort of a heading?

10 A. That is correct, sir.

176 11 Q. If you can turn to page 386 in the biology
12 book, and that's Exhibit 214, defendant's
13 exhibit, could you read the paragraph that
14 begins with "like," the second full paragraph?

15 A. Sure, I'd be glad to. "Like any scientific
16 theory, evolutionary theory continues to change
17 as new data are gathered and new ways of
18 thinking arise. As we shall see shortly,
19 researchers still debate such important
20 questions as precisely how new species arise
21 and why species become extinct. There is also
22 uncertainty about how life began."

177 23 Q. And the caption of that where that section
24 falls is Strengths and Weaknesses of
25 Evolutionary Theory," correct?

1 A. It's actually a heading, but yeah, that's
2 correct.

178 3 Q. And that statement, that paragraph that you
4 just read, is that an accurate statement?

5 A. I certainly hope so. I believed it when
6 Joe and I wrote it.

179 7 Q. Now, that section, that heading, "Strengths
8 and Weaknesses of Evolutionary Theory" was added
9 to your book because of the state requirements
10 of the state of Texas, correct?

11 A. Yes, sir, it was.

180 12 Q. And those standards required students to
13 analyze and critique specific scientific
14 theories?

15 A. The curriculum guidelines in the state of
16 Texas, which are known as the TEKS, which stands
17 for Texas Essential Knowledge and Skills, have
18 very specific wording in fifteen or twenty
19 different curricular areas, and when we prepared
20 our book for the Texas adoption we thought it
21 best to use the exact wording that was used in
22 the Texas standard in a variety of places so it
23 couldn't be missed that we were conforming to
24 Texas standard, and this is one of those places,
25 that is correct.

181 1 Q. Now, is it true when you submitted your
2 textbook to the state of Texas it was clear that
3 there was only one scientific theory that any
4 member of the state board of education was
5 interested in, and that was the theory of
6 evolution?

7 A. No, sir, it was not clear. Would you like
8 me to explain why I gave --

182 9 Q. I want you to go to your deposition, sir,
10 page 285 and 286.

11 A. Okay.

183 12 Q. And if you start, the question begins on
13 line 24 of page 285. If you could read that
14 through your answer of page 286, line 19.

15 A. Sorry, you want me to start on 285?

184 16 Q. 285, line 24 is where the question begins.

17 A. Sure. "Question: What was the purpose for
18 putting that in the 2004 version?" Answer --

185 19 Q. I'm sorry, let me -- I'm sorry to interrupt
20 you, but that is that heading, that section that
21 we were just --

22 A. Yes, correct.

186 23 Q. Continue with your answer, I'm sorry.

24 A. "The purpose for putting that in the 2004
25 version was the state requirements for the state

1 of Texas specifically required students to
2 analyze and critique the strengths of scientific
3 theories and hypotheses. Now, that standard,
4 which is known as TEKS 3-A in Texas, applied to
5 scientific theories in general, but as we
6 submitted our textbook to the state of Texas it
7 was clear that there was only one scientific
8 theory or hypothesis that any member of the
9 state board of education was interested in, that
10 was interested in seeing strengths and
11 weaknesses for, and that one theory was the
12 theory of evolution."

13 Now, the reason, sir, I said no to your
14 question was, and I'm sure the court reporter
15 can correct me if I got this wrong is because
16 your question was, was that the only theory that
17 any member of the state board was interested in,
18 and the reason I said no is because many members
19 of the state board were interested in many other
20 aspect of the book. The deposition statement
21 was it was the only theory that anyone was
22 interested in seeing strengths and weaknesses
23 for, and that's what I said in my deposition.

24 So my no answer is based on very carefully
25 listening to your question and trying to say

1 that no, I don't want to slur the entire board
2 of education of the great state of Texas by
3 saying that's the only theory they were
4 interested in. It is true that that's the only
5 theory that they wanted to hear strengths and
6 weaknesses for. I hope that clarifies my answer
7 in the court vis-a-vis the deposition.

187 8 Q. And so in that regard your deposition
9 answer that you read is a correct answer?

10 A. My answer in court was correct, sir,
11 based on your question, and my answer in the
12 deposition was correct based on the question,
13 which was different, that you asked me at the
14 deposition.

188 15 Q. Sir, when you write your textbooks, and
16 this is I guess a general post to textbook
17 writing, is it true that when you use qualifying
18 language such as "some biologists propose" that
19 that is a way of conveying sort of a sense in
20 the community that there might be a tentative
21 nature or disagreement about the proposition?

22 A. I'd want to see the particular context you
23 have in mind, but in general I think that's a
24 fair statement.

189 25 Q. Sir, in the ordinary meaning of the word a

1 creationist is simply any person who believes in
2 an act of creation, correct?

3 A. Yes, I think I would also regard that as
4 the ordinary meaning of the word creationist.

190 5 Q. And you believe that the universe was
6 created by God?

7 A. I believe that God is the author of all
8 things seen and unseen. So the answer to that,
9 sir, is yes.

191 10 Q. In a sense that would make you a
11 creationist using the definition --

12 A. In the, as I think you and I discussed
13 during the deposition, in that sense any person
14 who is a theist, any person who accepts a
15 supreme being, is a creationist in the ordinary
16 meaning of the word because they believe in some
17 sort of a creation event.

192 18 Q. And that would include yourself?

19 A. That would certainly include me.

193 20 Q. And you believe that God coined the laws
21 of physics and chemistry?

22 A. Well, I have to say that I'm not on the
23 stand as you pointed out yourself, sir, as an
24 expert witness in theology. I can certainly
25 tell you what I believe. And that is as I said

1 before, God is the author of all things seen and
2 unseen, and that would certainly include the
3 laws of physics and chemistry.

194 4 Q. And you believe that evolution is a way in
5 which God can bring about His divine plan in
6 this universe?

7 A. I certainly believe that evolution is a
8 natural process that occurs in our universe, and
9 as such it and all other natural processes fall
10 in -- again I don't want to pretend to be a
11 theologian, but I think it would fall under the
12 purview of what a theologian would call divine
13 providence.

195 14 Q. But in terms of your personal beliefs you
15 believe that that is consistent with God's
16 overall plan the way evolution operates?

17 A. I believe that God is the author of nature,
18 and therefore I believe that things that happen
19 in nature are consistent with God's overall
20 plan, and evolution is a natural process.

196 21 Q. And you see evolution as being consistent
22 with your religious beliefs?

23 A. Yes, sir, I do.

197 24 Q. Sir, you believe that faith and reason are
25 compatible?

1 A. I believe not only that they are
2 compatible, but they are complementary.

198 3 Q. You agree that if we apply faith and reason
4 correctly as objective and reliable tools for
5 the nature of the world around us, ultimately
6 the conclusions of both should be compatible?

7 A. One would certainly hope is. If God
8 exists, and both faith and reason are gifts
9 from God, they should complement each other.

199 10 Q. You agree then that the rational world of
11 science can be included in faith world of
12 religion, that the two are entirely compatible?

13 A. Well, actually you phrased that question in
14 sort of a contradictory way. You said, I think
15 you said can one be included within the other,
16 and then you said are they compatible. I'm not
17 sure that neither faith or reason are included
18 within each other. I do very much agree they
19 are compatible.

200 20 Q. If you look at your deposition, page 201?

21 A. Yes, sir.

201 22 Q. Beginning at the end you make reference to
23 a document written by John Paul II, and I
24 believe that was the encyclical Fides et Ratio,
25 "Faith and Reason?"

1 A. Sir, this is on page 201?

202 2 Q. If you read on to page 202, beginning of
3 page 202.

4 A. Okay. No wonder I couldn't find it. Yes.
5 Oh, okay. In the deposition, I'm not sure if
6 you want me to read it, but I can paraphrase
7 it --

203 8 Q. I'd like you to read it --

9 A. Sure. I'll simply begin on page 202 if
10 that's all right with you.

204 11 Q. Yes.

12 A. "Guiding the relationships between these is
13 pretty well exemplified in that document written
14 by John Paul II that I mentioned earlier called
15 Fides et Ratio, which is to say that the
16 rational world of science can be included in
17 faith world of religion, and that the two are
18 entirely compatible," and I have to say that I
19 don't quite like with the way that I put it in
20 the deposition, which is one of the reasons that
21 I rephrased it, and, you know, in terms of
22 including when one world is included in another
23 it carries the implication that one is
24 subordinate to the other, and I regard as I
25 said in the second part of that is the two as

1 compatible, consistent, and complementary. I
2 don't regard one as included with the other, and
3 therefore I don't actually quite agree with what
4 I said in the deposition. I hope I haven't
5 caused you any trouble.

205 6 Q. So you don't ascribe to philosophical
7 naturalism, correct?

8 A. As I understand philosophical naturalism,
9 it is a doctrine that says that the physical
10 world is all there is, and the only way we have
11 of learning anything about the nature of
12 existence is the scientific way, and if that is
13 what philosophical naturalism means, no, sir, I
14 am not a philosophical naturalist.

206 15 Q. Now, when you read the Book of Genesis, you
16 take that to be a spiritually correct account of
17 the origins of our species, correct?

18 A. I take all of the Bible, including the Book
19 of Job, the Book of Psalms, New Testament, and
20 Genesis to be spiritually correct.

207 21 Q. And you find repeatedly verses that say
22 that God commanded the waters of the earth and
23 the soil of the earth to bring forth life, and
24 from an evolutionary point of view you believe
25 that's exactly what happened?

1 A. Well, I just don't find them. They're
2 there. And the way in which I look at Genesis
3 is that Genesis as I read it, and unfortunately
4 I don't read Hebrew, my co-author does, and he's
5 frequently discussed Genesis with me, but as I
6 read English translations of Genesis I see a
7 series of commands of the Creator to the earth
8 and its waters to bring forth life and, you
9 know, without requiring, my church certainly
10 doesn't, without requiring Genesis to be a
11 literal history, you know, that's pretty much
12 what happens, which is that the earth and its
13 waters and so forth brought forth life.

208 14 Q. And that's consistent with evolutionary
15 theory?

16 A. In the broad figurative poetic sense it is
17 consistent with natural history, which underlies
18 evolutionary theory.

19 (Brief pause.)

209 20 Q. I believe you indicated in your direct
21 testimony that you gave testimony down in
22 Georgia in the Sellman vs. De Kalb County case?

23 A. Yes, sir, I did.

210 24 Q. May I approach the witness, Your Honor?

25 THE COURT: Yes you may.

211 1 Q. I'm handing you what's been marked as
2 Defense Exhibit 211.

3 A. Thank you, sir.

212 4 Q. And you'll note from the label on the front
5 cover it appears to be Exhibit 11 from your
6 deposition. Do you recall seeing this in your
7 deposition?

8 A. Yes, I do recall seeing it in my
9 deposition.

213 10 Q. If you turn to page 138, please?

11 A. Okay.

214 12 Q. And starting at line 3 the question was
13 asked, "When you were writing material on
14 evolution, did you add any information on
15 creationism? And then your answer begins at
16 line 5. Would you please read your answer from
17 line 5 down to line 24, please?

18 A. Okay. "Answer: No, we did not, and the
19 reason that once again is that there is no
20 scientific evidence that supports the idea of
21 creationism. Now, it's very important to define
22 what one means by creationism. I'm a Roman
23 Catholic for example, so I believe the universe
24 was created, and you could always say that means
25 you're a creationist. But in the modern usage

1 of that language in the United States the word
2 creationist means something quite different,
3 other than a person who simply believes in a
4 supreme being and thinks that there is meaning
5 and order and purpose to the universe.

6 "In the current usage in the United States
7 creationist is taken to mean someone who thinks
8 that the earth is six to ten thousand years old,
9 that all living organisms were simultaneously
10 created during a very brief period of time,
11 perhaps six days, and that the entire geologic
12 record is an illusion, a column of flood
13 deposition from the single forty day flood that
14 has been misinterpreted for 250 years by the
15 geological sciences as a series, a system of
16 geological ages."

215 17 Q. When you gave that answer you were
18 testifying under oath, sir?

19 A. Yes, sir, I was testifying under oath.

20 MR. MUISE: Your Honor, this might be a good
21 time to take a break, I don't know, if the court
22 is inclined to do so. I'm going to be moving
23 into some new material, so it's sort of a
24 natural break from my perspective.

25 THE COURT: All right. Why don't we take

1 our morning break at this time, and we'll as
2 yesterday break for at least twenty minutes to
3 give everybody an opportunity to do what they
4 need to do. We'll return in twenty minutes.
5 We'll be in recess.

6 (Recess taken at 10:16 a.m. Trial
7 proceedings resumed at 10:47 a.m.)

8 THE COURT: Be seated, please. All right,
9 we're back on the record, and Mr. Muise, we are
10 continuing with cross examination.

11 CONTINUED CROSS EXAMINATION BY MR. MUISE:

216 12 Q. Thank you, Your Honor. Dr. Miller, the
13 concept of complex specified information, that's
14 a component of intelligent design theory?

15 A. I suppose it is. I don't normally hear
16 it when intelligent design theory is explained.
17 I didn't see that exact term in "Pandas and
18 People," I may have missed it, perhaps you
19 pointed out to me, but I do know that there is a
20 person who is generally regarded as part of the
21 intelligent design community named William
22 Dembski who has written about complex specified
23 information, and I can't think of anyone else
24 who has written about it other than Dr. Dembski.

217 25 Q. When you testified on direct and you

1 referred to the section on "Pandas" with
2 the writing in the sand, John loves Mary?

3 A. Yes, sir, I did.

218 4 Q. Is it your understanding that that's the
5 sort of concept that Dr. Dembski is trying to
6 convey with the notion of complex specified
7 information?

8 A. Well, you know, I'm not entirely sure,
9 and we could always ask Dr. Dembski, but it's
10 entirely possible that that's what he refers to.

219 11 Q. And you said this is a concept argued by
12 Dr. William Dembski, is that correct?

13 A. That's my understanding.

220 14 Q. And he has a Ph.D. in mathematics?

15 A. That's what I've been told.

221 16 Q. And his ideas and concepts were published
17 in a book called "The Design Inference," are
18 you familiar with that?

19 A. I've heard of the book.

222 20 Q. Do you know that the book was published by
21 Cambridge University Press?

22 A. I have heard that, too.

223 23 Q. Is Cambridge University Press an academic
24 press?

25 A. It is a press that I understand is owned by

1 Cambridge University in England.

224 2 Q. A prestigious university would you agree?

3 A. Oh, absolutely, no question about that.

225 4 Q. I may want to forewarn the court reporter

5 I have some phyla questions coming up here.

6 Dr. Miller, the octopus belongs to the phylum

7 mollusca, M-O-L-L-U-S-C-A, is that correct?

8 A. Yes, sir, I believe that's correct. Is

9 this going to be a little bit of a biology quiz

10 here, sir?

226 11 Q. I think you'll be prepared for it.

12 A. Okay, I'm ready to go.

227 13 Q. It's not a pop quiz, put it that way.

14 A. Okay.

228 15 Q. The starfish belongs to the phylum --

16 A. Echinodermata. I can help you with these.

229 17 Q. E-C-H-I-N-O-D-E-R-M-A-T-A?

18 A. Right, and that is pronounced

19 echinodermata.

230 20 Q. And an insect belongs to the phylum

21 anthropoda?

22 A. No, sir, arthropoda. That's an R.

231 23 Q. Sorry. A-R-T-H-R-O-P-O-D-A?

24 A. That's correct.

232 25 Q. And a fish, in the example we used a

1 minnow, belongs to the phylum chordata?

2 A. Chordata, that is correct.

233 3 Q. C-H-O-R-D-A-T-A?

4 A. That is correct.

234 5 Q. It's true that there's no fossil evidence
6 that show that these phyla share a common
7 ancestor?

8 A. Let me think about that just for a second.
9 (Brief pause.)

10 A. Within the last year a number of small
11 bilateran fossils have indeed been discovered
12 in fossil formations in China, and these --
13 by bilateran, B-I-L-A-T-E-R-A-N, we mean an
14 organism has an axis of symmetry that goes
15 right down the middle just like we do, and has
16 parts of the body on both sides, hands on both
17 sides, these small bilateran fossils exist in a
18 time period preceding the Cambrian, and they may
19 well turn out to be the ancestors of several of
20 the phyla that you mentioned, and these would
21 include arthropoda and chordata. It's a little
22 more difficult to see how they could be the
23 ancestors of echinodermata, which display
24 radial, or five-fold symmetry.

235 25 Q. If you could go to your deposition at page

1 267?

2 A. Yes, sir.

236 3 Q. In the question beginning on line 12, "Is
4 there fossil evidence that shows that each share
5 a common ancestor," and we're referring to those
6 four phyla that I just asked you about, could
7 you please read your answer?

8 A. Sure, I'd be glad to. The question you
9 asked, is there a fossil evidence that shows
10 these share a common ancestor, the answer is
11 that, "No, we don't have evidence yet of a
12 common ancestor for these four different," I
13 said phylum, but it should be phyla, "we do,
14 however, have molecular evidence from organisms
15 living today, As I mentioned several times, that
16 all these organisms share a common molecular
17 tool kit which is strong evidence on a molecular
18 evidence, and many people would argue that
19 molecular evidence is more important than fossil
20 evidence, that they do share a common ancestor
21 in molecular terms."

22 Now, I would point out, because I'm sure
23 you're about to ask me about the difference
24 between my statement in the deposition, which
25 was taken in May, and my testimony here today,

1 which is in the month of September, and the
2 difference is I've read the paper on these small
3 fossils. This is a new development in science,
4 and that's why my answer today is somewhat
5 different.

237 6 Q. Is the point you make about many people
7 would argue that molecular evidence is more
8 important than fossil evidence, when you say
9 the many people, are you referring to
10 scientists?

11 A. Yes, sir, I am.

238 12 Q. Sir, you testified about the Dover
13 statement in your direct, correct?

14 A. Yes, that's right. I do believe I did
15 testify about the Dover statement.

239 16 Q. And you never spoke to a board member from
17 Dover, is that correct?

18 A. Let me think hard about this.

240 19 Q. Let me rephrase the question. You never
20 spoke to a board member about the statement?

21 A. I don't believe I have spoken to any
22 members of the Dover board of education about
23 any matter. I was just trying to make sure
24 that was correct.

241 25 Q. And you never spoke to any administrator

1 at the Dover area school district about the
2 statement?

3 A. Sir, I believe that's correct, and I also
4 believe that when I became aware that Dover
5 was a community that was discussing this
6 contentious matter of how to teach evolution --

242 7 Q. Sir, did you speak to an administrator
8 from Dover?

9 A. Well, I'm trying to give you an answer.
10 I can't give you yes or no because I did e-mail
11 a number of people in Dover, and I suspect,
12 these are people whose names I got off of the
13 Dover area school district web site, and I don't
14 want to answer yes or no because, you know, one
15 of those people might have been like an
16 assistant superintendent, I can't remember if
17 it was a principal or a department chair, I did
18 send e-mails to a couple of people.

243 19 Q. Were they --

20 A. Sorry, and I'm not being evasive, it's just
21 the question is not being able to recollect who
22 they were, but I want to make sure that the
23 record and the court does reflect that I did
24 indeed send a couple of e-mails to people in
25 Dover saying I would support them, I would be

1 happy to answer their questions about evolution,
2 and you know, one of them might have been an
3 administrator. So that's why I'm being a little
4 fuzzy on this.

244 5 Q. My question was did you speak to any
6 administrator about that statement, the Dover
7 statement that you testified about on direct.

8 A. Under the qualifications that I've just
9 given you, which is, you know, I might have
10 sent an e-mail to somebody who happened to be
11 an administrator, I believe the answer to that
12 is no to the best of my recollection.

245 13 Q. Do you recall if that e-mail discussed this
14 statement in any fashion?

15 A. I don't believe it did, but I can't, I
16 don't have a copy of it and I can't be positive.

246 17 Q. If you turn to your deposition at page 321?

18 A. Okay.

247 19 Q. Starting with the question at line 4, can
20 you read the question and read your answer down
21 through line 12?

22 A. Well, the question is, it presupposes
23 something before it, it says, "Whereas the
24 theory of evolution is not a fact."

248 25 Q. Your answer?

1 A. No. Sorry, my answer is, "No scientific
2 theory is a fact, and the Dover statement is
3 very clear that it uses the theory of evolution
4 in the second sense, because when the statement
5 says Darwin's theory is a theory, and when you
6 talk about Darwin's theory, you are specifically
7 talking about the descent with modification and
8 natural selection." I think it's very difficult
9 to make sense of that answer without the context
10 of the question that precedes it.

249 11 Q. Did you correctly read your answer in the
12 deposition?

13 A. Yes, sir, I did.

250 14 Q. Now, in this statement it says, the Dover
15 statement, "a theory defined as a well tested
16 explanation that unifies a broad range of
17 observations," do you recall this statement
18 has that definition of theory in it?

19 A. Yes.

251 20 Q. And that is a correct and proper definition
21 of theory?

22 A. Yes, and I believe that in my direct
23 testimony I testified that yes, that was
24 I thought a pretty good definition of the word
25 theory.

252 1 Q. And it properly defined the theory of
2 evolution?

3 A. It properly defines a scientific theory,
4 and because the theory of evolution is a
5 scientific theory, yes, it fits the theory of
6 evolution.

253 7 Q. I just want to revisit that question from
8 page 321. Within the context of the preceding
9 question that was addressing the different
10 meanings of evolution that I believe you
11 testified to on direct and that I had asked you
12 on cross whereas evolution can mean change over
13 time or it can also mean evolution as a theory,
14 the processes of how that evolution may have
15 occurred, the first may, is more akin to a
16 historical fact, the second sense is a theory
17 which not a fact, is that the correct context of
18 your answer?

19 A. The correct context of the area, the first
20 part is perfectly fine, you said a theory which
21 is not a fact, and again theories are a higher
22 order of explanation than fact, and in that
23 sense that was correct, right.

254 24 Q. And that's the context for the answer that
25 you gave on page 321 of your deposition?

1 A. Yes, yes, that is right. The reason I
2 wanted to point that out is because my answer
3 begins the second sense, and of course if I just
4 read that into the court record, one has no idea
5 as to what is meant by the second sense without
6 the preceding question.

255 7 Q. And that second sense is the theory sense
8 of the meaning of evolution that we just
9 discussed?

10 A. That's right, which is a coherent testable
11 scientific explanation as to how the process
12 of change over time has taken place.

256 13 Q. If you go to your deposition page 329?

14 A. Sure.

257 15 Q. Again these are more questions I've asked
16 you about that, the Dover statement. If you
17 look at, read the question beginning at line 15,
18 and then your answer that follows?

19 A. Okay. Question, the next sentence, "The
20 reference book 'Of Pandas and People' is
21 available for students who might be interested
22 in gaining an understanding of what intelligent
23 design actually involves. Do you have any
24 problems with that statement? Answer: No, I
25 think the fact that the board has provided that

1 book, made it available to students, and that
2 they have characterized it as a book on
3 intelligent design, that's all a fair statement.
4 So I think that particular statement is
5 something that effectively communicates the
6 reality of the situation to students, which is
7 why we got this book, it's available for you and
8 this book describes intelligent design."

258 9 Q. And just a correction, I believe which is
10 "we got this book," not "which is why we got
11 this book," correct?

12 A. I'm sorry. If I read it wrong I apologize.
13 "Which is we got this book, it's available for
14 you, and the book describes intelligent design."

259 15 Q. Is that a truthful answer?

16 A. Of course it's a truthful answer.

260 17 Q. Sir, would you open up your textbook,
18 Exhibit 214?

19 A. Sure.

261 20 Q. Turn to page 15 for me, please. If you
21 read the paragraph that begins with the words
22 "A useful"?

23 A. Sure. "A useful theory may become the
24 dominant view among the majority of scientists,
25 but no theory is considered absolute truth.

1 Scientists analyze, review, and critique the
2 strengths and weaknesses of theories. As new
3 evidence is uncovered a theory may be revised
4 or replaced by a more useful explanation.
5 Sometimes scientists resist a new way of looking
6 at nature, but over time new evidence determines
7 which ideas survive and which are replaced.
8 Thus, science is characterized by both
9 continuity and change."

262 10 Q. Is that correct with regard to all
11 scientific theories?

12 A. Yes, I believe it was. This is a chapter
13 on the nature of science, and Joe and I wanted
14 to emphasize to the students to scientific views
15 may change over time in light of evidence.

263 16 Q. And that includes the Darwin theory of
17 evolution?

18 A. Darwin's theory is a scientific theory.
19 All theories are characterized by continuity
20 and change, yes.

21 MR. MUISE: No further questions, Your
22 Honor.

23 THE COURT: Thank you, Mr. Muise.
24 Mr. Walczak, do you have any redirect?

25 MR. WALCZAK: Yes, Your Honor.

1 (Brief pause.)

2 REDIRECT BY MR. WALCZAK:

264 3 Q. Good morning, Dr. Miller?

4 A. Good morning.

265 5 Q. I want to cover six or seven points that
6 were raised by Mr. Muise. First of all, if we
7 could put Exhibit 124 on the screen? Is this
8 the four paragraph statement that I asked you
9 to comment on in your direct exam?

10 A. Yes, sir, it is.

266 11 Q. And as Mr. Muise pointed out, this
12 statement was read in January. What I'd like
13 to do now is put up I believe it's Exhibit 131,
14 which is a statement that was read to the
15 students in May or June that was revised
16 slightly. Are you able to highlight, Matt, the
17 four paragraphs? Let me represent to you, and
18 if I'm in error I please would invite an
19 objection, but I believe the only paragraph that
20 is changed in any way is the third one. If you
21 could please read that to yourself?

22 (Brief pause.)

23 A. I have read it, thank you.

267 24 Q. Can you identify what the change would be?

25 A. You're not playing fair. You should have

1 told me to pay attention to the other one and
2 read this one, but I have to tell you I don't
3 see the change right there, I'm sorry.

268 4 Q. Let me see if we can put both --

5 A. I thought Mr. Muise's phylum quiz was going
6 to be tough.

269 7 Q. Just wait until you get my grades. So the
8 one on top is the one from May or June.

9 A. Oh, okay. Now, sir, I see the difference.

270 10 Q. And so what is the difference?

11 A. Well, they left out an apostrophe in the
12 possessive on Darwin's in the June one, and --

13 THE COURT: We've lapsed into English there.

14 A. Your Honor, I'm sorry. It's the teacher in
15 me, I can't help it, and I noticed that as far
16 as I can tell the only other thing is that is
17 the phrase "along with other resources," I think
18 that's correct. Am I missing anything else,
19 Mr. Walczak?

271 20 Q. That's what I can see as well.

21 A. Okay. I don't see any other grammatical
22 mistakes either.

272 23 Q. Besides "Pandas" do they mention what those
24 specific resources are?

25 A. No. The only book I see mentioned in

1 "Pandas," the only book I see mentioned is

2 "Pandas," and other resources unnamed.

273 3 Q. Does this change in the May or June reading
4 of the statement, does this in any way change
5 the opinion which you gave to the court about
6 whether the statement promotes student
7 understanding of science and evolution? Does
8 this change your opinion in any way?

9 A. No, sir, it does not. It's still very
10 clear that in contrast to the second paragraph,
11 which is designed to specifically undermine
12 Darwin's theory of evolution, or the theory of
13 evolution in general, the third paragraph has no
14 such undermining language with respect to
15 "Pandas and People," and that's the only book
16 that it specifically mentions. I think the
17 effect is pretty much the same.

274 18 Q. There's a term that has been used
19 throughout the testimony thus far, and it
20 is "origin of life," and is that term used
21 in a scientific way? Is there a way that
22 scientists use the term origin of life?

23 A. Yes, sir. That term is used in a
24 scientific way.

275 25 Q. And how is that term defined?

1 A. Well, I think the definition is reasonably
2 straightforward, and that is origins of life
3 research is research on, research concerning the
4 conditions on this planet before life first
5 appeared about three and a half billion years
6 ago, and it involves research designed to reveal
7 the pre-biological chemical processes that may
8 have given rise first to self copying or
9 self-replicating molecules, and eventually to
10 the first living cells.

276 11 Q. And is that how you have used the term
12 whenever it's employed in your book?

13 A. I believe it is. It's not something, it's
14 not a question I have thought about in detail,
15 but I believe that's exactly how we used it.

277 16 Q. And when you have testified using that
17 term, either in response to a question, that is,
18 has been your interpretation of origins of life?

19 A. Yes, sir, that is absolutely correct, that
20 origins of life refers to in every sense in
21 which I have used it and Joe Levine has used it
22 in our book and I think in my testimony as to
23 the origin of the first self-replicating
24 molecules and the first living cells on this
25 planet.

278 1 Q. When you use origin of life, you're not
2 talking about origin of man?

3 A. No, absolutely not, sir. I think I've been
4 very careful to use origin of species in terms
5 of referring to that, and human origins or human
6 evolutionary descent is quite a distinct topic
7 from origin of life.

279 8 Q. Mr. Muise asked you a fair bit about your
9 personal religious views.

10 A. Yes, I think he did.

280 11 Q. And he also asked you about religious
12 and philosophical statements made by other
13 scientists.

14 A. Yes, he did, and he I think named probably
15 three of them in particular.

281 16 Q. Professor Dawkins was one?

17 A. Correct.

282 18 Q. Are statements, are these scientific
19 statements?

20 A. No, sir. As I believe I answered for
21 Mr. Muise, none of those statements are
22 scientific in any sense.

283 23 Q. And do scientists make say religious
24 statements?

25 A. Of course they do.

284 1 Q. And philosophical statements?

2 A. Yes, sir, they do. They even make
3 statements about baseball, as Steven J. Gould
4 did frequently, and those are not scientific
5 statements.

285 6 Q. Just because a scientist said something
7 doesn't make it scientific?

8 A. Of course not.

286 9 Q. And are you obviously have strong religious
10 views you published in "Finding Darwin's God?
11 Are these views published anywhere in your
12 biology textbook?

13 A. No, sir, of course not.

287 14 Q. Are they published in any of your
15 scientific journals?

16 A. They are not published in any of my
17 scientific papers.

288 18 Q. Why not?

19 A. Because they aren't science. It's very
20 simple.

289 21 Q. I want to direct your attention to your
22 testimony in the Sellman case about which
23 Mr. Muise asked you, and I believe that's
24 Defendant's Exhibit 211. And Mr. Muise asked
25 you about your testimony there where you were

1 asked about the modern usage of creationism.

2 A. Yes, he did.

290 3 Q. And as I recall your answer was essentially
4 the definition of what would be called young
5 earth creationism.

6 A. Yes. In fact, I don't recall Mr. Muise
7 asking me a question. I recall him asking me
8 to read my testimony, and he did not ask me any
9 questions about the nature of that testimony,
10 and he did not ask for any clarifications.

291 11 Q. It might appear that your testimony in
12 Sellman is inconsistent with what you may have
13 testified yesterday. Can you reconcile the
14 testimony?

15 A. Yes. It's very easy to reconcile that
16 testimony, and that is that in Sellman I should
17 have been much more specific than I was when I
18 said what is generally meant by creationism.
19 And in particular the definition I give to
20 creationism is one that in this trial in order
21 to distinguish it from intelligent design I gave
22 to scientific creationism or young earth
23 creationism.

24 Now, my testimony in Sellman I think could
25 probably be construed if one does not appreciate

1 the sort of general way in which I used the word
2 creationism as to exclude intelligent design as
3 a creationist theory simply because it doesn't
4 make the scientific predictions that young earth
5 creationism does about the geological record and
6 the age of the earth, but in the most general
7 sense it is a form of, it is a form of special
8 creation or special creationism. Again this
9 term was not at issue in the trial in Atlanta,
10 and that's one of the reasons why I did not
11 carefully define that term as I should have in
12 my testimony in Sellman.

292 13 Q. But, Dr. Miller, in Sellman you were in
14 fact asked about intelligent design, were you
15 not?

16 A. My recollection is that I was.

293 17 Q. I'd like you to turn to page 139.

18 A. This is my testimony in Sellman?

294 19 Q. Yes. This would be Defendant's Exhibit
20 211.

21 A. Sir, I'm going to need a copy of it.
22 Mr. Muise gave me one, but then he took it back.

295 23 Q. You don't remember it, sir?

24 A. I've got 138 down pretty well, but 139 I'm
25 having trouble with.

296 1 Q. May I approach the witness?

2 THE COURT: You may.

3 A. Thank you.

297 4 Q. Now, the questions Mr. Muise asked you
5 about your answer to I believe as you put it
6 in the modern usage of creationism was on page
7 138 --

8 A. That's correct, sir.

298 9 Q. -- of the transcript? So now on page 139
10 I'd like you to read for the court line 7
11 through 11, please, beginning with the question
12 there.

13 A. Sure. Line 7 begins, "Question: When you
14 were writing your material on evolution, did you
15 add any information on intelligent design?" The
16 answer is, "No, I did not, and the reason once
17 again is because we have been unable to find
18 scientific evidence supporting the idea of
19 intelligent design."

299 20 Q. Now, let me ask you to turn to the next
21 page and read from line 4 to line 14 on 141,
22 and I'll note that the first question there is
23 by Judge Cooper in that case.

24 A. Perhaps it would help if I read that part
25 to make clear. So I'll begin on line 4 as you

1 requested. "THE COURT: Is it religious based?"

300 2 Q. I'm sorry, excuse me. And did you know
3 what the court was referring to when it says
4 "it" there?

5 A. Oh, excuse me, let me go back to the
6 context. The court is, the term "it" is
7 referring to intelligent design.

301 8 Q. Thank you.

9 A. So with reference to the intelligent
10 design, the transcript begins, "COURT: Is it
11 religious based? WITNESS: The advocates, Your
12 Honor, of intelligent design would argue very
13 strongly that their ideas are not religious
14 based. They would say it is a straightforward
15 conclusion of analysis of information theory and
16 what they regard as the deficiencies of
17 evolutionary theory.

18 "But I think it's also clear that the
19 people who embrace intelligent design in the
20 United States argue very strongly that they have
21 a religious, argue very strongly that if
22 intelligent design is not included, then their
23 own religious beliefs will suffer. So they
24 certainly in my experience many of them have
25 religious motivations for embracing this

1 particular idea.

2 "COURT: How do you see it? WITNESS: Pardon
3 me sir? COURT: How do you see it? WITNESS:
4 How do I see it? I'm a -- if I had to describe
5 myself philosophically, I'd describe myself as a
6 pragmatist, which if it works it's good enough
7 for me. And with respect to intelligent design,
8 I'm still waiting, and I've been waiting for
9 about ten years for intelligent design theory
10 to provide a single testable scientific
11 explanation that holds up under peer review,
12 under scientific analysis, and it simply hasn't.

13 "To put that in terms that my family in
14 southern Indiana, mostly a farming family,
15 would understand, this dog don't hunt. And
16 in the case of intelligent design, I think
17 that's a very good way to describe it."

302 18 Q. Could you, I'm sorry, read on through
19 line 14?

20 A. Yes, sir. "Question by Attorney Michael
21 Minnaeli: Maybe part of what His Honor is asking
22 you about is how you see it in terms of a
23 religion. Intelligent design, positing a
24 designer, a creator Answer: Well, by definition
25 any explanation that requires a creator, an

1 intelligent designer, is religious on its, is
2 certainly religious on its face, and therefore
3 the very fact that intelligent design
4 presupposes a creator makes it so."

303 5 Q. I want to shift focus here a little bit.
6 In the passage you just read, near the end you
7 testified that you're still waiting for a single
8 testable scientific explanation about
9 intelligent design. Mr. Muise asked you a
10 number of questions about whether irreducible
11 complexity was scientifically testable, and I
12 believe you testified in fact that it was,
13 that tests have been done. Is irreducible
14 complexity subject to scientific testing?

15 A. As irreducible, if irreducible complexity
16 is carefully framed the way that Dr. Behe did
17 in his book "Darwin's Black Box," it makes a
18 testable prediction, and that testable
19 prediction is that the parts, the individual
20 components of irreducibly complex machines
21 should have no functions on their own, and that
22 is testable, and as I indicated in my testimony
23 yesterday we can actually carry that test out in
24 many of the systems that Dr. Behe cites, and in
25 every case it fails that test.

1 Now, the test of irreducible complexity
2 as a scientific statement is not a test of
3 intelligent design, and the reason for that is
4 irreducible complexity by itself makes no
5 argument for design. It makes an argument
6 against evolution. And it's that argument,
7 the argument of evolution not working, that we
8 can subject to a scientific test. But that's
9 not proof of design.

10 That's not even an argument for design.
11 That is simply a scientific statement made
12 against evolution that is testable. As I
13 indicated it fails that test, but even if it
14 passed the test, that wouldn't be an argument
15 for design.

304 16 Q. And when you say Dr. Behe and intelligent
17 design have made predictions, would that be the
18 same as hypotheses?

19 A. Yes. I regard certain of the statements
20 that Dr. Behe has made as hypotheses that make
21 testable predictions. For example, he looked at
22 the blood clotting cascade, drew the inference
23 that all the parts of the cascade had to be
24 present for clotting to occur, and used that as
25 an argument from irreducible complexity that the

1 cascade could not have evolved. "Pandas" makes
2 exactly the same argument, and that argument can
3 be subjected to a test. And that is if we find
4 organisms in nature that are missing parts of
5 that cascade, if that prediction is right, their
6 blood should not clot.

7 And I brought into court yesterday two
8 examples, documented examples by science and
9 peer reviewed journals that showed that that
10 prediction was wrong. The blood of whales and
11 dolphins clots, and the blood of the puffer fish
12 clots, and had that prediction been right,
13 neither organism should have been able to clot
14 its blood.

305 15 Q. So one of the hypotheses that's been
16 advanced to support irreducible complexity both
17 in "Pandas" and by Dr. Behe has been refuted?
18 Is that the appropriate scientific term?

19 A. I think refuted, falsified, showed to be
20 incorrect, found out to be wrong are all
21 appropriate scientific terms in this case.

306 22 Q. And would you say the same thing about the
23 prediction that the bacterial flagellum is
24 irreducibly complex?

25 A. Yes, sir, I would. And the reason for that

1 once again is the prediction is that all of the
2 parts are necessary for function. In the
3 absence of any of the parts there is no function
4 that can be favored by natural selection. Once
5 we discover that ten of those parts in a
6 different context have a selectable function,
7 in other words they work, they do something else
8 that's useful to the cell, the hypothesis is
9 tested and found to be wanting. It's falsified.

307 10 Q. And the immune system was another
11 hypotheses used by intelligent design
12 proponents?

13 A. That's correct, sir.

308 14 Q. I believe you pointed to ten or eleven peer
15 reviewed scientific papers and studies that have
16 refuted that hypothesis?

17 A. In the interests in the case of the immune
18 system Dr. Behe made a different prediction.
19 Because the immune system has so many different
20 parts and so many different cells and so many
21 interacting systems that he could not point to a
22 single biochemical cascade like the blood
23 clotting, or a single structure like the
24 flagellum, but instead he pointed to the
25 complexity of the system that shuffles genetic

1 information, makes it possible for us to make
2 antibodies against just about any foreign
3 invader, and he said that system, because it
4 required multiple parts, could never be
5 explained in evolutionary terms. I think he
6 said something to the effect that Darwinian
7 explanations are doomed to failure, and it
8 turns out that ten years of research have proven
9 that Darwinian explanations of that system have
10 been abundantly successful. So in that case
11 that prediction, too, has not borne out.

309 12 Q. So the hypotheses advanced by the
13 proponents of your irreducible complexity
14 have been invalidated?

15 A. They've been invalidated in every case that
16 they've been examined.

310 17 Q. Now, but I'm trying to distinguish
18 irreducible complexity from intelligent design.

19 A. Correct.

311 20 Q. Let's assume that in fact there was support
21 for irreducible complexity. Let's say that all
22 of the scientific studies and literature had
23 come out differently and you had not found an
24 evolutionary pathway. Is that support for
25 intelligent design?

1 A. No, sir, it is not.

312 2 Q. Why not?

3 A. It's not support for intelligent design
4 because intelligent design presupposes a
5 mechanism that exists outside of nature, can't
6 be tested, can't be subjected to natural
7 examination. If irreducible complexity held
8 up, if we couldn't find subsets that were
9 useful, it might mean that these systems had to
10 be assembled by a pathway that was different
11 from the Darwinian pathway, from the
12 evolutionary pathway, and we might then look
13 for another pathway or other evidence in favor
14 of that.

15 Intelligent design would be a possibility,
16 but intelligent design is always a possibility
17 for everything. It's entirely possible that
18 this universe was intelligently designed ten
19 seconds ago, and each of us was put here with
20 false memories and false childhoods. That's not
21 a testable hypothesis. Is it possible? Yeah,
22 sure. The problem with intelligent design as a
23 scientific explanation is that it can be used
24 to explain in non-scientific terms literally
25 anything, and that's why it is not science.

313 1 Q. If you could recap, what are, you talked at
2 the very beginning of your testimony you talked
3 about the ground rules of science, what are
4 those ground rules?

5 A. Well, I have to think very hard, because if
6 I don't replicate my testimony exactly I'm sure
7 Mr. Muise will have something to say about it,
8 but I think the ground rules of science in the
9 most general sense are that science is limited
10 to the natural world. We do science based on
11 what we can see, what we can observe, what we
12 can test. Experiments we can carry out,
13 control, and watch.

14 We then look at the results of those
15 experiments, we try to make inferences based
16 on them, and we try to formulate testable
17 hypotheses on the basis of that evidence. Then
18 go out in the world and carry out those tests.
19 The explanations that we put forward as testable
20 hypothesis qualifies as science only if they are
21 natural explanations, because if they are not
22 natural explanations they can't be tested, and
23 that would render them outside of science.

24 And then finally the other ground rules
25 that I'm sure I mentioned in one context or

1 another is that science and scientific methods
2 have to be open, they have to be made freely
3 available for the criticism of other scientists.
4 We often call that peer review in the formal
5 sense, and they have to be repeatable in the
6 sense that other scientists can carry out the
7 same experiments, the same investigations, make
8 similar observations, and either confirm or deny
9 the results that we have gotten.

314 10 Q. So taking those ground rules of science and
11 applying them to the inference for design, not
12 the irreducible complexity.

13 A. Yes, sir.

315 14 Q. The inference for design, does that
15 inference lead to rules of science?

16 A. No, sir, not by any sense.

316 17 Q. And why not?

18 A. It does not meet it because the idea of
19 design is that forces acting outside of a
20 natural world that we cannot see, cannot
21 replicate, cannot control, and cannot test
22 have produced changes inside the natural world.
23 Now, they may well have. You remember my tongue
24 in cheek explanation of the success of the Red
25 Sox. They may well have, but that explanation

1 is not testable by science, and therefore it
2 cannot qualify as part of the scientific process
3 or as the scientific theory hypothesis or idea.

317 4 Q. Does that make it wrong?

5 A. No, sir, it does not make it wrong.
6 Explanations based on the supernatural could
7 always be corrected, but since they lie outside
8 the mechanisms of science to investigate, they
9 are simply not part of science.

318 10 Q. Are there any peer reviewed publications,
11 or scientific papers as you put it, on your
12 curriculum vitae to support this inference for
13 design?

14 A. I have not found a single peer reviewed
15 paper anywhere in the scientific literature
16 that supports the idea of intelligent design.

319 17 Q. I want to cover one more area that
18 Mr. Muise raised. Unanswered questions, there
19 are unanswered questions in evolution.

20 A. I certainly hope so. Or evolutionary
21 researchers are out of business as of today.

320 22 Q. You testified in fact there are unanswered
23 questions in every scientific theory?

24 A. Yes, sir, there are.

321 25 Q. Do we know everything there is to know in

1 other areas of study, let's say history?

2 A. Certainly not. My daughter, my younger
3 daughter is a history teacher, majored in
4 history, specialized in studying the American
5 Revolution. There are unanswered questions in
6 the history of our own republic. So the answer
7 is yes.

322 8 Q. Do we know everything there is to know
9 about the battle of Gettysburg?

10 A. Well, we know who won. At least we're
11 pretty sure who won. And we know where it took
12 place, we know when it took place. We know the
13 generals on both sides. We know some of the
14 troop deployments. But if you were for example
15 to say let's take a particular soldier from a
16 Rhode Island regiment who wrote home to his
17 family on day two of the battle of Gettysburg,
18 we might know something about that, but you
19 know, we might not know where he was or what he
20 was on day one or where he was or what he did on
21 day three.

22 Now, I dare to say that there are thousands
23 of examples in which we do not know exactly
24 what happened in a particular place on that
25 battlefield at a particular time. Another way

1 of putting it is that there are gaps in the
2 historical record. But those gaps, they're
3 worth filling, they're interesting, because we'd
4 like to know what every soldier did on both
5 sides in this pivotal battle in American
6 history. So those gaps are unacceptable, and
7 historians try to fill them.

8 If you discovered the unknown diary of a
9 soldier who had been at Gettysburg, that would
10 be great stuff. Give it to a historian, they'd
11 write papers about it, they'd thank you. But
12 none of this changes the conclusions that we can
13 make from the abundant historical record that
14 already exists as to where, when, and how the
15 battle took place, or what the ultimate outcome
16 was. So we can make accurate and even profound
17 historical conclusions without having a complete
18 historical record.

323 19 Q. You're talking about history here. Does
20 that analogy apply to science?

21 A. Of course it does, because natural history
22 is part of scientific investigation. Much of
23 geology is historical in the sense that it tries
24 to understand the processes that made up our
25 earth. Much of cosmology and astronomy is

1 historical in the sense that it tries to
2 understand what has put together our universe,
3 our solar system, and other things out there in
4 the universe, and a great deal of biology is
5 historical in that paleontology and even through
6 molecular genetics we try to reconstruct what
7 happened in the past.

324 8 Q. And does the fact that we don't know all
9 the details undermine the soundness of
10 evolutionary theory?

11 A. No, sir, it certainly does not.

12 MR. WALCZAK: May I have just one moment,
13 Your Honor?

14 THE COURT: You may.

15 MR. WALCZAK: I have no further questions.

16 THE COURT: We'll give Mr. Muise the last
17 shot. Any recross?

18 MR. MUISE: No further questions.

19 THE COURT: You may step down.

20 MR. MUISE: I have forgot the exhibits.

21 THE COURT: Do you have an agreement as to
22 the exhibits, the numbers? I can read you the
23 roster of what I have, and you can work along
24 with me as we do this. I have P-11, pages 7,
25 37, 65, 99, 100, 139, 140, 145, 146, and 150.

1 Does that pick up everything in P-11?

2 MR. WALCZAK: I believe it does, Your Honor,
3 but we would move the entire book into evidence.

4 THE COURT: Any objection?

5 MR. GILLEN: Not at all, Your Honor.

6 THE COURT: P-11 is admitted in its
7 entirety. Then we have the following additional
8 exhibits. P-31, P-124, P-127, P-192, P-198,
9 214, P-214 that is, and P-245. Any objection to
10 those?

11 MR. GILLEN: No objections, Your Honor.

12 THE COURT: All right. They're admitted.
13 P-434, I'm not sure what that is. What is 434?

14 MR. WALCZAK: I'm sorry, Your Honor? 434?

15 THE COURT: 434 I think is "Darwin's Black
16 Box," I'm not sure.

17 COURTROOM DEPUTY: Yes, it is.

18 THE COURT: There are certain pages referred
19 to in that, 39,130, and 139. Is your pleasure
20 to admit the book or the pages?

21 MR. WALCZAK: We'd move to admit the book.

22 THE COURT: All right. Any objection?

23 MR. GILLEN: We have no objection, Your
24 Honor.

25 THE COURT: All right, that's admitted in

1 its entirety. P-643, again I'm not sure what
2 P-643 is. That is --

3 COURTROOM DEPUTY: Excerpt of Nature
4 Magazine, September of 2001.

5 THE COURT: That is page 69 from Nature
6 Magazine. I'm assuming you probably want to
7 admit the page only, but tell me if I'm
8 incorrect.

9 MR. WALCZAK: We actually like to admit the
10 article that starts on page 69.

11 THE COURT: Any objection?

12 MR. GILLEN: No objection.

13 THE COURT: All right. The entire article
14 is admitted, that is P-643 in its entirety.
15 649 was --

16 COURTROOM DEPUTY: A magazine article in the
17 National Academy of Science.

18 THE COURT: There were three pages referred
19 to. 27, 5, and 16.

20 MR. WALCZAK: We propose to admit that
21 entire publication.

22 MR. GILLEN: No objection, Your Honor.

23 THE COURT: All right. 649 is admitted,
24 P-649 in its entirety. We also have P-654 and
25 P-665. Any objection to either of those?

1 MR. GILLEN: No, Your Honor.

2 THE COURT: All right. They're admitted.

3 Any other plaintiff's exhibits that we have
4 missed, Mr. Walczak?

5 MR. WALCZAK: Some others, Your Honor.

6 THE COURT: Because of the abundance of
7 exhibits, should you miss something, and this
8 will, I'll afford the same courtesy obviously
9 to the defense, we'll double back. We're going
10 to do the best we can to get them in, but if you
11 discover for example over the lunch break that
12 we forgot something, we'll take it up. That's
13 all I have.

14 MR. WALCZAK: Your Honor, 192 is the
15 publication from the National Academy of
16 Sciences.

17 THE COURT: I recited that, and that's
18 admitted.

19 MR. WALCZAK: That entire exhibit?

20 THE COURT: Yes.

21 MR. WALCZAK: Your Honor, we would also
22 offer for the aid of the court the demonstrative
23 exhibits that Dr. Miller relied on, and it's not
24 necessarily to come in as evidence, but as Your
25 Honor is reviewing the transcript they might be

1 of assistance to the court.

2 THE COURT: In particular?

3 MR. WALCZAK: There were the five
4 demonstrative exhibits with the slides I believe
5 that's on the chimpanzee genome, hemoglobin, the
6 bacterial flagellum, blood clotting cascade, the
7 immune system.

8 THE COURT: In what form do you want to put
9 those into the record? Do you have them
10 printed?

11 MR. WALCZAK: Yes, Your Honor, I do believe
12 there are prints of the slides that are already
13 in the exhibit binder.

14 THE COURT: I was looking at them on the
15 screen, so I didn't look at the binders.
16 They're shaking their heads no, there may not
17 be. If you want to supplement the record
18 inasmuch as they were referred to and see if we
19 can have an agreement, that's one where I'll
20 allow you to double back if you want to, to put
21 them in.

22 MR. WALCZAK: Your Honor, Mr. Gillen and I
23 have quickly reached agreement that we would
24 agree to produce these slides of both of our
25 respective demonstratives.

1 THE COURT: The nods of the heads would
2 indicate a meeting of the minds. So however
3 you get them in, and why don't you mark them
4 appropriately and we'll get them in at that
5 time, and that would go for any demonstrative
6 exhibits. Now, on cross examination by
7 Mr. Muise, I have D-233, D-214, D-210, and
8 D-211. Mr. Muise, your pleasure on that. Do
9 you want to wait, or do you want to move to
10 admit them now?

11 MR. MUISE: We had 214, Your Honor, the
12 biology book, would you mind if we have that
13 admitted at this time?

14 THE COURT: I couldn't hear you. Say again?

15 MR. MUISE: The biology book, 214?

16 THE COURT: You want to admit that?

17 MR. MUISE: We want to admit that, Your
18 Honor. Exhibit 210.

19 THE COURT: I have 210.

20 MR. MUISE: We'd also admit --

21 MR. WALCZAK: I'm sorry, Your Honor.

22 THE COURT: 210 is the article. So you
23 want to move 214 and 210. Any objection,
24 Mr. Walczak?

25 MR. WALCZAK: No, Your Honor.

1 THE COURT: All right. They are admitted.

2 How about 233 and 211?

3 MR. MUISE: We'll move for the admission of
4 233, Your Honor.

5 THE COURT: Mr. Walczak?

6 MR. WALCZAK: What is that?

7 MR. MUISE: The Pennsylvania academic
8 standards.

9 MR. WALCZAK: No objection to those.

10 THE COURT: 233 is admitted. And finally
11 211?

12 MR. MUISE: We're not going to move for the
13 admission of 211, Your Honor.

14 THE COURT: So D-233, D-214 and D-210 are
15 admitted. Plaintiffs will be granted leave to
16 submit the demonstrative exhibits in some form,
17 and you can mark those appropriately and we'll
18 take those out of turn at that point. That
19 would seem to cover all the exhibits for that
20 witness. And you may call your next witness.
21 We'll go until about 12:15 I think. So there's
22 certainly time to start the next witness.

23 MR. HARVEY: Your Honor, the plaintiffs call
24 to the stand plaintiff Tammy Kitzmiller.

25 (Tammy Kitzmiller was called to testify and

1 was sworn by the courtroom deputy.)

2 COURTROOM DEPUTY: Please be seated and
3 state your full name for the record.

4 THE WITNESS: Tammy Kitzmiller.

5 DIRECT EXAMINATION BY MR. HARVEY:

325 6 Q. Please restate your name.

7 A. Tammy Kitzmiller.

326 8 Q. You're a plaintiff in this action?

9 A. Yes, I am.

327 10 Q. Ms. Kitzmiller, please tell us where you
11 live.

12 A. 2045 Andover Drive in Dover.

328 13 Q. And how long have you lived at that
14 address?

15 A. With the exception of the time period
16 between December 2001 and August 2003 I've
17 lived in the Dover school district since 1993.

329 18 Q. Do you have children?

19 A. Yes, I do.

330 20 Q. How many children do you have?

21 A. I have two daughters.

331 22 Q. Please tell us their names, just their
23 first names, and their ages.

24 A. Megan is 17, and Jessica is 15.

332 25 Q. Do they attend school?

- 1 A. Yes, they do.
- 333 2 Q. Please tell us what school they attend and
3 the grades.
- 4 A. They're high school. Megan is a senior,
5 and Jessica is a sophomore.
- 334 6 Q. So that means that Jessica is in 10th grade
7 right now?
- 8 A. Yes.
- 335 9 Q. In Dover High School, correct?
- 10 A. Correct.
- 336 11 Q. And did Jessica take the biology class when
12 she was in 9th grade?
- 13 A. Yes, she did.
- 337 14 Q. Was that in the 2004-2005 school year?
- 15 A. Correct.
- 338 16 Q. How long have your daughters been attending
17 public school in Dover?
- 18 A. Since kindergarten.
- 339 19 Q. Please just tell us where you went to high
20 school.
- 21 A. Bermudian Springs.
- 340 22 Q. Did you have any formal education past high
23 school?
- 24 A. No.
- 341 25 Q. And please tell us what you do for a

1 living?

2 A. I'm an officer manager for a landscape
3 company.

342 4 Q. Ms. Kitzmiller, did there come a time when
5 you learned that the Dover area school district
6 board of directors was considering approval of a
7 biology textbook?

8 A. Yes. That would have been the summer of
9 2004.

343 10 Q. Do you remember the month, what month it
11 was?

12 A. I believe it was June.

344 13 Q. And can you tell us what -- first of all
14 tell us how you learned about it.

15 A. Through the newspapers.

345 16 Q. Do you specifically remember which
17 newspapers?

18 A. It would either have been the York Dispatch
19 or the York Daily Record.

346 20 Q. Tell us what you learned.

21 A. There was a question which biology book
22 the school would approve. I also learned that
23 certain board members had a problem with the
24 biology book. There were statements made that
25 it was laced with Darwinism. They also wanted

1 to balance the biology curriculum with
2 creationism.

347 3 Q. And then did you subsequently learn
4 anything more about the approval of a biology
5 textbook?

6 A. Yes. From what I can recall I remember
7 the books being approved with the exception that
8 they also wanted a supplemental book, "Of Pandas
9 and People," in the classroom.

10 MR. GILLEN: Your Honor, just for
11 clarification, I want to make sure that we
12 have preserved our standing objection to the
13 hearsay in the newspaper articles. There's
14 testimony about that based on our motions in
15 limine.

16 THE COURT: We'll note the objection and
17 the standing objection as it relates to the
18 newspaper article. It may be in a different
19 context with respect to this witness, so feel
20 free if you want to restate it in a different
21 context, but I'll certainly grant that standing
22 objection per your motion in limine.

23 MR. GILLEN: Thank you, Your Honor.

24 BY MR. HARVEY:

348 25 Q. Ms. Kitzmiller, did there come a time when

1 you learned that the board of directors of Dover
2 area school district had changed the biology
3 curriculum?

4 A. Yes.

349 5 Q. And when did you learn that?

6 A. When the resolution was passed in October
7 of 2004.

350 8 Q. And what did you learn?

9 A. I learned that they would be reading a
10 statement to the biology class.

11 THE COURT: Let me stop you for a second.

12 I think we're going to have trouble hearing
13 you, and I know that's hard, you probably
14 haven't testified before and you don't want
15 to talk any louder. Why don't you move the
16 microphone just a little bit closer? I'm
17 guessing the people can't hear. Try that.

18 You don't have to get right on top of the
19 microphone, that should be all right. You
20 may proceed.

21 MR. HARVEY: Your Honor, may I approach
22 the witness with an exhibit?

23 THE COURT: You may.

24 BY MR. HARVEY:

351 25 Q. Matt, if you can, please, put it up on the

1 screen. That's P-127. Ms. Kitzmiller, I've
2 handed you what's been marked as P-127. Have
3 you had a chance to look at it?

4 A. Yes. I have seen this at home.

352 5 Q. Can you tell me what it is?

6 A. Yes. It is a biology curriculum update
7 which was a newsletter that was mailed to
8 residents in the Dover district.

353 9 Q. Do you know where it was mailed from or
10 who mailed it?

11 A. From the school district.

354 12 Q. And did you receive it in the mail?

13 A. Yes, I did.

355 14 Q. And can you tell us, your daughter was in
15 the biology class in January of -- excuse me,
16 2004, when this segment on evolution was
17 introduced, correct?

18 A. 2005.

356 19 Q. Thank you very much. And can you tell us
20 your understanding of how the change to the
21 biology curriculum was implemented in the
22 classroom?

23 A. Yes. The statement that's referenced at
24 the bottom of the curriculum update, an
25 administrator or walked into the classroom --

1 well, I'm guessing that if there were students
2 that objected or parents that opted their
3 children out, they left the room, and then an
4 administrator walked in and read the statement,
5 leaving no room for questions, answers, and then
6 they left.

357 7 Q. How do you know what happened?

8 A. My daughter was in the class. She opted
9 out.

358 10 Q. And do you know why she opted out?

11 A. She didn't want to be singled -- well, she
12 didn't feel she should be singled out, but she
13 also did not feel she needed to be in the
14 classroom if her teacher didn't have to be
15 there.

359 16 Q. Now, I'd like to know if you can tell us
17 whether you feel that you've been harmed by the
18 actions of the Dover area school district board
19 of directors.

20 A. Absolutely. I feel that they have brought
21 a religious idea into the classroom, and I
22 object to that. I do not think that this is
23 good science. There seems to be no controversy
24 within the scientific community, and I would
25 think the biggest thing for me as a parent, my

1 14-year-old daughter had to make the choice
2 whether to stay in the classroom and listen to
3 the statement, be confused, not be able to ask
4 any questions, hear any answer, or she had to be
5 singled out, go out of the classroom and face
6 the possible ridicule of her friends and
7 classmates.

8 MR. ROTHSCHILD: We have no further
9 questions.

10 THE COURT: Cross examination, Mr. Thompson?

11 CROSS EXAMINATION BY MR. THOMPSON:

360 12 Q. Mrs. Kitzmiller, I'm Richard Thompson. I'm
13 representing the defendants in this case. How
14 many school board meetings did you attend in
15 the year 2004?

16 A. Off the top of my head, I attended in
17 November and December, that probably would have
18 been four.

361 19 Q. When is the first time you attended a
20 school board meeting in 2004?

21 A. It would have been in November.

362 22 Q. In November?

23 A. Yes.

363 24 Q. That was after the policy itself was voted
25 on by the school board, is that correct?

1 A. Correct.

364 2 Q. And so you really were not involved or
3 did not hear of the debate that was going on
4 in the school board on that particular policy,
5 personally hear that debate, is that correct?

6 A. I had no personal knowledge, no.

365 7 Q. You had no personal knowledge of it?

8 A. No.

366 9 Q. Now, also most of the information that you
10 just gave your counsel was based upon your
11 reading of accounts in the newspapers, is that
12 correct?

13 A. That's correct.

367 14 Q. And so you don't know whether those
15 accounts were accurate or not as they reflected
16 the debate of the school board when they were
17 determining whether to implement the policy or
18 not, is that correct?

19 A. I would have to say that's correct.

368 20 Q. Okay. Now, you were referred to a
21 newsletter that you got in February 2005,
22 is that correct?

23 A. Correct.

369 24 Q. And did you object to the parents being
25 informed of what the school board was going to

1 do? Not the exact substance, but being informed
2 what the school board was going to do, were you
3 pleased at least to be notified of what they
4 intending to do?

5 A. That's a tough question. Obviously the
6 school district has a right to release the
7 information as to what they're going to do.
8 The manner in which it was done I would have
9 questions with.

370 10 Q. You mentioned about your daughter having to
11 opt out of that particular science class when
12 they read this one minute statement, is that
13 correct?

14 A. Correct.

371 15 Q. Now, there are opportunities that the
16 school board gives parents to have their
17 children opt out on many different kinds of
18 subject matter, is that correct?

19 A. That's correct.

372 20 Q. They have a very lenient opt out policy,
21 is that correct?

22 A. I would assume, yes.

373 23 Q. Yes. Okay. Now, one of the -- or the only
24 book that the school board mentioned by name was
25 "Of Pandas and People," is that correct?

1 A. That's correct.

374 2 Q. Do you know whether your daughter has ever
3 read any part of "Pandas and People"?

4 A. I have no knowledge that she has.

5 MR. THOMPSON: Okay. No further questions.

6 THE COURT: Mr. Harvey, any redirect?

7 MR. HARVEY: No redirect, Your Honor.

8 THE COURT: You may step down. Thank you.

9 Do you want to take another witness?

10 MR. HARVEY: Absolutely, Your Honor.

11 Plaintiffs call to the stand Aralene B.

12 Callahan.

13 (Aralene Callahan was called to testify
14 and was sworn by the courtroom deputy.)

15 COURTROOM DEPUTY: Please state and spell
16 your full name.

17 THE WITNESS: My name is Aralene Joan.

18 Callahan. My nickname is Barrie. A-R-A-L-E-N-E,

19 C-A-L-L-A-H-A-N. Barrie is B-A-R-R-I-E.

20 MR. HARVEY: Your Honor, I have a notebook
21 of exhibits, all of them that are just a
22 complication of some of the exhibits in the
23 binder. I'd like to give it to the witness.

24 THE COURT: You may, sure.

25 DIRECT EXAMINATION BY MR. HARVEY:

375 1 Q. Mrs. Callahan, please tell us where you
2 live.

3 A. 2030 Skytop Trail. Dover, Pennsylvania
4 17315.

376 5 Q. How long have you lived there?

6 A. About thirty years.

377 7 Q. Are you married?

8 A. Yes.

378 9 Q. Tell us your husband's name, please.

10 A. Frederick Brian Callahan.

379 11 Q. Do you have children?

12 A. Yes.

380 13 Q. How many children do you have?

14 A. Three.

381 15 Q. Please tell us their names and their ages.

16 A. Arie is 23, Danny's almost 21, and Katie is
17 almost 17.

382 18 Q. Do any of them attend school in the Dover
19 area school district?

20 A. Yes.

383 21 Q. Which child?

22 A. Katie.

384 23 Q. And what school does she attend?

24 A. Dover area high school.

385 25 Q. What grade is she in?

1 A. 11th.

386 2 Q. Please tell us what high school you went
3 to.

4 A. Lower Marion High School.

387 5 Q. Do you have any formal education beyond
6 high school?

7 A. Yes.

388 8 Q. Please tell us what formal education you
9 have.

10 A. I have a B.S. from Ursinus College.

389 11 Q. What do you have a B.S. in?

12 A. Psychology.

390 13 Q. And did you at any time serve on the Dover
14 area school district board of directors?

15 A. Yes.

391 16 Q. Please tell us what years approximately to
17 the best of your recollection you served on the
18 board of directors.

19 A. I think it started in '93. I know it ended
20 in 2003.

392 21 Q. Do you know what month of 2003?

22 A. November of 2003 would have been my last
23 meeting.

393 24 Q. During the time that you were on the Dover
25 area school district board of directors did the

1 board have retreats?

2 A. Yes.

394 3 Q. What's the first board retreat that you can
4 remember?

5 A. The first board retreat using the word
6 retreat was in January of 2002.

395 7 Q. And can you remember specifically what
8 happened at that retreat?

9 A. Specifically at that retreat I don't know.

396 10 Q. What's the next board retreat that you
11 recall after the retreat in January of 2002?

12 A. That would have been March of 2003.

397 13 Q. Do you know Allen Bonsell?

14 A. Yes.

398 15 Q. Who is Allen Bonsell?

16 A. Allen Bonsell at that time was a school
17 board member also.

399 18 Q. And did Mr. Bonsell have at that point
19 in March of 2003, did Mr. Bonsell have any
20 positions with respect to committees on the
21 board?

22 A. He I believe the entire time that I served
23 on the board with him he was chairman of the
24 curriculum committee. He may have had other
25 committee positions, but I can't recall.

400 1 Q. Now, do you remember a part of this retreat
2 in March of 2003 where the board members went
3 around the room and expressed issues that were
4 of concern to them?

5 A. Yes.

401 6 Q. And tell us what you remember just
7 generally about how that process worked.

8 A. Each board member had some time to talk
9 about issues that were of concern to them at
10 that time.

402 11 Q. Do you remember what Allen Bonsell
12 identified for as issues of concern to him
13 at that time?

14 A. Yes, I do. He expressed that he did not
15 believe in evolution, and he also said that if
16 evolution was part of a biology curriculum,
17 creationism had to be shared 50/50.

403 18 Q. Did you take notes during that board
19 meeting?

20 A. Yes.

404 21 Q. What did you write down generally during
22 that board meeting?

23 A. Just different notes that people had said.
24 I wrote down a couple of things that were
25 concerns of mine also.

405 1 Q. When did you take these notes?

2 A. As I was attending the meeting.

406 3 Q. And as the people were speaking?

4 A. Yes.

407 5 Q. Now, I'd like you to take a look at what's

6 been marked as P-641. It's in the notebook in

7 front of you. Do you recognize P-641?

8 A. Yes.

408 9 Q. Tell us what it is.

10 A. It's the agenda from the board

11 administration -- excuse me, board

12 administrative retreat from March 26th, 2003.

409 13 Q. And do you know where this document came

14 from?

15 A. It came from my home.

410 16 Q. And how was it that, tell us how it came

17 to be in your home.

18 A. Well, it was in a pile of board information

19 that I still had.

411 20 Q. And is there anything written on this

21 document about what Allen Bonsell said at that

22 meeting in March of 2003?

23 A. It has, "Allen - American history, founding

24 fathers." Then "50/50 evolution versus

25 creationism," and then an arrow from evolution,

1 "Does not believe in evolution."

412 2 Q. Now, do you remember anything else that
3 Mr. Bonsell said at that meeting?

4 A. No.

413 5 Q. I'd like you to look at the second page of
6 what's been marked as P-641. Do you see that?

7 A. Yes.

414 8 Q. And what's that?

9 A. These were the school board members' issues
10 from the previous year.

415 11 Q. And was it part of the first page of P-641?

12 A. It was on the back of that document.

416 13 Q. And do you know who created this?

14 A. I believe Dr. Nielsen created it.

417 15 Q. Do you know how he created it?

16 A. I believe what he did as school board
17 members were talking about their issues, he
18 jotted them down and then kept them and
19 distributed them.

418 20 Q. And there's a note on there under the name
21 Allen Bonsell?

22 A. Yes.

419 23 Q. Do you see that?

24 A. Yes.

420 25 Q. Can you please read what it says under

1 number 1 and 2 under Allen Bonsell?

2 A. Creationism number 1. Number 2, prayer.

421 3 Q. And do you remember him saying that?

4 A. Not at that time, but I do remember him
5 talking about creationism. I remember him
6 talking about creationism, because that spurred
7 me to go to the high school to go talk to
8 administrators about it.

422 9 Q. And tell me the circumstances under which
10 you went to the high school and talked to
11 administrators about that.

12 A. It was after I heard Allen Bonsell speak
13 about creationism I talked to Bob Hamilton, who
14 at that time was the principal of the high
15 school, and Larry Reading, who was the assistant
16 principal at the high school, and I was
17 expressing my amazement that a school board
18 member would want creationism as part of a
19 biology curriculum.

423 20 Q. And if you'd just please turn to the first
21 page of 641 again, those notes that you read?

22 A. Yes.

424 23 Q. Whose handwriting is that?

24 A. That's mine. I'm not proud of that.

425 25 Q. Now, we're going to move off that exhibit

- 1 for just a minute now, and I'd like to ask
2 you about a different subject. Did the board
3 approve funds for a biology textbook in 2003?
- 4 A. Yes.
- 426 5 Q. Were you on the board at the time?
- 6 A. Yes.
- 427 7 Q. Did this approval for funding cover any
8 other textbooks?
- 9 A. Yes.
- 428 10 Q. What textbooks did it cover?
- 11 A. It covered all the textbooks that were
12 going to be bought that were part of the science
13 curriculum, and also family and consumer
14 sciences.
- 429 15 Q. Was there any schedule for buying
16 textbooks?
- 17 A. The now superintendent Richard Nielson,
18 who had been when he was the assistant
19 superintendent had established a 7-year
20 curriculum cycle, which was very beneficial
21 in terms of budgeting I thought.
- 430 22 Q. What month of 2003 was it that the funding
23 for the science textbooks was approved?
- 24 A. June.
- 431 25 Q. Now, after that approval for the funding of

1 the science textbooks did the board approve the
2 purchase of a biology textbook?

3 A. No.

432 4 Q. Did you raise the issue at any time when
5 you were on the board?

6 A. Yes.

433 7 Q. How did you raise it?

8 A. I repeatedly asked what the status was of
9 purchasing the biology book, and not only the
10 biology book. There were some chemistry books
11 that hadn't been ordered, and there were also
12 some family and consumer science books that
13 hadn't been ordered, and I know at one point,
14 and I believe it was August of that year, I even
15 made this motion myself to approve those books
16 since they had already been approved in the
17 budget, but they died, that motion died for lack
18 of a second.

434 19 Q. And did anybody on the board tell you why
20 the approval of the purchase of the textbook was
21 not passing?

22 A. No.

435 23 Q. Did this affect your daughter?

24 A. Yes.

436 25 Q. What grade was your daughter in at the

1 point?

2 A. My daughter was in 9th grade September of
3 2003.

437 4 Q. How did this affect your daughter?

5 A. She didn't have a biology book to take
6 home. There were biology books on the shelf,
7 but they were merely used as reference. It was
8 my understanding that they weren't matching the
9 curriculum, and the teachers were hoping to get
10 their new biology books that they had reviewed
11 and had been approved in the budget.

438 12 Q. Now, your time on the board I believe you
13 testified was over in November of 2003?

14 A. Yes.

439 15 Q. Did you raise the issue of the approval of
16 a purchase of a biology textbook after your term
17 on the board expired?

18 A. Yes.

440 19 Q. And how did you raise it?

20 A. I would approach the school board at a
21 public session during public comments and ask
22 the status of the biology books.

441 23 Q. How many times did you raise that concern?

24 A. I think altogether when I was on the board
25 and off the board it may have been five or six

1 times.

442 2 Q. And what happened when you raised it with
3 the board in those cases?

4 A. I would pretty much get a non-answer.

443 5 Q. Did you attend a meeting of the Dover area
6 school district board of directors on June the
7 7th, 2004?

8 A. Yes, I did.

444 9 Q. Why did you go to that meeting?

10 A. It was still, the major area of concern was
11 these books hadn't been approved. I mean, my
12 daughter had already gone through biology and
13 didn't have a biology book. Well, the chemistry
14 books hadn't been approved yet, and she was
15 going to be taking chemistry. I was really
16 going to be upset if she was going to be in a
17 class that didn't have a chemistry book to take
18 home.

445 19 Q. Now, I'd like you to take a look at what's
20 been marked as P-42 in your notebook. Matt, can
21 you please put it on the screen? Take a look at
22 P-42 and tell us what it is.

23 A. This is the school board planning agenda
24 meeting from June 7th, 2004.

446 25 Q. I'd like to focus on the language that I'm

1 going to have highlights in bold from P-42. Do
2 you see those words "planning meeting"?

3 A. Yes.

447 4 Q. What does that mean?

5 A. That means that it's scheduled as a
6 planning meeting, and what the practice of the
7 school board had been, the first meeting of the
8 month typically was a planning session. I mean,
9 there might be an action item, but that would be
10 if there's for instance like an emergency
11 appointment, typically that was the planning
12 meeting. Then the second meeting of the month
13 was the action meeting.

448 14 Q. I just got a glass of water and you're
15 actually doing more talking than me. Would
16 you like a glass of water?

17 A. Please. Thank you.

449 18 Q. Now, did you see this agenda at or around
19 June 7th, 2004? We're on P-42, ma'am.

20 A. Yes. Just to make sure, yes.

450 21 Q. Can you tell us if this agenda shows that
22 the board was scheduled to consider approval of
23 any textbooks?

24 A. Yes.

451 25 Q. Which textbooks was it scheduled to

1 consider approval of?

2 A. Chemistry, and family and consumer science.

452 3 Q. What about approval for biology? Was

4 that --

5 A. No.

453 6 Q. Did you speak at that meeting?

7 A. Yes.

454 8 Q. Tell us what you said at that meeting.

9 A. As far as I can remember, when I'm looking
10 at the agenda and I see that well, there were
11 science books, chemistry and family and consumer
12 sciences ready to be approved, but there was no
13 biology books. So I felt that I just had to
14 approach the board one more time and ask them
15 why the biology books were not scheduled for
16 approval.

455 17 Q. And is that what you said?

18 A. Yes.

456 19 Q. And do you recall what the board said back
20 to you?

21 A. I do recall that Bill Buckingham said to
22 me, "Well, the biology book is laced with
23 Darwinism."

457 24 Q. Who is Bill Buckingham?

25 A. Bill Buckingham was a school board member

1 at the time.

458 2 Q. Did he have responsibility for any
3 particular committee on the board at that time?

4 A. At the time he would have been chair of the
5 curriculum committee.

459 6 Q. What did you do after Mr. Buckingham made
7 that comment about laced with Darwinism to you?

8 A. I said, "So this is about evolution."

460 9 Q. Did you say anything else?

10 A. No.

461 11 Q. And did he say anything else?

12 A. At that time I don't recall that he said
13 anything else.

462 14 Q. Tell us what happened next.

15 A. I sat down, and there might have been some
16 kind of conversation going on, because I sat
17 down, and as I was sitting down a student who
18 had graduated with my son was sitting at that
19 same table, and he was alarmed by what had just
20 happened, and he said to me, "Mrs. Callahan,
21 would it be okay if I got up to address the
22 school board?" And I said, "I would think so.
23 It's still public comment and, you know, go
24 ahead." And he did then approach the school
25 board.

463 1 Q. And what did he say?

2 A. He started questioning them, he explained
3 actually that he was a biology major at Penn
4 State, and he started to explain to them how
5 important evolution is to a biology curriculum.
6 And as he was explaining things to them, several
7 of the board members were talking back to him.
8 So it was an exchange.

464 9 Q. What did they say back to him?

10 A. They said that, "Well, okay, fine,
11 evolution, but we need to teach creationism."
12 They were pretty much down playing evolution as
13 something that's credible. Bill Buckingham
14 talked about creationism. Allen Bonsell talked
15 about creationism. And as it went back and
16 forth, at one point I thought Max was doing a
17 really good job. He was staying calm and he was
18 just repeatedly trying to explain to them what
19 the meaning of biology was, what the meaning of
20 evolution was, and he was getting this bantering
21 back and forth. So at one point Bill Buckingham
22 seemed to be getting pretty frustrated, and he
23 said, "Well, you're a perfect example of what
24 happens to students when they go to college.
25 They get brainwashed."

465 1 Q. Do you remember anything else that was said
2 in that exchange between the board and this
3 student?

4 A. I also remember Noah Renwick explaining
5 what a scientific theory was, and he explained
6 that a scientific theory becomes a theory by
7 repetition. In other words, if you just keep
8 repeating it and repeating it and repeating it,
9 whatever it is, that's how science becomes a
10 theory.

466 11 Q. I'm not sure if I asked you, can you tell
12 us the name of this student?

13 A. Oh, Max Pell.

467 14 Q. When you say he was a student, he was a
15 college student?

16 A. He was a college student, yes.

468 17 Q. What was his demeanor during this exchange?

18 A. He stayed calm. I was really impressed how
19 he was handling himself. I mean, he was a young
20 man and these were adults kind of theatering
21 him. They were rude at times I thought.

469 22 Q. Now, do you recall Mr. Buckingham showing
23 Mr. Pell a picture at any time during that
24 exchange?

25 A. Yes.

470 1 Q. Tell us what you remember.

2 A. I remember Mr. Buckingham stood up and went
3 over to Allen Bonsell and showed him what
4 appeared to be a picture and whispered
5 something, there was a little exchange between
6 the two of them, and then sat back down and
7 started talking about this picture to Max.

471 8 Q. And what did he say?

9 A. He said something to the effect of, "you
10 Can't expect me to believe that I was ever
11 descended from apes and monkeys."

472 12 Q. Do you recall anything else that happened
13 at that board meeting?

14 A. No.

473 15 Q. Do you read a local paper?

16 A. Yes.

474 17 Q. Which paper?

18 A. We receive the York Dispatch at our home,
19 and any time there's a Dover issue I make sure
20 I get the Daily Record.

475 21 Q. Were you in the practice of reading the
22 news, the local papers at that time?

23 A. Yes.

476 24 Q. Now, I'd like to show you what's been
25 marked as P-44. Do you have that in front of

1 you?

2 A. Yes.

477 3 Q. Can you tell us what it is?

4 A. It's from the York Dispatch, June 8th.

5 It's an article.

478 6 Q. Who's the author?

7 A. The author is Heidi Bubb.

479 8 Q. Have you read that before now?

9 A. Yes.

480 10 Q. When did you read it?

11 A. I know I read it within the last couple of

12 days.

481 13 Q. Did you read it at or around that time?

14 A. Yes.

482 15 Q. Now, I'd like you to look at that and tell

16 us if that helps you remember anything else that

17 happened at the meeting.

18 A. Well, yes. I mean, then it became apparent

19 that they were still going to be looking at a

20 book that teachers and board members could

21 approve, but it gave me a sense that they were

22 still going to continue looking for a book that

23 had creationism in it.

483 24 Q. Does it help you remember anything else

25 that happened at the meeting on June 7th of

1 2004?

2 A. Yes, because when Max started talking about
3 the issue that he was concerned that religion
4 was going to be in the biology class, Bill
5 Buckingham made it perfectly clear that he
6 thought the idea of separation of church and
7 state to be mythical.

484 8 Q. Do you remember anything, does looking at
9 this Exhibit P-44 help you remember anything
10 else that was said at that meeting?

11 MR. GILLEN: Excuse me, Your Honor. Just to
12 the extent that the witness is testifying from
13 memory, memory is one thing, but reading from
14 the article is another. I'd request that she
15 not read from the article as evidence of --

16 THE COURT: I think the objection is well
17 founded. What you're being asked to do is look
18 at the article and to see whether or not it
19 refreshes your recollection as to what happened
20 at the meeting, and you can do that. But you
21 shouldn't refer to the article in your answer.
22 That's inappropriate for you to do that. So if
23 you want to take a moment and read the article,
24 we'll give you the opportunity to do that. Or
25 if you want to take a moment as you get asked

1 the question you can read the article, but you
2 must answer from your own memory. Don't recite
3 something that you're reading from the article.

4 THE WITNESS: All right.

5 THE COURT: It's your memory that controls.
6 If it's refreshed it is. If it's not, fair
7 enough.

8 THE WITNESS: Thank you. But I do remember
9 when Max was showing his concern about religion
10 as part of the biology curriculum that Bill
11 Buckingham, you know, in an exasperated tone did
12 say, "You know, hey, the separation of church
13 and state is just a myth."

14 MR. HARVEY: Do you remember anything else
15 about that?

16 MR. GILLEN: Your Honor, I don't want to
17 belabor the process and I want to be fair to
18 both parties, but it's not appropriate when the
19 witness is asked whether she remembers for her
20 to look at that, at the article first. She
21 should first say she doesn't remember, and
22 then if she doesn't and she wants to look,
23 I understand.

24 MR. HARVEY: Your Honor, I think I've
25 established that the witness doesn't remember

1 anything else, and I just want her --

2 THE COURT: Well, I understand Mr. Gillen's
3 objection. It's not an inappropriate objection
4 under the circumstances. How long is the
5 article?

6 THE WITNESS: I think that was it. I don't
7 remember anything else. The last thing I
8 remembered when I looked at the part of the
9 separation of church and state was when Bill
10 was so exasperated about it at that meeting.

11 THE COURT: Then I think the answer is no
12 to the question, and Mr. Gillen, no harm, no
13 foul, and we can move on.

14 MR. GILLEN: Fair enough.

15 BY MR. HARVEY:

485 16 Q. Now, I'd like you to turn to what has been
17 marked as P-46, please, and can you tell us what
18 is that?

19 A. This is a June 9th newspaper article from
20 the York Daily Record.

486 21 Q. Who's the author?

22 A. Joseph Maldonado.

487 23 Q. Did you read this article at or around that
24 time?

25 A. Yes.

488 1 Q. Have you reviewed it more recently?

2 A. Yes.

489 3 Q. And by looking at this article, does this
4 help you remember anything else that happened at
5 the meeting that you aren't already told us
6 about?

7 (Brief pause.)

8 A. I don't think so, except that there was an
9 ongoing mention of that it's really important
10 for fairness and balance, therefore creationism
11 needed to be taught along with evolution.

490 12 Q. Now, after that meeting, or shortly after
13 that meeting I should say, did you have a
14 conversation with Mr. Bacsa about looking for
15 a textbook?

16 A. Yes, I did.

491 17 Q. Who is Mr. Bacsa?

18 A. Mr. Bacsa is the assistant superintendent
19 of the Dover area school district.

492 20 Q. Tell us what you can recall of that
21 conversation with him.

22 A. What I can recall, and I was in the
23 administrative office area and I was saying
24 to him, "Well, Allen Bonsell at least has
25 finally said publicly that he's interested in

1 creationism being part of the school district,"
2 and Mr. Bacsa said to me, "Well, I don't think
3 you'll have to worry because they'll never find
4 a book that includes evolution and creationism
5 in it."

493 6 Q. Did you attend any other -- did you know
7 that there was a school board meeting scheduled
8 for June 14th?

9 A. Yes.

494 10 Q. Did you attend that meeting?

11 A. No.

495 12 Q. Why not?

13 A. Because I was out of town.

496 14 Q. Did you attend any other board meetings
15 that summer?

16 A. No.

497 17 Q. Why not?

18 A. I was out of town.

498 19 Q. And did you follow issues relating to those
20 biology texts?

21 A. Yes.

499 22 Q. How did you do that?

23 A. My husband would bring the newspapers to
24 me.

500 25 Q. And did you, in September did you attend

1 any meetings of the Dover area school district
2 board of directors?

3 A. Yes.

501 4 Q. Do you remember a meeting on September the
5 7th of 2004?

6 A. Yes.

502 7 Q. And did you attend that meeting?

8 A. Yes.

503 9 Q. Tell us what you remember about happening
10 at that meeting.

11 A. I remember approaching the school board
12 during public comments, and I spoke briefly
13 about the book "Of Pandas and People," because
14 at that time I had read it and I was very
15 concerned about the book being considered at
16 all as a reference book, and because I was so
17 concerned, and I guess at the time there's
18 certain, there had been a lot of comment about
19 the book, I was encouraging Allen Bonsell to
20 follow past practice of the board, which is to
21 allow public comment or to have a planning
22 meeting the first meeting of the month and an
23 action meeting the second meeting of the month,
24 so whatever action the school board was planning
25 to take on this issue there would be plenty of

1 time for the faculty and the community and even
2 board members to find out about as much as they
3 could about whatever they were going to decide
4 to do.

504 5 Q. Why did you raise that issue?

6 A. Why?

505 7 Q. Yes.

8 A. Well, because I was really concerned about
9 this book being part of the biology curriculum.

506 10 Q. Do you remember anything else that happened
11 at the meeting on September the 7th?

12 A. On September 7th? Is that what you said?

507 13 Q. Yes.

14 A. No, only that I basically didn't get an
15 answer from Allen when I was trying to have
16 him make a commitment that yes, he would strive
17 to follow past practice.

508 18 Q. Now, I'd like to ask you to look at what's
19 been marked as Plaintiff's Exhibit 679. Can
20 you tell us what that is?

21 A. It's a news article on September 8th from
22 the York Daily Record.

509 23 Q. And who's the author?

24 A. Lori Lebo.

510 25 Q. Does looking at that article help you

1 remember anything else that happened at the
2 board meeting on September the 7th, 2004?

3 (Brief pause.)

4 A. I mean, I remember saying that to Lori that
5 this is just one more embarrassment for Dover,
6 because I really was appalled by that book "Of
7 Pandas and People."

511 8 Q. Anything else you recall from that meeting
9 after reviewing that article?

10 A. No.

512 11 Q. Do you remember a meeting on September the
12 13th of 2004?

13 A. Yes.

513 14 Q. And did you speak to the board on that
15 occasion?

16 A. Yes.

514 17 Q. Do you remember what you said?

18 A. I remember I wrote out a statement with
19 what I wanted to say, because I really wanted
20 to try to make an impression on the board of how
21 inappropriate I thought the course of action
22 they looked like they were taking was.

515 23 Q. Did you save your notes on that statement?

24 A. Yes.

516 25 Q. Please turn to what's been marked as P-668.

1 I'm not going to ask you to look at all of this.
2 It's a series of, a collection of handwritten
3 note, and I'd just like to ask you to turn to
4 page 1033 in that document. It's actually the
5 last page of the document.

6 A. Okay. Thank you.

517 7 Q. Are you at that page?

8 A. I am.

518 9 Q. Can you tell us what that is?

10 A. These are the notes, or the written
11 statement I brought with me to that September
12 meeting to read to the school board.

519 13 Q. And looking at that, does that help you
14 remember what you said to the board on September
15 the 13th of 2004?

16 A. Yes.

520 17 Q. Please tell us what you said.

18 A. May I read it, or do you want me to --

19 MR. GILLEN: No, Your Honor. I mean, she
20 may not read the statement. If she can
21 remember, that's fine. But it is hearsay.

22 THE COURT: What counsel is attempting to
23 have you do is to have you look at that to
24 refresh your recollection as to what you said.
25 You don't have to recite it verbatim. If it

1 refreshes your recollection you can, with your
2 recollection refreshed you can paraphrase or
3 summarize if that refreshes your recollection
4 what you said at the school board meeting.
5 But you shouldn't read it from the note.

6 THE WITNESS: So do you need me to read the
7 entire thing first and then say what I said, or
8 may I look at it and comment --

9 THE COURT: You certainly may have all the
10 time you need to take a look at it, and if it
11 refreshes your recollection then you can answer
12 the question as to what it is that you said.
13 This is not a test to have you recite it
14 verbatim. If it refreshes your recollection
15 then you can summarize or answer the question,
16 but Mr. Gillen's objection is that you cannot
17 read the note into evidence. That's quite
18 right. So if you do it for that purpose,
19 that's appropriate.

20 THE WITNESS: Okay. Thank you.

21 THE COURT: And while she's doing that let
22 me ask counsel, it looks like you're going to
23 be in with this witness for a while.

24 MR. HARVEY: Yes, Your Honor.

25 THE COURT: While don't we cover this

1 question and then we'll break for lunch, or
2 if you have several questions in this area, why
3 don't you finish this area as to what you said
4 at the meeting and then --

5 MR. HARVEY: I was, I was just going to ask
6 her this question, ask her to tell us what she
7 can remember saying, and I believe, Your Honor,
8 that that does come in as a past recollection
9 recorded, so that she could read the statement.
10 And if she remembers reading the statement I
11 believe she could read it.

12 MR. GILLEN: Your Honor, she's testified
13 that these are notes of the statement she was
14 going to make. I think that by any reasonable
15 measure that's not recollection recorded. It's
16 something she believes that she took with her
17 to the meeting.

18 THE COURT: We could debate the finer points
19 of what is past recollection recorded and we
20 might not resolve it, but we're going to get a
21 summary of the statement I suspect after she
22 reads it. So I'll choose not to do that.

23 MR. GILLEN: And I wouldn't deprive the
24 witness of a recollection.

25 THE COURT: All right. So we won't go

1 to the more, to the finer points of past
2 recollection recorded. We'll use the reference.

3 THE WITNESS: I absolutely remember reading
4 this statement at the school board meeting.

5 MR. HARVEY: And would you please
6 read it for us? I'm sorry, Your Honor,
7 Mr. Rothschild had spoken to me when you
8 last spoke, and I didn't hear your last comment.

9 THE COURT: It's always a problem when you
10 have co-counsel.

11 MR. HARVEY: I know, I know, and I'll talk
12 to him about that over lunch, Your Honor.

13 THE COURT: Mr. Rothschild goes to the
14 penalty box. You can restate the question.

15 BY MR. HARVEY:

521 16 Q. That document that you're looking at that
17 has the Bates number P-01033 on the bottom, can
18 you tell us what that is?

19 A. This is a document, this is a copy of the
20 papers that I brought with me that I read at the
21 school board meeting.

522 22 Q. And did you read that verbatim?

23 A. I read it verbatim.

523 24 Q. Would you please read that for us?

25 A. I have --

1 MR. GILLEN: Your Honor?

2 THE COURT: No, it's not, we're not going to
3 read the statement in. So that my ruling is
4 clear, I don't view it -- if you want to break
5 here and we want to debate this and you want to
6 give me some time and you want to do it that
7 way, I don't see it as necessarily past
8 recollection recorded for the argument that
9 Mr. Gillen made. However, we can do this two
10 ways.

11 We can break here, hold the thought, I'll
12 come back and I'll rule, or alternatively you
13 can have it refresh her recollection and she can
14 having had the recollection refreshed testify
15 as to generally what she said. In other words
16 paraphrase or summarize what she said, your
17 choice.

18 BY MR. HARVEY:

524 19 Q. I'd be happy for you to summarize what
20 you said at that meeting based on your review of
21 the statement now.

22 A. The first thing that I did say is that the
23 book was absolutely not appropriate for 9th
24 grade. I then said that the book claimed to
25 refute scientific biological origins, but I

1 thought it was absolutely religiously based.
2 And the third thing I said was that I urged the
3 school board to really consider this strongly
4 and to remember the oath of offices they took
5 that they were sworn in as school board members,
6 because I thought that this could lead to an
7 expensive and protracted lawsuit and it would be
8 harmful to the students and the district.

525 9 Q. Do you remember anything else you said?

10 And you can look at it again.

11 A. Oh, I remember mentioning also that this
12 had absolutely nothing to do with balance and
13 fairness, but that it was merely introducing
14 religion into the biology curriculum, and to
15 pretend otherwise was pretty preposterous.

16 MR. HARVEY: Thank you, Your Honor. I have
17 no further -- I mean, I have more questions.

18 THE COURT: For the witness.

19 MR. HARVEY: But on this line of questioning
20 I'm done, Your Honor.

21 THE COURT: Okay. That will mark an
22 appropriate time to break for lunch. We
23 will break until approximately 1:45. We'll
24 reconvene at that time for our afternoon
25 session. We'll continue with this witness

1 at that time.

2 (End of Volume 1 at 12:23 p.m.)

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