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

TAMMY KITZMILLER, et al.,	:	CASE NO.
Plaintiffs	:	4:04-CV-02688
vs.	:	
DOVER SCHOOL DISTRICT,	:	Harrisburg, PA
Defendant	:	12 October 2005
.....	:	9:00 a.m.

TRANSCRIPT OF CIVIL BENCH TRIAL PROCEEDINGS
TRIAL DAY 8, MORNING SESSION
BEFORE THE HONORABLE JOHN E. JONES, III
UNITED STATES DISTRICT JUDGE

APPEARANCES:

For the Plaintiffs:

Eric J. Rothschild, Esq.
Thomas B. Schmidt, III, Esq.
Stephen G. Harvey, Esq.
Pepper Hamilton, L.L.P.
3000 Two Logan Square
18th & Arch Streets
Philadelphia, PA 19103-2799
(215) 380-1992

For the Defendant:

Patrick Gillen, Esq.
Robert J. Muise, Esq.
Richard Thompson, Esq.
The Thomas More Law Center
24 Franklin Lloyd Wright Drive
P.O. Box 393
Ann Arbor, MI 48106
(734) 930-7145

Court Reporter:

Wesley J. Armstrong, RMR
Official Court Reporter
U.S. Courthouse
228 Walnut Street
Harrisburg, PA 17108
(717) 542-5569

APPEARANCES (Continued)

For the American Civil Liberties Union:

Witold J. Walczak, Esq.
American Civil Liberties Union
313 Atwood Street
Pittsburgh, PA 15213
(412) 681-7864

I N D E X
Kitzmiller vs. Dover Schools
4:04-CV-2688
Trial Day 8, Morning Session
12 October 2005

PROCEEDINGS

Page

PLAINTIFF WITNESSES

Bertha Spahr:
Cross examination by Mr. Gillen 4

Dr. Brian Alters, Ph.D.:
Direct examination by Mr. Walczak 50

P R O C E E D I N G S

THE COURT: Be seated, please. All right, good morning to all, and welcome back for our next day of trial. We have, we're mid-examination I guess, and we can have our witness back on the stand, and I believe we're on cross, is that correct?

MR. GILLEN: That's correct, Your Honor.

THE COURT: All right.

(Bertha Spahr was recalled to the stand.)

MR. GILLEN: Judge, may I approach the witness for the purpose of providing a separate binder?

THE COURT: You may.

CROSS EXAMINATION BY MR. GILLEN:

Q. Good morning, Mrs. Spahr.

A. Good morning.

Q. Pat Gillen, we met at your deposition. I'm going to ask you a few questions today about the trial testimony you gave last week. Before I do that, I'd just like to ask you have you consulted with anyone about your testimony last week in-between being released from trial?

A. No.

Q. Thank you very much. You did so at advice

of plaintiff's counsel?

A. And my own counsel.

Q. Oh, good. I thank all of you for respecting that integrity of the process. Mrs. Spahr, I'd like to start my questioning of you with just a few questions about the 2003 year. It's correct, is it not, that during that year the science department learned that the purchase of the science text would be delayed due to fiscal considerations?

A. Yes.

Q. And there was a notion expressed in connection with that that the texts appeared to be in good and usable condition?

A. That's correct.

Q. We have had some discussion about a memo from Dr. Peterman that was created and it recounted a conversation that you and Dr. Peterman had, and I just want to make sure I have the details of that straight in the record. When you had that discussion with Dr. Peterman, it was about instruction in biology class?

A. That's correct.

Q. And you were the head of the science

department at that time?
A. Yes.
Q. And Dr. Peterman was the principal for the high school, is that correct?
A. At that time, yes.
Q. And if I'm correct, you had brought to her your concern about a possible change to the biology curriculum?
A. Yes.
Q. And you told her it related to creationism, correct?
A. That's correct.
Q. Now, before you spoke with Dr. Peterman you had spoken with your science faculty?
A. Yes.
Q. And based on that you told Dr. Peterman that creationism per se was not taught because it was not within the state standards?
A. That's correct.
Q. You told her that the teachers mentioned that another theory of evolution was creationism, but they did not teach it, is that correct?
A. That's correct.
Q. And that's what the teachers had told you?

A. Yes.

Q. At this time Jen Miller was the veteran biology teacher?

A. Yes.

Q. And she explained to you that teachers would mention creationism as an alternate to Darwin's theory?

A. Yes.

Q. And she also told you that we tell the students if they want to talk about that they should talk to their pastors, correct?

A. Pastors or their families.

Q. That's right. And they did that because they knew that the subject was controversial and they wanted to treat it properly?

A. Yes.

Q. In addition the teachers would sometimes point students to books on the subjects, correct?

A. They referenced the reference section of the library if they had additional questions.

Q. Okay. And if I'm correct, at the end of that conversation with Dr. Peterman as reflected in the memo she told you to tell the science teachers just keep what they're doing, correct?

A. Continue what we had done in the past.

Q. Thank you for correcting my imprecise sentence. All right. Now, you discussed with Dr. Peterman some of the concerns you had about this notion of perhaps working creationism into the biology curriculum, correct?

A. Yes, I did.

Q. And one of those concerns was just a practical consideration of time constraints, the teachers were already pressed for time trying to present the state standard material, and how would another subject be worked in, correct?

A. That's correct.

Q. Now, at the board meetings in 2004, I'm taking you forward to -- well, actually let's look at 2003. Do you recall Barrie Callahan making mention of the notion that the students in biology didn't have books?

A. Yes, I do.

Q. And although she expressed that concern, I know it wasn't technically accurate that they didn't have books, correct?

A. They did not have books for one year, and there was a good reason for that, and the

curriculum was basically realigned to meet the state standards, and we had in one year all of 9th grade and 10th grade taking biology, four hundred students with two hundred books.

Q. Right. So in a sense what she was getting at and what you're saying is that no text was assigned to each student?

A. That's correct.

Q. But they did have texts that they used as classroom texts?

A. There were classroom sets available, and there were also books available if any student wished to take a book home.

Q. And during the period when you were realigning instruction to meet the new state standards, two grades were taking biology?

A. That's correct.

Q. And that's what accounts for the practice of the classroom sets as opposed to assigning?

A. Yes.

Q. One other feature of the new state standards was that they redistributed in some ways some topics among different subjects, correct?

A. Yes. Classification was removed from

what we now taught in the 9th grade biology curriculum book to the middle school in life science, that area.

30 Q. Okay.

A. And ecology went into a separate course, which was now part of the course for 10th grade.

31 Q. Right, and that would naturally affect the way you looked at the text also, correct?

A. Correct.

32 Q. Different texts have different strengths?

A. Yes.

33 Q. And I believe the 1998 Miller and Levine on biology was strong on classification, correct?

A. And ecology.

34 Q. Now, if we take that discussion with Dr. Peterman in April, or about April of 2003 until the fall meeting with Allen Bonsell, you don't recall any discussions relating to this issue?

A. Not specifically.

35 Q. Now, that fall meeting took place at the suggestion of the science department?

A. I believe that is correct.

36 Q. And you know it was suggested that if Mr. Bonsell had concerns, that the faculty was

confident that they could address them, correct?
A. We felt that we had the scientific expertise to answer any questions he may have had, as opposed to Mr. Baksa, whose training we believe was not in science.
37 Q. Correct. So we have this fall 2003 meeting with Alan Bonsell, and you can't recall any specific questions that he asked?
A. The questions he had basically were directed to Jen Miller, who was the lead biologist. I was there more taking note as the department chair. She was answering the biology questions.
38 Q. Right, and you as department head it's kind of your role to facilitate that sort of interaction, correct?
A. I am not a first line supervisor.
39 Q. All right.
A. I am a facilitator.
40 Q. But you do recall as you say Jen Miller explaining the way she presented evolutionary theory in class?
A. Very clearly. She tried to make the differentiation between origin of life and origin of species. She emphasized that when

evolution is taught in the biology classroom, it is taught as change over time.

41 Q. Right, and she used as an example the bird, the finches, Darwin's finch, and the change of one finch to another, correct?

A. Yes.

42 Q. We learned a lot about that Galapagos Islands.

A. The bird and the tree, yes.

43 Q. Now, the meeting as you recall was cordial, civil, collegial?

A. Yes.

44 Q. And you left the meeting believing that Mr. Bonsell had been satisfied?

A. We felt that we had answered his questions and his concerns at that time, yes.

45 Q. Now, as we've noted the texts weren't purchased in 2003, correct?

A. That's correct.

46 Q. And as the head of the science department you had some concern that if the science department missed its turn in 2003, it might have to go to the next seven years of the cycle before to get new books?

A. Yes, and I brought that concern to the

appropriate attention.

47 Q. That's right, and instead what happened was the money was escrowed for next year to purchase science books, correct?

A. We were not certain of that, but we were led to believe that that was the case.

48 Q. Okay, and ultimately the book was purchased, the science books were purchased in 2004, not 2003?

A. That's correct.

49 Q. When we look now at 2004, I just want to get a sense again for this text purchase and how it unfolded, we're moving quickly, and I hope to do that, if I'm correct you recall a meeting with the board curriculum committee that occurred in the spring of 2004 prior to the June meetings, correct?

A. There were several.

50 Q. And one of them focused on a purchase of a family and consumer science text?

A. Yes. That was the one that was earlier in the spring.

51 Q. And at that meeting were present Mr. Buckingham, Mrs. Harkins, Sheila Harkins, and Casey Brown, correct?

A. Yes.

52 Q. Along with members of the faculty at the high school?

A. Members of the faculty, that's true, and Mr. Baksa I believe was present as well.

53 Q. Thank you, yes, the administration. And you recall Mrs. Harkins asking the teachers, "Do you realize that there's about five words difference between the old text and the one you're recommending for purchase," correct?

A. Yes, I do.

54 Q. You left that meeting somewhat uncertain concerning whether the family and consumer science texts would be purchased, correct?

A. That's correct.

55 Q. Then there was a later meeting in June of 2004 at which the science texts were the focal point of the discussion?

A. That's true.

56 Q. And you remember I believe Casey Brown complemented you on your selection of a new chemistry book?

A. Yes.

57 Q. The biology text was discussed again?

A. That's right.

Q. During that meeting, and during that meeting if I'm not mistaken that's the meeting where Mr. Buckingham expressed his conviction that teachers were addressing the origins of life, correct?

A. He had asked us more than once if we teach man comes from a monkey. In response to that in utter frustration I looked at Mr. Buckingham and I said, "If you say man and monkey one more time in the same sentence, I'm going to scream." He did not do that, and I didn't have to.

Q. And that's because you're Italian, Mrs. Spahr, is that right?

A. Sicilian.

Q. I'll remember that.

A. Let's clarify that.

Q. And there was this discussion that he said well, what about this, the mural came up again, correct?

A. The mural came up again because I finally said to him, "Does this go back to the mural that appeared in Room 217?" He did not acknowledge that question. I then asked him, "Could you please explain where you obtained the picture of the mural that you had at a board

meeting earlier in the spring that someone had seen and brought to my attention?"

62 Q. Right, I got the picture of the mural. Now, if I'm not mistaken, Mrs. Spahr, Jen Miller explain again, "We don't address that portion of evolution theory," correct?

A. That's correct.

63 Q. Now, around this time, these are meetings in June, the faculty were given some videos and DVD's for review, is that right?

A. We were given one.

64 Q. Well, you were given three, but you looked at one, correct?

A. We were given one I believe, and we did view it. I believe there was a series of three. To my knowledge we only had the one.

65 Q. Well, you remember reviewing one, correct?

A. Yes.

66 Q. Okay. But there were three, correct?

A. That is my understanding, yes.

67 Q. And the teachers agreed upon reviewing that video that there was some validity to the information it contained?

A. Yes.

68 Q. And they indicated in fact that they'd be

willing to point out gaps in evolution theory?
A. That's true.
69 Q. In fact, many teachers were already doing this --
A. Past practice we have, in the biology curriculum they had done that --
70 Q. Yes.
A. -- in the past.
71 Q. So kind of the notion that was discussed here was well, it will be consistency --
A. That's correct.
72 Q. -- that will ensure. Now, we have seen some documentation related to a text put out by Bob Jones University Text Press, but Mr. Baksa never asked you to review that text?
A. He handed us that piece of paper and said, "This may be a book that you would wish to consider while you're reviewing books for biology."
73 Q. But he never told you to look at that text, did he?
A. I never had a copy of the text. I just looked at the document he had handed me.
74 Q. And you came away from that meeting with the assurance that the text recommended by the

department, which at that time was the 2002 edition of Miller and Levine, would be purchased, correct?

A. The last thing I said to Mr. Buckingham before we departed, because we were now all getting ready to leave for the summer, "Do I have your assurance that we will have the 2002 biology text in the hands of our teachers when fall begins?" He looked at me and said yes, and I took him at his word.

75 Q. Yes. And if we go into the, look at the school board meetings that are taking place in June, there was still mention of this notion that the kids don't have texts, correct?

A. That's correct.

76 Q. But for the reasons we've discussed that wasn't really accurate. It's more accurate to say the texts weren't assigned to each student?

A. I believe at the June 14th board meeting I made that statement during public comment to clarify that issue so that the public did not think we were asking for new books when in fact we didn't use the old ones which were there.

77 Q. Right. Now, you didn't attend the first board meeting in June of 2004?

A. That is correct I believe.

78 Q. But you did attend the second?

A. I did, June the 14th.

79 Q. Forgive me for cutting you off. And that's because you anticipated that the texts would be purchased, approved at that board meeting as per the assurance of Mr. Buckingham --

A. The chemistry textbooks and the family and consumer science textbooks were on the agenda for adoption. I went in case there happened to be any discussion as to why this particular chem book was being recommended over some other publisher.

80 Q. And Barrie Callahan was at that second meeting in June?

A. I believe so.

81 Q. And she also asked why the science books hadn't been purchased?

A. Yes.

82 Q. And former board members Lonnie Langione and Larry Snook were there?

A. I believe.

83 Q. And they spoke?

A. Yes.

84 Q. There were some heated exchanges between

the public and the board members?

A. I believe that's correct.

85 Q. And you remember some comments by Bill Buckingham, but nothing that Alan Bonsell said?

A. That's true.

86 Q. Or that Heather Gessey said?

A. That did not occur at that meeting.

87 Q. Oh, I understand, and that's what I'm focused on, that second meeting in June --

A. June 14th.

88 Q. Your don't remember anything Heather Gessey said?

A. Not specifically.

89 Q. Right. Or Jane Cleaver?

A. No.

90 Q. Or Angie Yeungling?

A. No.

91 Q. Or Sheila Harkins?

A. No.

92 Q. Okay.

A. I remember things that pertained specifically to me.

93 Q. And I understand that, we all do. Now, up through June of 2004 the biology text was the 2002 edition of Miller and Levine biology?

A. That was the one we were proposing, yes.

94 Q. But subsequently the department received a more recent edition, the 2004 edition, correct?

A. I came in to school sometime either late in June or the beginning of July, and upon the desk was a box from Prentice Hall. I had the good fortune of opening it because I thought it might be teachers editions, which the staff would need over the summer in their preparations, only to find the 2004 edition of Miller and Levine.

95 Q. And you knew that the board was going to have questions if you were recommending purchase of a 2002, and there was a 2004 edition?

A. And rightly so, because at that point the book would already be probably somewhere between two and four years old, and if the new edition is there it would sometimes appear it would be a waste of money to buy an older edition.

96 Q. And I believe you said that after receiving that, you had a get-together with Mike Baksa and Jen Miller and you went over the 2002-2004 text, correct?

A. I immediately called Mr. Baksa to inform him that the 2004 edition was there and thought that this could now be a new issue in all of the

work that it took to get the 2002 edition approved.

97 Q. And you reviewed those two texts in light of the concerns that Mr. Buckingham had raised, correct?

A. The only chapter that we reviewed was the chapter on evolution.

98 Q. I got that, Mrs. Spahr, and what you were doing was looking to see if the presentation reflected changes in light of the controversy that had been seen in print for the last several years, correct?

A. That's correct.

99 Q. And it was around this time that the text Of Pandas and People came up as well, correct? July of 2004?

A. It was at that meeting that I first saw a copy of Of Pandas and People.

100 Q. And you started looking into that text, correct?

A. I did not, no.

101 Q. Well, didn't you learn that college professors were using it? Subsequently you started to look at the text?

A. At the July meeting the text was given

to Jen Miller to look at.

Q. Right.

A. Okay? I left that meeting without a copy of the book, and did not see it until a later time.

Q. Okay, and subsequently though you did look into the text yourself?

A. Yes.

Q. You learned that college professors were using it?

A. In the front of the book there was one high school teacher and all of the rest were college professors that had reviewed it.

Q. But you thought it was not appropriate for use by 9th graders?

A. Indeed. The vocabulary was too sophisticated, the complexity of the material which was presented would never have been suitable for a 9th grade student. We had enough trouble reading it.

Q. Now, later then I believe you did not attend the August 2nd, 2004 -- I believe you did not attend the August 2004 board meeting because you were on vacation?

A. That's correct.

107 Q. But there was a board curriculum committee meeting in late August of 2004 that you did attend?
A. Yes.
108 Q. And that meeting featured discussion of the idea of using Of Pandas in connection with the Miller Levine text, correct?
A. Yes. That original idea came out of the board meeting where the adoption of the Miller and Levine book was being presented.
109 Q. And Dr. Nilsen and Mike Baksa, the assistant superintendent, were trying to find some sort of compromise position between the faculty and the board, correct?
A. That's correct.
110 Q. And essentially it's consisted in that the teachers didn't want the book Of Pandas used in the classroom, whereas the board was trying to find some way to work it in, is that correct?
A. That's correct.
111 Q. And what was proposed there was the notion of having the book Of Pandas available as a reference text, correct?
A. In each of the individual classrooms, yes.
112 Q. And the notion was essentially was it will

be there if students want to reference it they can do that because it will be in the classroom, but we're not working it into instruction, correct?

A. That's correct.

113 Q. Now, if we end there at that August 2004 board curriculum meeting, there was really no discussion about this issue again until October, which was the start of the school year and everyone was busy, correct?

A. For the most part, yes.

114 Q. You later learned that Dr. Nilsen had accepted the donation of text Of Pandas, correct?

A. Yes.

115 Q. And then on or about, and I'm not going to hold you to the date, October 8th, 2004 you got a draft curriculum change from Mike Baksa, correct?

A. That's correct, and that is the correct date.

116 Q. Okay, and you received the draft because you were the head of the science department?

A. That's true.

117 Q. You passed it on to your biology teachers?

A. Yes.

118 Q. The draft language that you received at that time said that students would be made aware of gaps and problems in Darwin's theory, correct?

A. That's correct.

119 Q. And that was consistent with what had been discussed in June?

A. Yes.

120 Q. And it also said that students would be made aware of other theories of evolution, correct?

A. Yes.

121 Q. And again that was consistent with what the teachers had discussed in June?

A. Yes.

122 Q. But, you know, it also mentioned intelligent design, the teachers were not on board with that idea?

A. We were not.

123 Q. And it also listed the text Of Pandas as a reference, and again the teachers didn't want that listed?

A. True.

124 Q. So the science department sent back a

revised draft?

A. That's true.

Q. And it essentially took those two things out, the mention of intelligent design, correct?

A. Yes. We had a period at the end of word "evolution," and the Of Pandas and People reference was removed.

Q. Right, and then it also deleted the reference to Of Pandas under the resource and materials column, correct?

A. Yes.

Q. And that's the column in the curriculum, proposed curriculum change that you had been given for review, correct?

A. Yes.

Q. Okay. Good enough. Now, the next thing I'd like to ask you a few questions about is the October 18th board meeting, and what I'd like to do is, I've put these up in the hope that they would be of some use to you. I'm going to ask you about the various versions of the curriculum change that were at issue on that evening, okay?

A. I have new glasses, but this could be an issue.

Q. Well, you know, if you look in that book --
A. That binder?
Q. Yes. And you will see that it's essentially Defendant's Exhibit 60, 61, and then 68 I believe.
A. I'm at 61.
Q. All right. What I want to just get into the record for my perspective is the documents that were at issue here as we approached this meeting, and if you look at 60, Mrs. Spahr, you'll see that that's billed as the board curriculum committee's recommended changes, correct?
A. 60 or 61? You referred me to 61.
Q. Oh, did I? I'm sorry. Look at 60, please.
A. Okay.
Q. Now, I just want you to take a look at that. You'll see it contains, the cover memo contains a reference to the board curriculum committee's proposed change. Do you see that?
A. Yes.
Q. And if you flip the page you'll see the proposed change there.
A. I see it.
Q. And that includes the reference to

intelligent design, correct?

A. It does.

136 Q. And it also lists Of Pandas as a material resource?

A. Just like the document I was handed on October the 8th.

137 Q. Okay. So that's marked Roman XI, hyphen, capital A, correct? You know, that's fine. The record will take care of that, I'm sorry. Flip over to Exhibit 61.

A. Okay.

138 Q. And you'll see that that's billed as the staff administration recommended change?

A. This was the recommended change by the science department that we gave to the administration.

139 Q. And that we have just discussed, correct?

A. Yes.

140 Q. Now, then if you would, Bert -- I'm sorry, Mrs. Spahr, would you look at Defendant's Exhibit 68?

A. I have the cover letter.

141 Q. Okay. And you'll see that described as a second staff administration draft on the cover memo?

A. Yes.

142 Q. And then if you'll look at that, Bert, I want to ask you a few questions. First of all, you received this just prior to the meeting on October 18th, correct?

A. Probably about 6:25.

143 Q. Okay. And if you look at that, Mrs. Spahr, you'll see that there's some highlighted text, correct?

A. Yes.

144 Q. All right, and what's significant about that, and I'm going to ask you is this, first of all if you look in the second column of the proposed curriculum change under "Unit Concepts" and so on?

A. I'm there.

145 Q. You'll see that that lowest entry references other theories of evolution, correct?

A. It does.

146 Q. But it does not include the reference to intelligent design?

A. It does not.

147 Q. Now, if you turn to the, your attention to the right, materials resources column, you'll

see however that it does retain the listing of the text Of Pandas as a resource?

A. Yes.

148 Q. So in these two respects it's somewhat dissimilar and somewhat different from the board curriculum committee's version. First, it omitted the reference to intelligent design, correct?

A. This one appears to, yes.

149 Q. The second change is the note that's added there in the lower left-hand corner?

A. Yes.

150 Q. And that says that origins are not taught, correct?

A. Origins of life, okay, is not taught, and that we were told was added by Mr. Bonsell.

151 Q. Right. I'm going to ask you a few things about that. Now, you've testified previously that the teachers could have settled for this particular version, correct?

A. Yes, we could have settled for that.

152 Q. And you had heard that Mr. Bonsell had the idea of attaching that note to the curriculum, correct?

A. That's correct.

153 Q. And it was an effort to allay the teachers' concerns about including intelligent design?
A. We were never told what his motivation was behind it. We were just told he contributed it.
154 Q. Let me ask you this. You understood that that note would mean that intelligent design wasn't taught?
A. We looked at this and thought that the origins of life is not taught, which it is not. And if origins of life are not taught, then there would be no reason for intelligent design, and furthermore we felt no reason for the reference of Of Pandas and People.
155 Q. And that's because you're looking right at the subtitle of the text and it says that it deals with the central question of biological origins, correct?
A. That's correct. The subtitle to the book.
156 Q. As we get up to that October 18th board meeting you remember Dr. Nilsen making a comment to you that you thought at the time -- well, you've never really understood it, correct?
A. That's correct.
157 Q. And it was something to the effect that whatever happens, don't clap?

A. That's true.

158 Q. And it gave you the sense that you thought the administration might thought a different document was going to be approved, something that the teachers would be happy with?

A. We were not exactly sure what that meant, but we sat there, waiting, to find out.

159 Q. You had a sense that comment indicated he wasn't certain and thought the outcome would be favorable to you guys?

A. That was our feeling.

160 Q. And by that colloquial expression "you guys," I mean the science faculty.

A. That's true.

161 Q. The science faculty had discussed the October 18th 2004 board meeting and agreed that it would be good to attend, correct?

A. Indeed.

162 Q. And other teachers turned out to show their support for the science faculty?

A. They did.

163 Q. The meeting began with public comment?

A. As always.

164 Q. And that's the point at which you stood up to read the statement that you read into the

record?

A. Yes.

Q. Now, with that statement you began by noting that the science faculty did not agree with the inclusion of intelligent design, correct?

A. Very true.

Q. And you felt that there was a need to make that plain in public because the you felt at least the newspaper coverage made it look like the science teachers were on board with that aspect of the curriculum change, correct?

A. There were two factions in the community at the time. Many people thought that we, the science department, agreed with what the board was doing, which we did not. And the other half believed that if we did not support it, then we had to be atheists. That offended my science department because two members of the science department are sons and daughters of ministers.

Q. And your basis for that is essentially, you know, rumor or what you were hearing sort of second or thirdhand, correct?

A. Well, in some instances it was a little more direct than that. If we were out in a

drugstore or the food store people, would come up and make comments.

168 Q. Well, I mean you didn't hear anything firsthand accusing you of being an atheist?

A. Not correctly, no.

169 Q. And you made this statement in public because you had the sense that the newspaper coverage was creating impression that the science faculty was supporting the curriculum change?

A. There had been some coverage in the newspaper, not necessarily by reporters, that gave the idea that we had been involved in the implementation of certain statements, and that was not necessarily true.

170 Q. When you made your statement you also pointed out that the teachers had tried to compromise with the board curriculum committee?

A. Yes, I did, in four different areas.

171 Q. Exactly. And they were the science faculty had agreed to point out problems with Darwin's theory?

A. That's true.

172 Q. They had agreed to make students aware of other theories of evolution?

A. Yes.

173 Q. They had agreed they would assist students if they wanted to seek other reference material on the subject?

A. Yes.

174 Q. They had agreed to have Of Pandas in the classroom as a reference text?

A. As a reference text.

175 Q. And you also observed that the teachers did not teach origins of life.

A. That is correct.

176 Q. Okay.

A. And that was for the clarification of the community.

177 Q. Okay. In addition you asserted in this statement at the public meeting that teaching intelligent design would be unlawful, illegal, and unconstitutional?

A. That's how we felt, yes.

178 Q. And the basis for that was your opinion that intelligent design was creationism?

A. Was a synonym for.

179 Q. Okay.

A. And I got that idea when I looked at the catalog from which the book had been ordered

and it was listed under creation science.

Q. Speaking of that catalog, Mrs. Spahr, you didn't pass that on to Dr. Nilsen, did you? You kept that in your files?

A. Yes, as I do all other book catalogs that I receive.

Q. And you didn't pass it on to Mr. Baksa either?

A. No.

Q. You had in your statement you also expressed the concern that the inclusion of intelligent design would possibly open the teachers to a lawsuit?

A. We were concerned over that issue, yes.

Q. I understand. And part of that related to the untenured teachers in the district, correct?

A. That's correct.

Q. In fact, if I'm not mistaken you asked Bill Buckingham in the middle of your statement whether or not the teachers would be required to teach intelligent design?

A. That was part of my statement.

Q. And you asked for a delay to work out some sort of compromise?

A. I gave them a challenge.

186 Q. There was a heated discussion after Mr. Buckingham responded to your comments, correct?

A. When I finished my statement Mr. Buckingham looked at me and wanted to know where I had received my law degree. There was a gasp that went through the audience, I looked at him, I remembered what a former principal had told me, and I did not dignify it with a comment, and sat down.

187 Q. And the gasp was from the audience?

A. It was.

188 Q. And you know, Bert, that's because you've been teaching at Dover for forty years?

A. I have.

189 Q. So there's a lot of people in the community who know you?

A. That's true.

190 Q. And respect you?

A. I hope so.

191 Q. And when that comment was made there was a negative reaction on the part of the crowd, and in fact Lonnie Langione got up and -- well, you described in your deposition I believe

practically jumped out of his chair and took issue?

A. And came to my defense, yes.

192 Q. There was a lot of heated discussion in the aftermath of that comment, correct?

A. Yes.

193 Q. And as things wound down, Mr. Langione asked what does it mean in the classroom, correct?

A. He did.

194 Q. And there was a notion expressed that well, a statement might be read in the classroom, correct?

A. Yes.

195 Q. Now, later stepping back from that October 18th, 2004 board meeting there was another meeting on or about October 28th, 2004, correct, Mrs. Spahr?

A. Would you please refresh my memory on what that meeting was? Because we attended many.

196 Q. Yes, and once more my question was imprecise. It was a meeting with Mike Baksa.

A. Concerning?

197 Q. Concerning the, what the curriculum change would mean for instruction.

A. Okay. Thank you.

198 Q. No problem. You remember that meeting?

A. Yes.

199 Q. And he presented a draft statement to the science faculty?

A. I believe it was four paragraphs.

200 Q. And Jen Miller has already testified there was some back and forth between the science faculty and Mr. Baksa over this statement, its accuracy?

A. I delegated her as the veteran biology teacher to be in charge of tending to that particular thing since it did not affect me and my subject.

201 Q. Right. Because you're a chemistry teacher, correct?

A. That's correct.

202 Q. And Jen Miller was the veteran biology teacher. Good enough. Now, Mrs. Miller, she solicited input from the faculty about the proposed changes --

A. The other biology teachers --

203 Q. Mrs. Miller solicited input from the other members of the science faculty regarding her proposed revisions to the statement that had

been presented to her by Mr. Baksa?
A. That's true.
204 Q. Okay. Now, we know that ultimately the teachers refused to read the statement for the reasons you've expressed, correct?
A. Yes.
205 Q. All right. You felt that if, the science faculty, that is, felt that by reading the statement they would give credibility to the notion that intelligent design was a scientific theory?
A. That's true.
206 Q. And they were opposed to that notion?
A. They were.
207 Q. The basis for your particular opinion, Mrs. Spahr, is that you think intelligent design cannot be proven scientifically?
A. That's correct.
208 Q. Therefore, in your opinion it doesn't belong in a science class?
A. That's true.
209 Q. When you say it can't be proven, it's with reference to your understanding of the notion of testability?
A. In science we have a very defined pattern

of behavior to test anything. We observe and gather data, we propose a question, we formulate a hypothesis, we go into the laboratory to test the hypothesis and draw a conclusion. After many people have done the same experiment we are now prepared to propose a theory. A theory is a confirmed explanation, and from that we develop models.

210 Q. And I do understand your view of the matter. Just in contrast you think that evolutionary theory is testable according to the criteria you've just described?

A. My biology teachers feel that way. That is their field of expertise.

211 Q. Okay, and that's based on their training as science teachers, correct?

A. That's correct.

212 Q. Now, ultimately, Mrs. Spahr, I just want to look at the current situation so far as you can speak to it, the 2004 edition of Miller and Levine was purchased as recommended by the science faculty?

A. Yes, it was.

213 Q. The text Of Pandas and People is a reference text in the library, correct?

A. In the library.

214 Q. Yes. Not in the classroom?

A. That's true.

215 Q. Okay. The curriculum change has resulted in a statement that's read in class?

A. Yes.

216 Q. Biology, however, as taught in the classroom is taught according to state standards, correct?

A. Yes.

217 Q. Dr. Nilsen has directed that creationism is not to be taught, correct?

A. That you would have to deal with the biology teachers. That is my understanding, yes.

218 Q. Okay, and religious beliefs of teachers are not to be taught?

A. Yes.

219 Q. And the teachers never taught that, correct?

A. To my knowledge.

220 Q. They referred students with those sorts of questions to their pastors or their family?

A. To their pastors and/or their own family.

221 Q. Okay, good enough. And the religious

beliefs of the board are not to be taught, correct?

A. I am assuming so.

222 Q. Okay. So far as you know teachers comply with those directives?

A. To my knowledge, yes, although I am not a first line supervisor. So I do not have the opportunity to go into the classroom to see exactly what they are teaching. I have a full teaching load of my own.

223 Q. Okay. I've got one last question I want to ask you, Mrs. Spahr, and it's just for the purpose of putting things in context and being fair. As I've told you, I understand that you're well respected in the community and you have taught there for forty years. But do you recall in your statement that you accused Mr. Buckingham of operating from a personal agenda?

A. I do.

224 Q. Did you ever give any thought to how he felt when you accused him of that at that public meeting?

MR. SCHMIDT: Your Honor, I think that strikes me as argumentative and certainly beyond

the scope of direct examination. Mrs. Spahr is not a party.

THE COURT: Do you care to respond?

MR. GILLEN: Well, Your Honor, I mean she has testified, and I have tremendous respect for this witness, who I've deposed, that she felt deeply insulted and so on. What I'm -- and I understand that, but what I'm trying to get across for the court so you can see the context of the meeting is that prior to that unedifying comment, you know, Mr. Buckingham had also been accused of operating from a personal agenda, not with the best interests of the students at heart and --

THE COURT: Well, if Mr. Buckingham testifies and if he says that he was and he was insulted, and if that prompted comments by him, then I think that's relevant. Her impression as to whether or not he was insulted I'm not sure is in any way relevant to the proceedings, so I'll sustain the objection.

MR. GILLEN: Okay.

THE COURT: It doesn't move the ball as far as the case is concerned.

MR. GILLEN: Okay. Thank you, Your Honor.

With that in mind, no further questions.

THE COURT: All right.

MR. SCHMIDT: No redirect.

THE COURT: Thank you, Mr. Gillen. No redirect? Ma'am, you may step down. That completes your testimony. We have some exhibits that we must take up, starting with the direct examination last week. We have the notes by the witness, that is P-90, and we have the catalog, which is P-144. Are you moving for the admission of both of those exhibits?

MR. SCHMIDT: I apologize, Your Honor. Yes.

THE COURT: That's all right. I lost you there for a minute. Any objection, Mr. Gillen?

MR. GILLEN: Well, P-90 I would object to. It's been read into the record and it's a statement that she prepared in anticipation of the meeting.

MR. SCHMIDT: Your Honor, she has read the exhibit into the record. So rather than tussle about that, the contents of it are part of the record.

THE COURT: How about P-144, Mr. Gillen?

MR. GILLEN: If you'd give me a moment, Your Honor?

THE COURT: All right.

MR. GILLEN: I'd object to that, Your Honor.

THE COURT: On what basis?

MR. GILLEN: It's hearsay. It doesn't really have any bearing on -- she's testified that showed up in a box when the book was ordered. It's not a business record or anything of that nature. It was never passed on to the administration. They didn't know it existed until she produced it. So it's hearsay and not relevant.

MR. SCHMIDT: Your Honor, she received the catalog with the book. She received them as the designated employee of the defendant school district, who was the person who received the books. She unpacked it. There's no challenge to the authenticity of the document, and it is the publishers' or distributors' description of the nature of the text that's highly relevant to this case, so it seems to me that it comes in.

THE COURT: Well, she's the designated recipient. She is an agent of the school district. You know, I didn't hear an authenticity challenge. I don't think there is one. Her testimony was that it was in the

box when she opened it. I'm inclined to let it in, unless you have another argument you want to make, Mr. Gillen.

MR. GILLEN: Well, I've made my argument. I don't think it's a business record. It's something that she basically received in the mail. I mean, it's not a business record in the sense that it's not her job to keep the catalog, there's no testimony to that effect, and she didn't pass it on to the administration, so they didn't even know it existed.

MR. SCHMIDT: Your Honor, on the second issue, there was no reason for her to pass it on to the administration because she received it as an employee of the district and kept it as part of her files as the head of the science department, which was her testimony.

THE COURT: Yes. I don't see her failure to pass it on to the administration as being necessarily fatal.

MR. GILLEN: I guess what I'm saying, Your Honor, is if she would have received the catalog any number of ways, her mailings or mailings she received, solicitations from any number of sources.

THE COURT: Well, you could cross her on how she received it. I mean, then you're expanding your objection to say conceivably she got it another way than in the box that was sent, but I didn't hear that.

MR. GILLEN: No, you did not. I have no reason to believe it didn't show up in the box with the book.

THE COURT: So the box was designated, to the extent she was the duly appointed agent to receive it, it was within it. The purpose of the exhibit is to show that within the box there was a brochure from the publisher that had other books and the books were under certain, under a certain designation. I'll allow it for that purpose, the purpose offered by the plaintiffs, and nothing more. So we'll overrule your objection in that regard and we'll admit P-144. P-90 has been withdrawn, so there's no ruling on that.

Now, on cross we have D-60, D-61. D-60 is the memo and change curriculum guide. D-61 is the memo and planned curriculum guide, D-61 is, and D-68 is the memo and the second draft. Now, some of those may have gone in under plaintiff's

designations I think.

MR. SCHMIDT: They already have.

THE COURT: Were all three of them admitted, Mr. Schmidt?

MR. SCHMIDT: Yes.

THE COURT: So we don't need to dispose of those in any way. They just had the plaintiff's exhibit numbers, and we'll do those. I think that's everything. Tell me, gentlemen, if I'm wrong, if I've missed everything.

MR. SCHMIDT: I believe you're right, Your Honor.

MR. GILLEN: I believe you're right.

THE COURT: All right. Then we'll take your next witness.

MR. WALCZAK: Plaintiffs call Dr. Brian J. Alters.

(Dr. Brian J. Alters, Ph.D. was called to testify and was sworn by the courtroom deputy.)

MR. WALCZAK: Your Honor, may I approach the witness?

THE COURT: You may.

DIRECT EXAMINATION BY MR. WALCZAK:

225 Q. Good morning, Dr. Alters.

A. Good morning.

Q. Where do you live?
A. I live in Montreal.
Q. What do you do there?
A. I'm a university professor.
Q. What do you teach?
A. Science education.
Q. Can you tell us a little bit about your educational background?
A. Yes. I have a bachelors degree in biology and a Ph.D. in science education, both from the University of Southern California.
Q. Matt, can I ask you to pull up Plaintiff's Exhibit P-182, please? I'll show you what's been marked as Plaintiff's Exhibit 182. Do you recognize this document?
A. Yes, I do.
Q. Is this an accurate representation of your curriculum vitae?
A. Yes, it is.
Q. And is it accurate as of early 2005?
A. Yes.
Q. So you said, I'm sorry, you got your undergraduate degree from University of Southern California, and what was your major?
A. Biology.

234 Q. And your degree from the University of Southern California was in what?

A. Biology, and my Ph.D. was in science education.

235 Q. On page 1 below that it says university appointment. Could you describe for us your professional appointments?

A. There's an update on that since within the last month I've been named in a Dowd Chair, an eight million dollar Dowd Chair in science education, the Tomlinson Chair in science education.

236 Q. And you teach at McGill University in Montreal?

A. Correct.

237 Q. And after you got your Ph.D. where did you start teaching?

A. Harvard.

238 Q. And could you tell us a little bit about what you taught?

A. I was appointed in the philosophy of education research center, and taught science education methods courses in the graduate school of education. I designed a course that I taught, and --

239 Q. What course was that?
A. It was, I don't know if I remember the title, but it was something like evolution, education, and religion.
240 Q. And how long did you teach at Harvard?
A. One year, and I also supervised science, to-be science teachers. We called them in-service science teachers, or pre-service science teachers.
241 Q. And when you say supervised, what did that entail?
A. It entailed helping them prepare for classes. I would go out in the schools and watch them teach and give criticism, write reports back to Harvard.
242 Q. And after your work at Harvard what did you do next?
A. There was an opening at McGill in science education, and so I decided to take that appointment. Harvard kept me on for two more years in the philosophy of education research center, and then after that they appointed me in the science education department at Harvard, and I've held that appointment ever since.
243 Q. So, I'm sorry, you teach at both Harvard

and McGill?

A. Well, I previously taught at Harvard, I since have taught at McGill, and I go back to Harvard to give lectures on how to teach evolution for example to the pre-service teachers.

244 Q. Now, you've developed some expertise I gather in science education?

A. Yes.

245 Q. Now, is that different than science?

A. Yes. It's how to teach science as opposed to the act of science. It's more of teaching what the scientists have produced knowledge-wise and the process that they use.

246 Q. And is that a specialty in and of itself?

A. Yes, it is.

247 Q. Now, is that different than say education?

A. Yes, because it focuses on science education. It's particularly science.

248 Q. And have you developed a subspecialty within science education of how to teach evolution?

A. Yes. My real focus and interest is in evolution education, and even within that my particular focus is concerning problems teachers

have with students bringing in problems with their religion conflicting with what they perceive to be problems with evolution and how students themselves feel about it and how teachers feel about it and the conflicts they have.

249 Q. And have your, has your research and other activities involved looking at students' problems or difficulties students have in learning about evolution?

A. Yes. I've interviewed well over a thousand students at various levels, asking them what the problems if any they have concerning evolution with their religion or wherever the interviews lead.

250 Q. And I notice on page 2 of your curriculum vitae there's a long list of activities under something called funding. Now, are these activities for which you receive either government or private foundation grants to do research and activities?

A. Yes, but first I'd like to mention there's an update on that also within the last, since this CV in the last couple of months I received another grant, $175,000 from the federal

government of Canada the research Islamic views of evolution concerning teaching students and teachers. So but in answer to your question, other than that update, yes, these are from government and corporate, and they're all involving some form of science education. A couple of them are awards I think, yes.

251 Q. Now, you're teaching at McGill in Canada and you mentioned this foundation grant to do research in Canada. Is there any difference between how science is taught in Canada and how it's taught in the United States?

A. No.

252 Q. And you've taught in both countries?

A. Yes.

253 Q. And there's no difference?

A. No, there's none.

254 Q. Now, have you received grants from the National Science Foundation to do research and activities?

A. I have not received grants directly from them. I've researched and evaluated for the National Science Foundation science education programs, large ones in the millions of dollars that university professors run for science

teachers.

Q. So these are National Science Foundation sponsored research and activities?

A. Yes.

Q. And what is the National Science Foundation?

A. It's the largest science and science education granting institute I guess you would call it, organization I think is better, in the United States if not the world.

Q. And is this a government agency?

A. Yes.

Q. Is this an arm of the federal government?

A. Yes, it is.

Q. And I'm sorry, what kind of activities have you done at the request of the National Science Foundation?

A. When the NSF, if you'll allow me to use the acronym, when the NSF gives funds to university professors to do research in science education or to run science education programs for teachers, they generally would like to see those millions of dollars that are going to those professors to be evaluated, to see that the programs are good, to get some feedback

concerning that, and sometimes the evaluations are 40, 50, 60 pages long and they're sometimes quite extensive, and I'm called in to do some of those. I've done a few, and some are listed here.

260 Q. Is this more of a quality control?

A. I don't want to presuppose what the NSF is thinking concerning that, but I think that's reasonable.

261 Q. Are there a couple of other notable activities or research projects that you've undertaken here that you might tell us about?

A. Well, I'm kind of fond of the Lucent Technologies Foundation. It was a worldwide competition, and the only grant that was awarded in Canada was mine, and it was about $668,000. We worked with hundreds and hundreds of to be teachers and in-service teachers both, people who are currently practicing the art and science of teaching to develop science activities, and so those were essentially put into a large book form and apparently are being used by hundreds of schools presently.

262 Q. When you say science activities, what do you mean?

A. How to teach a particular science concept, whatever it would be, to figure out a new, entertaining, interesting way, novel way of doing it hopefully.

263 Q. And you developed a number of these activities to facilitate science education?

A. Yes. With a lot of help from a lot of other people, but I was the principal investigator on the grant, yes.

264 Q. On pages 3 through 5 of your CV, starting in the middle of page 3, you have many listings under what are known as refereed articles, and then there's a section, other publications and scholarly writing. What are refereed articles?

A. Refereed articles are where they're not automatically published. They're reviewed in some way, and criticism comes back for possibly, you know, we're not publishing this, something like that.

265 Q. And other publications and scholarly writings are, how would you describe those?

A. Those are ones that really couldn't be considered refereed articles. So it's sort of a default category.

266 Q. And under the refereed articles what do

most of them concern?

A. Most of them concern something to do with students' understanding of evolution and the conflict with creation and their perceived conflicts concerning that.

267 Q. And do you also attend conferences?

A. Sure.

268 Q. And are there -- we've heard from Professor Miller about scientific associations, the National Academy of Sciences, American Association of the Advancement of Science. Are there science education associations as well?

A. Yes, there are.

269 Q. And what are the largest and most important ones?

A. The largest scientific association in the United States is the National Association of Science Teachers, NAST. There's over fifty thousand members. The largest biology organization in the United States for teachers is NATB, National Association of Biology Teachers.

270 Q. And have you been a featured speaker at these conferences?

A. Featured speaker, keynote speaker at some conferences, yes.

271 Q. And how many conferences have you spoken at about science education?

A. Probably close to a hundred, if not more.

272 Q. And are most of those about teaching evolution?

A. Yes.

273 Q. You mentioned also you taught science teachers how to teach science.

A. Yes.

274 Q. And that's both at Harvard and at McGill?

A. Yes.

275 Q. And how many teachers would you estimate you've taught?

A. Over a thousand.

276 Q. Now, are you familiar with creationism and intelligent design?

A. Yes.

277 Q. And what have you done to develop your familiarity with creationism and intelligent design?

A. Well, I have read easily over fifty books on creationism, hundreds of articles and pamphlets, products from creationists,

interviewed again over a thousand students about and teachers about the problems, their problems, their perceived problems with evolution and creation, tried to understand better what they perceived as their problem.

278 Q. And you say that you've read creationist articles and many books on creationism. Do you equate intelligent design with creationism?

A. Yes. It's a form of creationism.

279 Q. Do you view it as science?

A. No.

280 Q. Why not?

A. There's so many reasons, but I guess the primary reason is that it involves breaking one of the ground rules of science and methodological naturalism. It brings in supernatural causation into science, which is against most foundational ground rules.

281 Q. Does that mean supernatural causation doesn't exist?

A. Oh, no, it doesn't mean that whatsoever. It just means within the game rules of science they don't entertain supernatural causes.

282 Q. I want to turn back to page 3 of your CV, and at the top there apparently you're also the

author of several books. Could you tell us briefly about the, what are the first four books there?

A. Well, the first book is Biology: Understanding Life. It's a university biology non-majors textbook.

283 Q. I'm sorry, you say a biology. So that's not a science education book. That's a science book?

A. Correct.

284 Q. But you're not a scientist?

A. Correct.

285 Q. Your expertise is in science education?

A. Correct.

286 Q. So can you explain to us why you're a co-author on a science biology textbook?

A. My co-author has bachelors and masters in biology and a Ph.D. in education also. Because what textbooks really do is teach, that's basically what they're doing. And so authors such as us of course consult scientists and get help from hundreds literally on the discipline, hundreds of scientists consulting various areas of content, critiquing it, sending back comments and so forth to help us on the science part, but

the textbook itself is really an author's attempt to teach a student.

287 Q. And that just came out this year?

A. Yes.

288 Q. And what's the second book there?

A. Teaching Biology in Higher Education. It's a book written to instructors at the college level on how to teach biology.

289 Q. And that came out this year as well?

A. Yes.

290 Q. Do you know whether this book is being used in colleges and universities?

A. The publisher tell me it's doing okay.

291 Q. And how about the third book?

A. Teaching evolution in Higher Education: Methodological, Religious, and Non-religious Issues. This is a book specifically about the conflict that instructors see students bring into their courses concerning evolution, and it also came out in 2005. It was a good year.

292 Q. And does it give advice to science professors how to deal with students who have creationist beliefs?

A. Yes. It does more, yes.

293 Q. What's the fourth book there?

A. Project Collaboration: One Large Experiment. It's a book about the activities I mentioned earlier, the compilation of the work of a hundred graduate students in education, hundreds of teachers out in the field, and about fifty some graduate students in science.

294 Q. Now, I want to focus a little bit more on the fifth book listed there, and what is that book?

A. Defending Evolution in the Classroom.

295 Q. And what I'm holding in my hand, is this a copy of that book?

A. Yes.

296 Q. Now this book received some endorsements, did it not?

A. Yes, it did. The president of the American Association for the Advancement of Science endorsed it in writing.

297 Q. Let me stop you for one minute there. Matt, could you pull up the exhibit -- this is Plaintiff's Exhibit 212, and is this a cover, is this the cover of your book?

A. Yes, it is.

298 Q. And Matt, could you turn to the next page, please? And is this a page, one of the pages

of endorsements?

A. Yes, it is.

299 Q. And the first one is by a gentleman identified as Stephen J. Gould, professor of zoology and geology at Harvard University. Who is, or who was Stephen J. Gould?

A. The late Stephen J. Gould is considered by most people to be one of the top evolution area theorists and popular writers of evolution to live in the past century. He was a professor at Harvard as stated there. He'd been president of the AAAS, American Association for the Advancement of Science, and I think he was, before his death he had been awarded close to 45 honorary doctorates.

300 Q. And what Professor Gould says about your book is, "This book becomes a vital document in one of the most important issues in our age," is that correct?

A. Yes.

301 Q. And did Professor Gould also write the foreword to your book?

A. Yes, he did.

302 Q. And who is Howard Gardner?

A. Howard Gardner is one of the leading

education professors in the nation, if not the world. He's a professor at Harvard.

303 Q. And we'll just do one more, the third endorsement there is from Ernst Mayr, and I believe we have heard this gentleman's name in the courtroom already. Who is Ernst Mayr?

A. Ernst Myer passed away recently at age 100. He was again one of leading evolution scientists of the century, considered by most, and was a professor at Harvard also.

304 Q. And what he says about this book is, "This book should be in the hands of every educator dealing with the subject of evolution," did I read that correctly?

A. Yes.

MR. WALCZAK: Your Honor, we would move Dr. Alters as an expert in science education with a specialty in the teaching of evolution.

THE COURT: Any questions by defense counsel?

MR. MUISE: Your Honor, pursuant to the stipulation, we have no objections to his qualifications to testify as such.

THE COURT: Thank you, Mr. Muise. He is admitted for the purpose as stated by

Mr. Walczak, and you may proceed with your direct examination.

MR. WALCZAK: Thank you, Your Honor.

BY MR. WALCZAK:

305 Q. Dr. Alters, you understand that the Dover policy on intelligent design includes the reading by school administrators of a four paragraph statement, and then there are restrictions placed on what teachers can and cannot discuss in class about that statement, is that your understanding?

A. Yes. And the policy also concerns other aspects, I guess the mention of the, part of the policy within the curriculum, the Dover curriculum.

306 Q. And do you have an opinion about whether the policy promotes students' science education?

A. Yes.

307 Q. And what is your opinion?

A. If anything it's detrimental to their science education.

308 Q. Do you have an opinion about whether the Dover policy constitutes good pedagogy?

A. Yes.

309 Q. And what is your opinion?

A. It does not promote good pedagogy.

310 Q. We're going to take a little bit of time to look at the basis for your opinions. Is teaching students about evolution important?

A. Yes, it's extremely important. It's the overarching theme, the underlying concept, it's the glue that holds all of the life sciences together. It would be somewhat like teaching a physics course without talking about gravity, something like that. It's probably even more central to biology. Most biology professors have indicated such.

311 Q. Now, certainly not every student in a high school going is going to become a scientist, is that a fair statement?

A. Correct.

312 Q. Why is it important for students who don't become scientists to learn about evolution?

A. Well, evolution involves so many aspects of their life. Bacterial resistance, pesticides, evolution of organisms for pesticide problems, environmental issues, in general just their reading of environmental issues in newspapers and magazines, voting on issues, thinking about getting involved in such issues. Many of those

involve evolution. There's many more of course. It's interesting to know how the diversity of life and why things look the way they do and are the way they are, it's extraordinarily important, and most people like it also for discussions. It's somewhat interesting, you know, how am I related to those other organisms.

313 Q. Now, how would you define good pedagogy? First of all let me ask you, what is pedagogy? What does that word mean?

A. Generally it means the art and science of teaching.

314 Q. So what is good pedagogy?

A. Well, I can speak for science education. Good pedagogy is usually underpinned by an educational theory called constructivism. It goes by some various other terms, but basically it's constructivism, and it's that a child is just not a vessel into which we pour knowledge. We just don't do that. The child interacts with what they're hearing and constructs their own knowledge of that. And so most, most areas of science education underpin their activities and their learning and so forth on constructivism. So that's kind of the central theme for most of

it.

315 Q. And does good pedagogy involve students' misconceptions?

A. Yes, it does, because again we just can't pour knowledge into students. We have to find out what it is that they have preconceptions about, or if it's not directly about the subject being taught, it's something that they misunderstand that's impeding them to understand what is being taught currently. And so diagnosing those misconceptions is very important in figuring out a treatment to be able to be used in the classroom so the students can overcome those misconceptions so that they can learn what needs to be learned.

316 Q. And does good pedagogy also mean that you don't engender needless misconceptions?

A. Absolutely. There would hardly be anything worse for a science teacher to do than engender needless misconceptions.

317 Q. Let's talk a little bit about selecting course content for a biology class. Are there sources that teachers, administrators, and others can consult to decide on say a science curriculum content?

A. Sure, many of them consult the National Education Association, National Science Teachers Association, NABT that I mentioned previously, National Association of Biology Teachers, absolutely.

318 Q. And do those organizations rely on any others in helping them formulate positions on appropriate science curriculum content?

A. Sure they do, because they're generally made up of science educators. So they often need help on the science aspect, so then they look to the national and leading worldwide science associations for help. The National Academy of Sciences, the most prestigious science organization in the United States, if not the world. AAAS, American Association for the Advancement of Science, it's the largest general scientific society on the planet. Their publication is read by a million people subscription. They serve ten million individuals. Vast resources for science education association.

319 Q. And do you know whether the science education organizations, the National Science Teachers Association and the National

Association of Biology Teachers, have taken positions on the teaching of evolution and intelligent design?

A. Yes, they have.

320 Q. Are there also -- we'll come back to that in just a moment. Are there also standards put out at the state level?

A. Yes.

321 Q. And does every state have standards?

A. I believe there's one that doesn't, but I believe 49 do.

322 Q. And you're not going to tell me Pennsylvania doesn't?

A. No. Pennsylvania does.

323 Q. Pennsylvania does have standards on teaching science?

A. Yes.

324 Q. And do those standards also relate to teaching biology?

A. Yes.

325 Q. Now, if a school board member wanted to learn, or a school board member or anybody else wanted to learn what to teach in science class, are there places they could go to research this?

A. There's many places, but the educational

associations I previously mentioned, NSTA and NABT, have wonderful web sites and they publish books, pamphlets, they have a vast amount of resources, they hold annual conferences, regional conferences, yes.

326 Q. And do you know whether the scientific associations also have web sites that are readily accessible to the public?

A. Yes, they do.

327 Q. And how about the Pennsylvania standards? Do you know whether those are available on-line?

A. Yes, they're on-line.

328 Q. And you've checked and been able --

A. Yes. I know, yes.

329 Q. Let's come back to the national science associations' positions, not science education associations, and you testified that the science education associations are to some extent derivative of, their positions are derivative of what the science organizations do?

A. Well, it would be tough for a national or any science education association to make statements about science without checking with the scientific association.

330 Q. So they tend to do that in formulating

positions?
A. Yes.
331 Q. And do you know what the National Academy of Science, what position they've taken on evolution and teaching the occurrence of evolution and about intelligent design?
A. Yes. They're very much for, extremely for teaching the science of evolution, and very much against teaching intelligent design.
332 Q. Matt, if you could pull up exhibit P-192? Is this a publication from the National Academy of Science?
A. Yes, it's Science and Creationism: A View from the National Academy of Science.
333 Q. Is this put out for scientists?
A. No, it is not.
334 Q. Who is it put out for?
A. It's put out for teachers.
335 Q. And I've asked you to highlight a passage. Matt, if you could pull up, and this is from the page marked "Conclusion" in the publication Science and Creationism. Could you please read that passage into the record?
A. Yes. "Creationism, intelligent design, and other claims of supernatural intervention in the

origin of life or of species are not science because they are not testable by the methods of science. These claims subordinate, observe data to statements based on authority, revelation, or religious belief. Documentation offered in support of these claims is typically limited to the special publication of their advocate. These publications do not offer hypotheses subject to change in light of new data, new interpretations, or demonstration of error. This contrasts with science, where any hypothesis or theory always remains subject to the possibility of rejection or modification in light of new knowledge."

336 Q. And do you know whether this reflects the official position of the National Academy of Sciences?

A. Yes, it does.

337 Q. And earlier you testified that AAAS, or the American Association for the Advancement of Science, is the largest organization of scientists I think you said in the world?

A. Yes.

338 Q. Certainly in the United States, and have they taken a position on teaching about the

occurrence of evolution and intelligent design?

A. Yes, they have.

339 Q. Matt, if you could pull up Exhibit P-198, please? And is this AAAS, a board resolution on intelligent design?

A. Yes.

340 Q. If you could highlight the first three or four whereas clauses? Dr. Alters, if you could read for the record the highlighted passages?

A. Okay. "Whereas, ID proponents claim that contemporary evolutionary theory is incapable of explaining the origin of the diversity of living organism; whereas to date the ID movement has failed to offer credible scientific evidence to support their claim that ID undermines the currently scientifically accepted theory of evolution; whereas the ID movement has not proposed a scientific means of testing its claims, therefore be it resolved that the lack of scientific warrant for so-called intelligent design theory makes it improper to include as part of science education."

341 Q. Now, again this is a science association?

A. Yes.

342 Q. This isn't a science education association?

A. Correct.

343 Q. But they have put out this statement and taken this position about science education?

A. Yes.

344 Q. And do you know this to be their formal position?

A. It is.

345 Q. Are you aware of any science associations that have taken a position that students should be taught that there are questions or controversies about the occurrence of evolution?

A. No.

346 Q. Are you aware of any science associations that have taken a position that intelligent design should be taught in science classes?

A. No.

347 Q. So you're aware, and you're aware that they have taken positions and said no, it should not be taught?

A. Every scientific association that I'm aware of, and there are a lot of web sites listed in various places, such as the National Center for Science Education, when they make a statement concerning evolution or intelligent design, they always say intelligent design should not be

taught.

MR. WALCZAK: Your Honor, this might be a good time, or we could go another ten or fifteen minutes or --

THE COURT: No, why don't we take our morning break at this time. I appreciate your suggestion, Mr. Walczak. We'll do that, we'll break for twenty minutes, and we'll return and pick up the direct examination of this witness. We'll be in recess.

(Recess taken at 10:20 a.m. Trial proceedings resumed at 10:45 a.m.)

THE COURT: Be seated, please. Mr. Walczak, you may continue with your direct examination.

DIRECT EXAMINATION CONTINUED

BY MR. WALCZAK:

348 Q. Thank you, Your Honor. Professor Alters, we just reviewed the statements of science associations on teaching of evolution and intelligent design. I want to now focus on positions of national science education and science teacher associations, and you testified earlier that they have taken positions on the teaching of evolution and intelligent design?

A. Yes. The NSTA and NABT in particular, yes.

Q. Matt, if you could publish Plaintiff's 5exhibit 183, please? And if you could highlight the introduction there, please? First of all, Dr. Alters, do you recognize what's been marked as Plaintiff's Exhibit 183?

A. Yes. It's the NSTA position on the statement of teaching of evolution.

Q. And we have highlighted the introduction here. If you might read this into the record, please?

A. Okay. "The National Science Teachers Association (NSTA) strongly supports the position that evolution is a major unifying concept in science and should be included in the K-12 science education frameworks and curricula. Therefore, if evolution is not taught, students will not achieve the level of scientific literacy they need. This position is consistent with that of the national academies, the American Association for the Advancement of Science, AAAS, and many other scientific and educational organizations.

NSTA also recognizes that evolution has not been emphasized in science curricula in a manner commensurate to its importance because of

official policies, intimidation of science teachers, and general public's misunderstanding of evolution theory, and a century of controversy. In addition, teachers are being pressured to introduce creationism, creation science, and other non-scientific views which are intended to weaken or eliminate the teaching of evolution."

351 Q. Now, is there anything in that statement which would suggest to a science teacher that there is doubt about the occurrence of evolution?

A. Nothing.

352 Q. Are you aware of anything else in this document that would support such a view?

A. No.

353 Q. I want to focus a little bit on the second paragraph in the introduction, and it talks about teachers being pressured and the intimidation of science teachers. Do you know anything about that?

A. Yes. I have talked with hundreds of teachers throughout North America, and a large percentage feel the pressure in various ways. Sometimes it's just media pressure, they might

think they might get drawn into something that would occur, for example something like the Dover situation here. They feel that parents might not like evolution being taught in their classroom. Sometimes parents come directly in and talk to teachers.

Some teachers feel pressure from their administration where administration says can you de-emphasize the teaching of evolution. We've had a parent or two or more dislike the idea of evolution being taught in the classroom. NSTA, this organization here that the statement is from, within the last six or seven months did a survey of its members, fifty thousand, over fifty thousand science teachers, and over -- well, approximately one-third, 31 percent I believe it was, said they felt some form of pressure for teaching creationism, non-scientific beliefs in the science classroom. So yes, we have a lot of that, and it's very unfortunate that science teachers feel pressured to de-emphasize something so important as evolution.

354 Q. And this isn't pressure that's new on science teachers, is it?

A. Oh, no. From the best we can tell it's been around for a long time.

355 Q. And so how might this pressure -- and is this pressure from parents, or what are the sources of the pressure?

A. Well, it's perceived from the teachers, and they -- sometimes it's from the parents, sometimes it's even from students. They notice a student or two may be emotionally upset, or they detect some emotional upset in the student when they talk about evolution but not other subjects in the biology curriculum. So there's pressure even from that direction, but direct pressure from parents, indirectly through administration, just teachers reading about this sort of stuff gets in the media and they can drawn into some sort of social controversy. It concerns them.

Most science teachers don't go into teaching, the ones I'm aware of, thousands of them, don't go into science teaching to have a social fight. They go in because they want to turn kids on to science and have kids understand science better. So all of a sudden they're in sort of a, often a combative or at least

perceive that it's going to be a combative situation, so they often take the road that has less friction, the non-combative route, and de-emphasize evolution. And many of them hold firm and teach evolution anyway and experience the discomforts of perceiving this pressure, real and perceived.

356 Q. So the result is even if there's no school board policy in a lot of districts, the teaching of evolution is diluted because of all these social pressures?

A. Yes.

357 Q. Now, you made a statement that these same pressures don't attend other areas of science.

A. Right. The teachers don't perceive any pressure against teaching, let's just say physics, trajectory. They don't feel pressure that there's going to be parents, a child being upset, administration coming in saying can you de-emphasize the trajectory portion of your physics course, right.

358 Q. And it doesn't happen in any other aspect of science?

A. Not to the extent -- evolution is special culturally. It's not special scientifically,

it's another science, but it has a cultural aspect to it, and that's where the teacher feels this perceived pressure.

359 Q. So evolution is different than other scientific theories?

A. No, it's not different as a science. It's a science the same as any other science. It's just culturally different. Culture in general perceives evolution to be a different type of concept.

360 Q. And much of that controversy is based in religious beliefs?

A. Yes.

361 Q. And you in fact spent a good deal of your professional career studying how the religious beliefs affect the students' learning and the interaction in the classroom between the teaching of evolution and these creationist beliefs?

A. Yes.

362 Q. We're going to come back to that in just a minute. Matt, if you might now highlight the declarations in this NSTA statement? Dr. Alters, I want to these take these one at a time here, and could you read the first bullet statement,

please?

A. Yes. "Science curricula states science standards, and teachers should emphasize evolution in a manner commensurate with its importance as an underunifying concept in science and its overall explanatory power."

363 Q. Do you agree with that?

A. Yes.

364 Q. And is that consistent with a position taken by every major scientific association?

A. Yes.

365 Q. Could you read the second bullet point, please?

A. "Science teachers should not advocate any religious interpretations of nature and should be nonjudgmental about the personal beliefs of students."

366 Q. Do you agree with that?

A. Yes.

367 Q. Have you in fact spent much of your career studying what they're talking about in that statement?

A. Yes. I have done primarily over a thousand interviews with people concerning this very aspect.

368 Q. So there is a right way and a wrong way, or a better or worse way to teach about evolution?

A. Yes, absolutely.

369 Q. And could you talk to us about that?

A. Yes. There's many aspects, but I think the most fundamental is for a child to understand the difference between different ways of knowing, between a scientific way of knowing and a non-scientific way of knowing. Many students that bring into the classroom perceived problems with evolution because of their religious beliefs, whether they're accurate of their religious beliefs or not, they still often perceive that somehow evolution is against their religious beliefs.

A teacher expressing how science has certain rules and that everything in science is tentative and is open to new data coming in, and that you can have, you can play the game of science and you can still have your religious faith, too. They ask and answer separate questions. Science doesn't answer religious questions, and most religions don't have any significant problem with evolution. And getting students to understand then the first place that

evolution does not deny the existence of God. It says nothing about God. It's outside of the realm of science.

So those two factors are fundamental. There's more, but those are fundamental, and those are hard to get students to understand that there's multiple ways of knowing. Most students have been raised and it's just a matter of maturation also as epistemological dualist, true/false, right/wrong, credit/no credit, you know. So which is right, you know, my religious belief or evolution?

And so the biology teacher, by expressing to students and having them learn that science has certain rules, and these certain rules are what's in play here and you can still have your answer from religion, but we're going to play the game of science in here, and evolution and science in no way answers or attempts to answer whether there's a god or not, you go a long way if you can get students to understand that.

370 Q. And would it be appropriate for a science teacher to say you have to believe in evolution?

A. Well, no, that would be inappropriate. It's level of confidence. What we want -- I

use the term belief not as a religious belief. I use the term belief as level of confidence, and we want students to understand the game, let's take it outside of evolution for a moment to mathematics. We want the child to understand the games of mathematics so that two plus two equals four, and to have a high confidence level that within the game of mathematics, following the rules of mathematics, the logic of mathematics, the rationale of mathematics, how the mathematical community works, that yes, it is logical that the best explanation is two plus two equals four. Now, if the student says for religious beliefs, the student says hey, I've got religious beliefs that says two plus two equals five, then the teacher should say, "I respect that."

371 Q. So the same treatment should be given to a student who expresses some view opposing evolution in the classroom?

A. I'm sorry?

372 Q. So if a student says to a biology teacher for instance, you know, "I don't believe that we came from monkeys," the appropriate response from the science teacher is to be respectful

and to do what?

A. Of course this class does not entertain religious beliefs, does not detract from them, nor does it add to them. It does not advocate any religious belief. It's a science course.

373 Q. And is that part of what you would consider good pedagogy?

A. Absolutely.

374 Q. Could you read the third bullet point, please?

A. "Policy makers and administrators should not mandate policies requiring the teaching of creation science or related concepts such as so-called intelligent design, abrupt appearance, and arguments against evolution. Administrators also should support teachers against pressure to promote non-scientific views or to diminish or eliminate the study of evolution."

375 Q. So does this statement from the National Science Teachers Association, the largest association of science teachers in the country and the world, takes a clear position on intelligent design?

A. Absolutely.

376 Q. And it says what?

A. That intelligent design is not science and should not be taught in a science classroom.

377 Q. I want to look for a moment at the last sentence in that third bullet point, "Administrators should support teachers against pressure to promote non-scientific views." Do you know why that is included in the statement?

A. Yes. With all due respect to all administrators everywhere, administrators often come to teachers and would like to have less confrontation, less commotion at schools, and often they will ask biology teaches is there a way we can de-emphasize a little bit of this evolution or take some of the aspects that maybe are causing some of this concern with parents and/or students or religious leaders out of the curriculum, out of your teaching. And so NSTA here is apparently attempting to say administrators should be doing the opposite. They should be supporting the teaching of science.

378 Q. And that's because it's important to present evolution in as they say in the first bullet point to emphasize evolution in a manner commensurate with its importance as a unifying

concept in science?

A. Yes, and what it tells me as a science educator is that this is such a big problem the NSTA had to come out and actually make this statement. This statement, I haven't seen this statement concerning, you know, areas outside of evolution. Again back to trajectory, I haven't seen administrators also should support teachers against pressure for people who want to de-emphasize trajectory.

379 Q. If we could now go to the fourth bullet point, and if you could please read that?

A. "Administrators and school boards should provide support to teachers as they review, adopt, and implement curricula that emphasize evolution. This should include professional development to assist teachers in teaching evolution in a comprehensive and professional manner."

380 Q. And is that what you were just talking about a few moments ago about sort of the right way and the wrong way to teach evolution?

A. Yes. And this bullet particularly goes to the point of teachers often have pedagogical days some places they call them, in servicing

they call them at other places. Basically what that means is days in which teachers, they go to their local conference, maybe a regional conference, maybe even a national conference or something, supported by their administration to learn more about how to teach evolution.

381 Q. And this would seem to support the notion that the teaching of evolution is different and because students have religious sensitivities that it may require additional professional training and support?

A. Yes, it is. It has more of that possibility of perceived conflict than most other areas of science, if not all.

382 Q. And do you in fact teach teachers that they need to seek support in learning how to deal sensitively with students' religious objections to evolution?

A. Yes. Probably the most important point is to be sensitive to the students, for the teacher to understand that this will be different than teaching other things in their day.

383 Q. If you could read the fifth declaration, please?

A. "Parental and community involvement in

establishing the goals of science education and the curriculum development process should be encourage and nurtured in our democratic society. However, the professional responsibility of science teachers and curriculum specialists to provide students with qualify science education should not be compromised by censorship, pseudo science, inconsistencies, faulty scholarship, or unconstitutional mandates."

384 Q. So this talks about the importance of supporting the professionals, the science teachers within the school district?

A. Yes.

385 Q. And if you can read the last declaration, please?

A. "Science textbooks shall emphasize evolution as a unifying concept. Publishers should not be required or volunteered to include disclaimers in textbooks that distort or misrepresent the methodology of science and the current body of knowledge concerning the nature and study of evolution."

386 Q. Do you agree with that, Dr. Alters?

A. Yes.

Q. I'd like to highlight one other passage in this NSTA statement. Matt, could you go to the legal issues highlight in the fourth paragraph? Dr. Alters, could you read into the record the highlighted passage, please?

A. Yes. "Some legislators and policy makers continue attempts to distort the teaching of evolution through mandates that would require teachers to teach evolution as only a theory or that require a textbook or a lesson on evolution to be preceded by a disclaimer. Regardless of the legal status of these mandates, they are bad educational policy. Such policies have the effect of intimidating teachers, which may result in de-emphasis or omission of evolution. As a consequence, the public will only be further confused about the nature of scientific theories. Furthermore, if students learn less about evolution, scientific literacy itself will suffer."

Q. So this says regardless of the legality of saying that evolution is only a theory, it's bad pedagogy?

A. Yes.

Q. You testified that the largest association

of biology teachers is the National Association of Biology Teachers, NABT for short?

A. Yes.

390 Q. Do you know whether they've taken a statement on the teaching of evolution?

A. Yes.

391 Q. Matt, could you put up Exhibit 186, please? Dr. Alters, do you recognize what's been marked as Plaintiff's Exhibit 186?

A. Yes. It's the NABT statement on the teaching of evolution.

392 Q. And do you know when it was most recently updated?

A. I think it's right on there, 2004, May.

393 Q. And Matt, could you highlight -- Dr. Alters, if you can read from the NABT statement on the teaching of evolution, please?

A. "Scientists have firmly established evolution as an important natural process. Experimentations, logical analysis, and evidence based revisions are procedures that clearly differentiate and separate science from other ways of knowing. Explanations or ways of knowing that invoke non-naturalistic or supernatural events or beings, whether called

creation science, scientific creationism, intelligent design theory, young earth theory, or similar designations, are outside the realm of science and not part of a valid science curriculum. The selection of topics covered in a biology curriculum should accurately reflect the principles of biological science. Teaching biology in an effective and scientifically honest manner requires that evolution be taught in a standards based instructional framework with effective classroom discussions and laboratory experiences."

394 Q. Do you find anything in this statement or anything else in the NABT statement that would support the teaching of intelligent design as science?

A. No, to the contrary.

395 Q. I'd like to direct your attention to one more teaching organization. Do you know whether the American Association of University Professors has recently taken a position on intelligent design?

A. Yes, they have. June.

396 Q. And that organization is known by the acronym AAUP?

A. Yes.

Q. Is that an organization of science teachers?

A. It's an organization with 45,000 members in the United States of instructors at the college and university level.

Q. But it includes more than just science professors?

A. Yes.

Q. Matt, could you put up Plaintiff's Exhibit 700, please? Do you recognize what's been marked as Plaintiff's Exhibit 700?

A. Yes.

Q. Matt, if you could highlight -- Dr. Alters, if you could read from the AAUP position statement?

A. "The theory of evolution is all but universally accepted in the community of scholars, and has contributed immeasurably to our understanding of the natura world. The 91st annual meeting of the American Association of Universities Professors deplores efforts in local communities and by some state legislatures to require teachers in public schools to treat evolution as merely a

hypothesis or speculation, untested and unsubstantiated by the methods of science, and to require them to make students aware of an intelligent design hypothesis to account for the origins of life. These initiatives not only violate the academic freedom of public school teachers, but can deny students an understanding of the overwhelming scientific consensus regarding evolution."

401 Q. Are you aware of any science education associations that have taken a position supporting the teaching of intelligent design in science class?

A. No.

402 Q. Do these science education associations hold meetings and conferences?

A. Sure. National, regional, some even smaller than that.

403 Q. How often do these conferences take place?

A. Well, the nationals are usually annually, and regionals generally annually, and the smaller groups sometimes multiple times throughout the year.

404 Q. And I believe you testified that you've attended lots of these conferences, both

national and regional?

A. Yes.

405 Q. Are you aware of any conferences, any science education conferences that promote teaching that the occurrence of evolution is not scientifically established?

A. No.

406 Q. Are you aware of any science education conferences where they teach that intelligent design should be taught in science education class?

A. No.

407 Q. Are you aware of any teacher conferences, not science teacher conferences, where they support the teaching of intelligent design?

A. Yes.

408 Q. And what organization would that be?

A. Association of Christian Schools International.

409 Q. They support the teaching of intelligent design in science?

A. Well, they have sessions on it, yes.

410 Q. I want to focus now on the Pennsylvania science standards. Matt, if you could put up Plaintiff's Exhibit 210, please? Do you

recognize this, Dr. Alters?

A. Yes.

411 Q. And what is it?

A. It's the academic standards for science and technology and environment and ecology.

412 Q. Matt, if you could put up the introduction, the introductory page? And if you can highlight the first passage? And could you read that statement, please?

A. "These standards describe what students should know and be able to do by the end of 4th, 7th, 10th, and 12th grade. In addition, these standards reflect the increasing complexity and sophistication that students are expected to achieve as they progress through school."

413 Q. These are standards put out by the Pennsylvania Department of Education?

A. Yes.

414 Q. And are these similar to the standards found in other states?

A. More or less. They're never identical, but --

415 Q. Matt, if you could go to page 4, and if you can highlight the first passage, "What is science?" This is the page entitled "Academic

standards for science and technology." And Dr. Alters, if you could read the highlighted passage, please?

A. "What is science? Any study of science includes the search for understanding the natural world and facts, principles, theories, and laws that have been verified by the scientific community, and are used to explain and predict natural phenomena and events."

416 Q. And what is significant about this passage?

A. Well, it's defining science for the rest of the standards right at the beginning. It's saying this is what science is, and then the rest of the science standards follow.

417 Q. And what about words highlighted in yellow?

A. That's crucial, because teachers cannot bring in something that hasn't been verified by the scientific community and teach it as a fundamental area of science to the students. It's saying no, that wouldn't be considered science according to the Pennsylvania state standards.

418 Q. So under the standards it's important to teach materials that has actually been verified by the scientific community?

A. Yes.

419 Q. And in all of these science education associations they generally look for consensus in the scientific community --

A. Yes.

420 Q. -- around, I'm sorry, around particular issues?

A. Yes.

421 Q. And it's only those issues around which there is a consensus that are taught in --

A. That's taught, and sometimes what is taught is genuine scientific debate that's going on within the scientific community.

422 Q. But again that has to be a debate within the scientific community and not in culturally or among lay people?

A. Correct. The scientific community verifies that that's a legitimate scientific, it's based what's going on within their community, yes.

423 Q. And Matt, if you could go to the table of contents, please? And are these the topics that are covered by the Pennsylvania science standards?

A. Yes.

424 Q. And it includes biological sciences?

A. Yes.

425 Q. And it includes evolution?

A. Yes.

426 Q. Have you had an opportunity to review these standards?

A. Yes, I have.

427 Q. Is there anywhere in these standards suggested that evolution is a lesser theory than any other scientific theory?

A. No.

428 Q. Is there anywhere in these standards that suggests that the occurrence of evolution is debatable or controversial?

A. No.

429 Q. Is there any mention in the Pennsylvania science standards about intelligent design?

A. No.

430 Q. Now, the school district points to a particular section of the Pennsylvania science standards. Matt, if you could highlight section 3.212-A? Dr. Alters, if you could read for the record the highlighted provision, please?

A. "Critically evaluate the status of existing theories, for example germ theory of disease, wave theory of light, classification of

subatomic particles, theory of evolution, epidemiology of AIDS."

431 Q. Does that language in any way support the teaching of intelligent design?

A. No.

432 Q. Does it support singling out evolution among all scientific theories for increased scrutiny?

A. Absolutely not. The items that are mentioned there, as you can see there's a few, and those are just for example listings.

433 Q. To your knowledge is there any support in any state or national science standards benchmarks or frameworks for teaching intelligent design as science?

A. No.

434 Q. Let's talk a little bit about textbooks. Are you familiar with high school biology textbooks?

A. Yes.

435 Q. Why is it that you're familiar with those?

A. I've probably reviewed twenty, approximately twenty over the past ten years. Occasionally they're sent to me to be reviewed. Occasionally I like to look at them myself.

Occasionally I look at them and then pass them on to to-be science teachers for their use to take a look at and so forth, and I've reviewed content in a couple of. In fact, the book, Ken Miller's high school textbook, Miller and Levine, I reviewed I think it was the late 1990's edition of it. I don't remember which edition.

436 Q. Did you review that for a particular reason?

A. I believe it was the evolution section.

437 Q. Were you asked to review that by someone?

A. It was probably the publisher.

438 Q. And to give critical feedback?

A. Yes.

439 Q. Are you aware of any textbooks that promote the teaching of intelligent design?

A. Yes.

440 Q. High school textbooks?

A. Yes.

441 Q. And what is that textbook?

A. Biology: A Search for Order and Complexity, about 400 pages, it's published by Christian Liberty University Press.

442 Q. And do you know if that textbook is used in

public schools?
A. I've never hard of it being used in a public school, no.
443 Q. And is that a creationist book?
A. I would call it a creationist book, yes.
444 Q. And you're familiar with it?
A. Yes.
445 Q. Are you aware of any other high school biology textbooks that teach intelligent design?
A. No. There are other ones that teach evidence against evolution. The book I just mentioned certainly does. There's another high school biology textbook that I'm thinking of right now, it's approximately 700 pages long, it's titled Biology for Christian Schools, and it's published by Bob Jones University Press.
446 Q. And that in fact teaches that evolution, the occurrence of evolution is not scientifically sound?
A. Correct.
447 Q. Are you aware of any other high school biology texts that teach evidence against evolution?
A. Not that I can think of at the moment, no.
448 Q. And they talk about the controversies

within the scientific community over the means and mechanisms of how evolution works, but do not question the fact of evolution itself?

A. Textbooks that are commonly used in public schools often discuss problems with the mechanisms. That's genuine scientific debate within the scientific community. They don't put up some form of evidence against the occurrence of evolution, because evolution is considered factual within the scientific community for a long time. The scientists no longer genuinely debate that issue.

449 Q. Let's look at college textbooks. Are you familiar with college biology textbooks?

A. Yes.

450 Q. And why is it that you're familiar with those?

A. I wrote one. Got to keep track of the competition. And I look at evolution textbooks for the college an university level also.

451 Q. Are you aware of any college and university level biology textbooks that teach evidence against evolution?

A. No.

452 Q. Are you aware of any college and university

level biology textbooks that support the teaching of intelligent design?

A. No.

453 Q. Do you know whether any of those textbooks even mention intelligent design?

A. Many of them do mention intelligent design, but they mention it as in a way to teach students that it's not science.

454 Q. And do you know whether these textbooks in fact say that intelligent design is not science?

A. Oh, yes.

455 Q. But you're not aware of any that would support teaching intelligent design as a scientific theory?

A. Right.

456 Q. Let's go to the Dover policy. Matt, if you can put up Plaintiff's Exhibit 124, please? Dr. Alters, you indicated that it was your opinion that reading this four-paragraph statement does not in fact promote good science education. Could you explain for us why not?

A. It doesn't have good science education. It detracts from it. Let me go paragraph by paragraph. First of all there's the first paragraph, all four paragraphs, but particularly

the first paragraph there's something unusual in a science class. Apparently now the students are going to hear, they're going to learn that the Pennsylvania academic standards requires students to learn about Darwin's theory of evolution. My reading of the state standards is that it requires them to learn a lot more science than just Darwin's theory of evolution, but for some reason this is told to the students and the students learn this for some special reason.

Evolution must be a special science somehow I guess from this. This would be the message students would take away from it. It continues on and says eventually to take a standardized test of which evolution is part. Well, I imagine they take standardized tests on lots of areas of science, not just evolution. So it almost kind of signals to the students also, it's definitely a possibility, another aspect that we have to teach this stuff, you know. The other stuff we're just going to teach you, but now this one we have to say the Pennsylvania academic standards requires students to blah, blah, blah, and eventually take a test. We'd

rather not do it, but Pennsylvania academic standards, you know, require students to do this.

And that's the first paragraph. The second paragraph, because Darwin's theory is a theory. Well, that's quite confusing. Darwin's theory is a theory. We don't say, you know, because the physics law is a law or this physics theory is a theory. Yes, Darwin's theory is a theory, but the second theory being used, especially as understood by most 15-year-old students, most high school students in fact, is that a theory is nothing more than a half baked idea they had when they got up in the morning, a theory is something that Mulder uses on the "X Files" two times an episode to mean yeah, I just got a new idea. It's used in the media all the time to meet that, and I understand that very well.

However, the first theory, if it's being used correctly here, is a scientific theory, which is quite different than the half baked idea. It has a lot of evidence behind it, an explanation of a natural phenomenon. So to juxtapose those two theories together is

terrible and sends a wrong signal to the students. Oh, this scientific theory is only a theory, you know, this scientific theory is, this is one of those half baked ideas, okay?

That's the first five or six words. "It continues to be tested as new evidence is discovered." Well, all theories all of science continue to be tested, all of science continued to be tested as new evidence is discovered. So why is evolution being singled out here as this to be told to the students? This is shaky, this is I believe most students would say that's because this Darwin's theory stuff appears to be shaky. It's only a theory, and you know, they're still testing it as new evidence is discovered. Well, all of science is that way.

It continues, "This theory is not fact." Well, that's just dead wrong. Evolution is a theory and fact. It is both. It is a theory because it explains the diversity of life on the planet you understand. It's a fact because its confidence level is so extraordinarily high in the scientific community, they no longer debate it, they no longer publish papers, there's no significant body of literature in the

scientific journals about saying the occurrence of evolution whether it happened or not. It's not there. It's considered factual in the scientific community, extraordinarily well accepted. So this is very inappropriate. Evolution is a factual theory. That would be an appropriate term to use that the student should be taught that, but in any case that sentence has many problems.

"Gaps in the theory exist for which there is no evidence." Well, there's not evidence against the occurrence of evolution. The mechanisms of evolution of course as I mentioned before are being debated extensively, but this really doesn't tell us whether it's the occurrence of evolution or not. It's confusing to the students. It's not specific. So it's just kind of engendered that evolution in general, you know, this theory has gaps which there's no evidence.

And notice when we get down to the next couple of paragraphs we'll notice that it's being juxtaposed with intelligent design. But when we get to intelligent design later in the couple of paragraphs, it doesn't say anything

about gaps being in that idea of intelligent design. It only points out that evolution, you know, is only a theory, and it's got gaps for the theory exists for no evidence, so forth. So it's bad in that respect, too.

457 Q. Dr. Alters, let me just stop you there for a minute. You said evolution. I don't actually see the term "evolution" in that second paragraph. The term they use is "Darwin's theory." Do you know from your research how students would perceive that term, do they equate that with evolution?

A. They often equate Darwin with evolution, but I think first paragraph where it says Darwin's theory of evolution, and then it carries through the rest, I think they would associate it with that also.

458 Q. How about that last sentence in the second paragraph?

A. "A theory is defined as a well tested explanation that unifies a broad range of observations." That sounds pretty good. I might add in just for my own two cents of natural phenomena, but that sentence is probably the best one. Third paragraph, "Intelligent

design is an explanation of the origin of life that differs from Darwin's view." Very confusing, and pretty much dead wrong I guess. Origin of life from Darwin's view, I don't know Darwin's view of the origin of life. Darwin didn't posit a scientific view out in public on the origin of life. He wrote a letter about a little warm pond scenario once, but I don't know what it is.

459 Q. That's not in his book Origin of Species?

A. No. I don't quite understand that, intelligent design is an explanation of the origin of life that differs from Darwin's view. Again it's wrong. It's basically sends a wrong signal to the students. "The reference book Of Panda and People is available for students who might be interested in gaining an understanding of what intelligent design actually involves." Pandas and People advocates intelligent design. Intelligent design has been condemned by the national scientific associations, the most prestigious, the largest, the largest science teachers organizations, the largest science teacher biology organization, on and on and on, and now we're referring students to go seek it

out as a supplemental book to take a look at in a science class when its central theme of intelligent design has been judged to be not science.

So I have a lot of problems with that. Let's move on to the last paragraph, "With respect to any theory, students are encouraged to keep an open mind." Why are we putting this only with evolution? Well, I agree with the sentence, but why is it being juxtaposed only with evolution? And of course students are always encouraged to keep an open mind. It's very strange. "The school leaves the discussion of the origins of life to individual students and their families." Well, kind of interesting, the origin of life in a science class, in a biology class is science, and it almost sounds like the scientists and the science teachers can't be trusted to talk to students about the science of the origins of life.

"As a standards driven district, class instruction focuses upon preparing students to achieve proficiency on standards based assessment." The last sentence again, doesn't that go for all of science at the school? And

why is it being juxtaposed to evolution here? Again it makes it sound like we have to do this. We really don't want to teach you evolution, but as a standards driven district class instruction focuses on preparing students to achieve proficiency on standards based assessment, and since evolution is going to been on there, we have to teach this to you. Those are some of the problems I have with those four paragraphs.

460 Q. And so in your view does this statement engender misconceptions in students about science education and science generally?

A. Definitely.

461 Q. Does this statement help prepare students for post secondary science education at major colleges and universities?

A. To the contrary. If one would go to any college that teaches biology and evolution and brings up some of the things that are said in here, they would have to be corrected by the later university professor. I mean, I imagine at some point especially since intelligent design is mentioned in here, you know, bringing up supernatural causation in the middle of a science class in the university or a college

biology, any science professor would probably, especially biology professors would ask where they learned their science, what school did they go to.

462 Q. Could that be embarrassing to the students?

A. I assume it could be quite embarrassing, yes.

463 Q. So does reading this statement to students constitute good pedagogy?

A. No. To the contrary it engenders misconceptions. This is exactly what we shouldn't be doing to students for multiple reasons, some of which I mentioned.

464 Q. Does reading the statement require the readers to disregard findings of the scientific community?

A. Could you repeat the question?

465 Q. As you know, the teachers have refused to read this statement to the students.

A. That's what I understand.

466 Q. And in fact administrators come into the class and read the statement. I believe in your report, your expert report you talked about whether science teachers reading this would be required to disregard findings of the scientific

community. Since the teachers aren't reading it, I'm asking you whoever is reading this, the administrator or teacher, does it require them to disregard findings of the scientific community?

A. Yes. It's putting forth that this is an alternate scientific explanation, and it is not. So one would have to ignore the leading organizations in the United States, if not the world.

467 Q. And similarly it requires the reader to disregard the recommendations of the national professional science teacher associations?

A. Yes.

468 Q. And would this require teachers, if they were reading it, to contradict their professional preparation and professional development?

A. Yes. Their professional development as accurate science is part of it, to teach students accurate, not to engender needless misconceptions about science.

469 Q. And is there a code of professional ethics among the science educators?

A. I don't know if there's so much a code, but

I can't think of anything worse for science education than to intentionally engender needless misconceptions.

470 Q. The district claims that simply reading this four paragraph statement to students is not "teaching" intelligent design. Do you agree with that?

A. No, it's definitely teaching.

471 Q. Why is that?

A. Teaching is the act of facilitating learning. Students have learned a whole lot from these four paragraphs. It's a mini lecture. Doesn't last long. I'm not saying it's good teaching, but it's teaching. A lot of us have been through our lives and have heard a lot of lectures, and what students could have learned from this, I'll quickly just go through a few. First of all they learn that Darwin's theory is only a theory and it continues to be tested.

A theory is not fact. These by the way, many of them are misconceptions as I mentioned. That gaps exist in this theory. This is something by the way that they're just about, my understanding is this statement is read

before they begin the evolution unit. So they're just about to enter the cornerstone of modern biology in their high school class, and this is read. All these misconceptions about it are learned by the student, or at least read to the student and these students can learn these things right before it begins.

But to get back to this, they're learning that a theory is not a fact. They learn that what you're about to learn on evolution, there's gaps in this theory and which there's no evidence. They learn that, I like that last sentence in the second paragraph. They learn about this other thing they probably never heard about, at least most of the students probably have never heard about, something called intelligent design, and they learn that it's an explanation for the origin of life that somehow differs from this Darwin's view that they're about to learn about if they haven't already learned about it.

They learn that there's this reference book, apparently some science reference book located somewhere the school has entitled Of Pandas and People, and it's available and you

may want to go seek this out if you want to gain an understanding of what intelligent design involves. They've learned that. The fourth paragraph, they're learning that they're encouraged to keep an open mind, but apparently they're only encouraged during this time. We're about to begin evolution, so now keep a special open mind now.

The school leaves the discussion of the origins of life to individual students and their families, again as I mentioned previously this signals to students they might learn that oh, that's a special science. That's something, that's science that has to be discussed with parents and not the science teacher. And then of course the final one as I discussed before, they might be reinforced in learning again the other, very beginning, that somehow it seems like what we're about to learn they really don't want to teach us, but you know, they have to do it anyway.

Those are some of the things that the students can learn from learning this four paragraphs. I'm not saying all students will learn all of that, but it's certainly a

possibility and there's certainly lots of students who will learn a lot of these, and I'm very concerned about the misconceptions that are engendered about this also. And yes, it's a form of teaching. Students will learn, somebody is reading to them, it is a lecture, it's in the Dover curriculum, it says lecture. This is a lecture.

472 Q. So the fact that it's not part of an extended discussion doesn't mean that it's not teaching?

A. It is teaching.

473 Q. And it facilitates learning by students?

A. Yes. It's not -- if students aren't learning things in this four paragraphs, then it begs the question obviously why is it being read to the student.

474 Q. Now, what if any effect does the possibility for students being able to opt out or leave the room when this statement is read have on your opinion about this engenders misconceptions?

A. Now comes another special thing about evolution. There's an opt out policy before the special statement that's read before the

unit in evolution, the special science apparently, and now this is such an unusual occurrence that they can even opt out. Peer pressure may affect students to stay in or opt out. Students may talk at breaks, they may talk at lunch, they may talk at recess, they may talk after school about what happened when I was outside of the classroom. My parents wanted me to opt out during this time, but what happened in there, it's something special.

475 Q. So if anything this highlights the unusualness of the teaching of evolution?

A. It's unique. One of the things we try to do in science education is make our different teaching unique. It draws more attention to the student. The student pays more attention to something that's unique and not the norm. And this is certainly unusual, this reading of this paragraph and everything connected with it, the opt out and so forth. So this will probably draw more attention to it than the teacher just doing whatever they normally do in the classroom.

476 Q. And how does the fact that the teachers are excused from the room and an administrator, and

I believe it's been either the superintendent or the assistant superintendent, have come in and read the statement?

A. Well, it just adds more novelty to it, makes it more unusual. Now we have a guest. Apparently an administrator comes in, the teacher exits the classroom during this time my understanding is. This creates an extreme novelty in the classroom, and all before an evolution unit.

477 Q. So again it sort of heightens the specialness of evolution and dramatizes the promotion of intelligent design?

A. It's an incredible introduction to the next unit in science, yes.

478 Q. Now, Matt, if you can put up the entire document marked as Plaintiff's Exhibit 124? And if you could go to the second page? And if you could highlight paragraph 5? This is towards the end of the statement read to the students. Could you read for the record the highlighted passage, please?

A. "As noted in the last paragraph of the statement, there will be no other discussion of the issue, and your teachers will not answer

any questions on this issue. If you or your parents have any questions, they can contact Dr. Nilsen, Mr. Baksa, or Mr. Reidel."

479 Q. What effect do you think that's going to have on the student?

A. That it's a secret science, that somehow this science is secret. They can't ask their science teacher about this particular science. Everything else that goes on in the science class during the year in normal science classrooms they can ask the teacher could you elaborate on this, could you tell me more about this, could you tell me is it good, bad, explain to me, I don't quite understand this aspect.

But apparently this is a secret science that they can only discuss it, they can only hear about the introduction of it, they can only be referred to this book about this secret science located somewhere on campus, and they can't ask their science teachers questions about this science. It's extraordinarily strange. Science if anything is extraordinarily open, and here we have this secret science that students apparently can't discuss with their science teacher.

480 Q. So is it, is this pedagogically appropriate?
A. It's about as bad as I could possibly think of.
481 Q. To raise an issue with students and then tell them they can't discuss it?
A. It's just, it's absurd to me that you would bring up a topic, say it counters the cornerstone of modern biology that you're about to be introduced to, here's a secret science, there's a book located somewhere else, go read the book, don't ask your science teachers any questions about this, and then tell the science teachers they're not to answer any questions about this secret science. I can't imagine anything worse.
482 Q. The school district has made a number of arguments in support of what they're doing here, this intelligent design policy, and one of them is that it is appropriate to raise in students multiple ways of knowing. What's your reaction to that?
A. Well, the multiple ways of knowing that would be raised are scientific ways of knowing versus non-scientific ways of knowing. This

would be improper in a science classroom. The science teacher is trained in science. The science teacher is not trained in say religion. Science teachers aren't trained at the university on how to teach religion for example. They're trained on how to teach science, not non-science. So having multiple ways of knowing in a science classroom is not appropriate.

483 Q. Another argument that the school district makes is that this simply promotes critical thinking. What's your reaction to that argument?

A. Promotes critical -- it stifles critical thinking if anything. Again we go back to the secret science. You can't even have a critical discussion with your science teacher about it. It's something that shuts down any form of critical discussion whatsoever, and it's not science anyway. We shouldn't be critically analyzing this non-science in a science class. But anyway, it shuts down critical thinking in science because it's a secret, teachers can't discuss it.

484 Q. And does it promote critical thinking about evolution?

A. No. The paragraphs we read engenders misconceptions, and it would pit a non-scientific concept against a scientific concept. That wouldn't be proper for a science classroom.

485 Q. And it also teaches that evolution is not a well established scientific theory?

A. Correct.

486 Q. So regardless of whether this promotes critical thinking, I mean ultimately it engenders misconceptions?

A. It engenders misconceptions not only about evolution, but about the entire process of science, about the nature of science if you will.

487 Q. And critical thinking in and of itself is not the goal. Critical thinking in terms of education, science education, is to promote proper understanding of subject matter?

A. Yes. No, critical thinking is not the end goal. Let's take it back to mathematics for a moment. You want the child to critically analyze two plus two equals four. But in the end if they think that two plus two equals five, and they think they have good mathematical

reasons for thinking two plus two equals five, then it's up to instructor to disabuse those misconceptions from the student. So in the end the student says oh, for good mathematical reasons two plus two does equal four, even though for non-scientific reasons I still think it equals five.

488 Q. Another argument that the district has raised is that this simply encourages students to assume more responsibility in their learning and to play a more active part in constructing their own knowledge. What's your reaction to that?

A. No, it engenders misconceptions again. It sends them off to find a book whose central thesis has been condemned again by the scientific associations and scientific education societies. No, it doesn't do anything such as that.

489 Q. Two more arguments that the school district has raised, they say that this policy simply promotes a fuller understanding of the theory of evolution, including its limitations. Why doesn't this policy do that?

A. No, it confuses the issue with the

occurrence of evolution, again engenders many misconceptions, but here's another one that somehow evolution, the occurrence of evolution is being debated in the scientific community, that it's an ongoing rigorous debate within the scientific community, and that's just dead wrong.

490 Q. So teaching students that there's a controversy over evolution would not be appropriate or good pedagogy either?

A. No. Teaching students of course that they're still having, oh, we don't have all the answers in the process of evolution and the mechanisms of evolution is correct, but as far as the occurrence of evolution being still debated in the scientific community, no.

491 Q. And one last argument is why isn't this permitted under the concept of academic freedom?

A. I don't know a science teacher who would want to teach non-science in the science class. Academic freedom is not supposed to have science teachers teaching music in the class. Nothing against music, I love music, but that's not what the academic freedom is about, to teach things that aren't in the curriculum, completely

outside the subject area in there is not that teacher's job. They're science teachers. They should be teaching science.

492 Q. And is there any definition of academic freedom that would promote teaching students misconceptions?

A. No.

493 Q. I want to focus a little bit on the book Of Pandas and People. Are you familiar with that book?

A. Yes.

494 Q. Do you know whether any science education organizations have suggested criteria for evaluating science textbooks?

A. Yes. The National Science Teachers Association, again the largest in the country if not the world, says that, or they say many things, but part of it is they suggest to adoption boards and so forth that they use accurate science as a criteria for the book.

495 Q. And does Pandas meet that criterion?

A. My understanding from scientists who have reviewed it, it does not. Its central theory that I have looked at, intelligent design, has been condemned by the scientific community. It

breaks one of the ground rules of science, this intervention of some supernatural causation into it. The book is 1993 publication date. Most textbooks have a three to five year revision cycle. It's a very old book also.

496 Q. And have you selected a passage out of Pandas as an example of why this is bad science textbook?

A. Yes, page 99/100.

497 Q. Could you highlight that please, Matt? And could you first read into the record the passage and then comment on it?

A. "Darwinists object to the view of intelligent design because it does not give a natural cause explanation of how the various forms of life started in the first place. Intelligent design means that various forms of life began abruptly through an intelligent agency with their distinct features already intact, fish with fins and scales, birds with feathers, beaks, and wings, etc."

498 Q. And start with the first sentence there, why does that make it a bad science textbook?

A. Right here it says that natural cause, that intelligent design gives an answer other than

natural cause. It says intelligent design, because it does not give a natural cause explanation. Well, science is all about natural cause explanation. That's a ground rule of modern science. And so right here we have a problem concerning evolution and we have a problem concerning the nature of science.

499 Q. How about the second sentence?

A. We have something that isn't in any college textbook here, whether biology or evolution, and no secularly published biology high school textbook, we have something here that isn't in any scientific journals, something that is just, it itself is considered a misconception. On an exam for a students did fish appear abruptly with fins and scales intact, birds with feathers beaks and wings intact, true or false. False. But yet this engenders it as true, as another possibility within the scientific realm, and paleontologists as well as all evolutionary biologists as well as virtually all biologists will say no, that's wrong. But in any case, this is considered a misconception by the scientific community. I don't know why we would send students to read this as if it were

accurate science.

500 Q. And have you had an opportunity to review the guide to teachers?

A. There is a note to teachers in the back of the book, and yes, I have taken a look at it.

501 Q. Are these notes to teacher, are they a standard part of most science textbooks?

A. Some yes, some no. Sometimes it's a separate little pamphlet or something to teachers, but this one is quite extensive. It's nine pages.

502 Q. And generally what's the purpose of the note, of a note to teachers?

A. Something that teachers might want to pay attention to, they might want to, a new way of possibly teaching a particular subject in there. It's mainly a note from the authors to the teacher informing them of something that the authors feel is important in general.

503 Q. And is that what in fact the authors of Of Pandas have done with their note to teachers there?

A. I don't know necessarily what their intent was, but there are words to the teachers in the back.

504 Q. And have you identified some passages in the note to teachers that you found problematic?

A. Yes, I have.

505 Q. Matt, could you highlight the first passage, please? This is on page 153. If you could read the passage and then comment on it, please?

A. Just as an aside, I notice that in this notes to teachers it's by apparently different authors, but the passage reads, "Controversy is not all bad. However, it gives teachers the opportunity to engage their students at a deeper level. Instead of filling young minds with discrete facts and vocabulary lists, teachers can show their students the rough and tumble of genuine scientific debate."

506 Q. What's wrong with that?

A. Well, genuine scientific debate, showing them intelligent design is not genuine scientific debate. It's not going on in the scientific community. There's no -- it's misrepresenting what's currently going on in the scientific community.

507 Q. And who are the authors of this note to teachers?

A. Sorry, too small. I can't read it. Looks like Hartwig and Meyer, Mark Hartwig and Steven Meyer.

508 Q. Do you know who these individuals are?

A. I've read some things by Meyer. The other individual no. I've heard the name. I don't know if I've read anything.

509 Q. Could you highlight the second passage please, Matt? And this is on page 154 of Of Pandas and People, which I believe is Plaintiff's Exhibit 11. Could you read the highlighted passage and then comment on it, please?

A. "The purpose of this text is to expose your students to the captivating and the controversial in the origins debate, to take them beyond the past scenarios offered in most basal texts, encourage them to grapple with ideas in a scientific manner. Pandas does this in two ways. First, it offers a clear, cogent discussion of the latest data relevant to biological origins. In the process it rectifies many serious errors found in several basal biology texts."

510 Q. Let's start with the first paragraph.

What's wrong with that?

A. First thing, it engenders a misconception again that this is controversial in the scientific community, that somehow this is controversial. It's not. So that's the first misconception, and the second one that's highlighted in yellow there is "grapple with ideas in a scientific manner." If anything this is engendering students how to grapple with ideas in an unscientific manner. This is not the way science operates. Again supernatural causation is one of the main issues concerning this major problem, and it does the exact opposite.

I wonder whether some teachers read this, certainly maybe not the teachers in Dover, but just in general maybe some teachers might read this and think oh, what am I missing that is controversial in the scientific community, I didn't know this, I'm going to go spend some time looking for this. Hey, to grapple with ideas in a scientific manner, that sounds like a good thing to do and so forth. I imagine most science teachers though who had a science background and had their science methods courses

in universities will know better, but some may not. There might be some that may not, and they may send tracking this stuff down, only to learn that's what's in this text note to them is just wrong.

511 Q. And how about the next paragraph?

A. Latest date irrelevant, I mentioned this previously, the book is 1993. That's not considered an up to date biology book.

512 Q. And is there a normal cycle that's used --

A. Generally three to five years for revision.

513 Q. And that sounds like a short period of time to change biology textbooks every three years.

A. Yeah, biology moves quickly.

514 Q. And is that the same cycle that other sciences are on?

A. It depends on the science. Physics, it depends on the science. Too many to discuss.

515 Q. And Matt, could you put up the next passage that Dr. Alters has highlighted? And if you could read this passage and comment on it?

A. "Second, Pandas offers a different interpretation of current biological evidence as opposed to most textbooks, which present the more or less orthodox neo-Darwinian accounts of

how life originated and diversified. Pandas also presents a clear alternative which the authors call intelligent design throughout. The text evaluates how well different views can accommodate anomalous data within their respective interpretive frameworks. Pandas also makes the task of organizing your lessons and researching the scientific issues much easier. Pandas provides the scientific information you need and provides it in a way that coordinates well with your basal text."

516 Q. What's wrong with this passage?

A. Presenting a clear non-scientific alternative to the students. This is within the context of a science course. This statement was read to students in a science course to go seek out this text concerning an alternative scientific view, intelligent design, and here it says to the teachers that this book presents a clear alternative. Science teachers, if they're not up on this, may think oh, what am I missing here, there's an alternative to evolution here, what is it to the occurrence of evolution, and may seek spend time seeking out the answer to that, or may just say well, intelligent design,

and they've learned something themselves. I'm concerned about the effect on students and I'm also concerned about the effect on some teachers.

517 Q. And the one last provision that you've highlighted, this also is from page 154?

A. "As students learn to weigh and sort competing views and become active participants in the clash of ideas, you may be surprised at the level of motivation and achievement displayed by your students." Yes, I think this might be quite accurate that their level of motivation, and I don't know about achievement, but motivation may go up. But it's all for the wrong reasons. Now many students are going to be recognizing an intelligent designer as being very God friendly, very religious friendly for them.

In interviewing like I said over a thousand students this is something that automatically comes up with a lot of students, and now they have this motivation. They've never before in their science classes the teachers would always say that's a religious question, that's outside the game of science, the rules of science.

That's outside. So go speak to your parents or your religious leader or something like that.

Now all of a sudden we've told the students to seek out this book, the alternate view, and this alternate view to the perception of a student, and my perception, too, is very God friendly. It talks about an intelligent designer. Evolution doesn't ask or answer any of those questions. There may be, there may not be. It doesn't matter, because they only look at natural causes in evolution.

Now we've got those two competing in possibly the minds of the student, the God friendly and the one that doesn't mention God at all, and now those two are going to, of course your motivation is going to go up. The student may feel they're defending their faith now in a science classroom.

518 Q. Let's wrap up here and ask you a couple of questions. How does introducing intelligent design to students affect them in terms of learning science?

A. Engenders great misconceptions about fundamental issues in science, the ground rules as I have stated. It engenders

misconceptions about evolution itself, that somehow there's this controversy going on, that somehow evolution is a special theory, it's somehow less than other scientific theories. It's not as good, it's only a theory. It engenders numerous misconceptions.

519 Q. And will that serve them well as they move on through life?

A. The exact opposite. This is not what science teachers should be doing.

520 Q. How does introducing intelligent design to students affect them in terms of religion? Does it bring religion into the classroom?

A. This is probably my biggest concern out of all of it is this is a very emotionally charged issue for a lot of young people, and older people also, and now -- the science class was a, is a safe place for students for their religious beliefs. All religious beliefs should be respected in the school in general. Of course in the science classroom also.

We don't deal with ultimate causes here in the science classroom. We don't deal with if there's a supernatural force behind it all. We don't deal with those questions. Whether

there's supernatural interventions between all different types of mechanisms in science, we don't deal with that in here, the who or the how of the supernatural. We don't do that. So it's sort of a neutral place. It's hard enough with students bringing in all sorts of misconceptions about evolution in general and misconceptions perceived about their religious faith, bringing it into the science classroom and hearing about evolution, that's tough enough. That's tough enough for most students.

Now what this policy is doing is saying there's this other scientific view that belongs, it belongs in the game of science, and it's the one that most students will perceive as God friendly. It has as intelligent designer, evolution doesn't. Now students are going to be in there discussing out in the playground, discussing in their class among themselves or whatever that the unit that they're now about to hear about, the evolution unit that's now coming up, is the one that's not God friendly.

It's that one scientific theory that doesn't mention God. But this other so-called scientific theory, intelligent design, is God

friendly, because there's a possibility that God has this other theory. What a terrible thing to do to kids. I meant to make them have to think about defending their religion before learning a scientific concept. How ridiculous. This is probably the worst thing I've ever heard of in science education.

MR. WALCZAK: I have no further questions.

THE COURT: One moment. All right, we'll pick up the cross examination this afternoon, but before we recess I'd like to talk about the deposition designations and the counterdesignation. Besides what we have from you on the deposition designations and the counters, have you reached any agreement in particular as to the counterdesignations sought by the defendants to your designations?

MR. ROTHSCHILD: There's been quite a bit of exchange between both parties, and I've -- there's been changes to designations which require changes to counterdesignations.

THE COURT: I don't need to know them in specific, but other than what I have -- let me ask it this way. How close are we to where you're going to be introducing what you've

designated?

MR. ROTHSCHILD: I think we're going to have a pretty full day today, so I don't think there will be a need for it, but there may be occasions to do it on Friday, and I would say on average with each witness that there's designations there's probably four to five passages, different lengths, where there are objections, really I think all objections, or almost all objections on behalf of the plaintiff, and what I think makes the most sense, and I think it was something you suggested before is we start reading them into the record, and where we hit a passage, you know, we'll read the designations, we'll read the counterdesignations. When we hit a passage where there's an objection to ask you to rule on it in sequence. I think that's the easiest way for you to --

THE COURT: And the likely objection would be to the counterdesignation?

MR. ROTHSCHILD: Correct.

THE COURT: As far as I can see from what you have submitted.

MR. GILLEN: I agree with that, Your Honor.

I think essentially what you have in front of you now seems to be the designations as they are now with the objections, and then in an effort to facilitate that process as Mr. Rothschild has referenced, I gave you our sense of why the counterdesignations are proper, it seems like at this point --

THE COURT: I can let you continue your work or attempts to work through it then, and we don't have to break in order to have me rule based on what we discussed, and I do recall that discussion, and as the counterdesignation comes up, as proposed by the defendants you'll interpose your objection if you haven't otherwise resolved it, and then I'll just rule on it as we get to that point. Is that satisfactory to everybody?

MR. GILLEN: If that's fine with you, that's fine with me.

THE COURT: It is with me, and I think it will keep it moving. I will tell you that if it aids your work that I would intend to be fairly liberal in allowing the defendant's suggested counterdesignation to come in. You should be guided by that inasmuch as this is a bench

trial. I think the purpose of the rule and why we work hard at these in particular, when we work hard at these in particular, would be the occasion of a jury trial when you have to be extremely precise. I don't think that we have the same level of precision as mandated here inasmuch, and I think you'll agree with this, as this is a bench trial.

So you ought not over play, you're getting what I'm telling you, obviously you're nodding, but don't over play an objection to a counterdesignation unless it's something that you feel very, very strongly about, and then of course a well placed objection will trigger an appropriate ruling. All right? We will recess then until 1:35 this afternoon. We'll reconvene with the cross examination of this witness at that time. Thank you.

(Morning session concluded at 12:05 p.m.)

(End of Volume 1.)

Kitzmiller, et al. vs. Dover School District

4:04-CV-02688

Trial Day 8, Morning Session

12 October 2005

I hereby certify that the proceedings and evidence are contained fully and accurately in the notes taken by me on the trial of the above cause, and that this copy is a correct transcript of the same.

s/ Wesley J. Armstrong

_____

Wesley J. Armstrong

Registered Merit Reporter

The foregoing certification of this transcript does not apply to any reproduction by any means unless under the direct control and/or supervision of the certifying reporter.