IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA
CIVIL ACTION NO. 4:04-CV-2688

TAMMY J. KITZMILLER; BRYAN REHM, CHRISTY REHM; DEBORAH F. FENIMORE; JOEL A. LIEB; STEVEN STOUGH; BETH A EVELAND; CYNTHIA SNEATH; JULIE SMITH; ARALENE D. CALLAHAN ("BARRIE"); FREDERICK B. CALLAHAN,

Plaintiffs,

vs.

DOVER AREA SCHOOL DISTRICT; DOVER AREA SCHOOL DISTRICT BOARD OF DIRECTORS,

Defendants.

D E P O S I T I O N

O F

W A R R E N

A.

N O R D,

PH.D.

A P P E A R A N C E S

For the Plaintiffs: Mr. Alfred H. Wilcox
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In Chapel Hill, N.C.
June 7, 2005

Reported by:
Rebecca R. LeClair, CVR

S T I P U L A T I O N S

It is hereby stipulated and agreed between the parties to this action, through their respective counsel of record:

(1) That the deposition of WARREN A. NORD, PH.D., may be taken on June 7th, 2005, beginning at 9:07 A.M., at the University of North Carolina at Chapel Hill, Program in the Humanities and Human Values, located at 1700 Airport Road, Room L-03, Chapel Hill, North Carolina, before Rebecca R. LeClair, CVR, a Notary Public.

(2) That the deposition shall be taken and used as permitted by the applicable Federal Rules of Civil Procedure, and formal opening is hereby waived.

(3) That any objections of any party hereto as to notice of the taking of said deposition or as to the time or place thereof, or as to the competency of the person before whom the same shall be taken, are deemed to have been met.

(4) Objections to questions and motions to strike answers need not be made during the taking of this deposition, but may be made for the first time during the progress of the trial of this case, or at any pretrial hearing held before any judge of competent jurisdiction for the purpose of ruling thereon, or at any other hearing of

Stipulations -3-

said case at which said deposition might be used, except that an objection as to the form of a question must be made at the time such question is asked, or objection is waived as to the form of the question.

(5) That the witness reserves the right to read and sign the deposition prior to filing.

(6) That the sealed original transcript of this deposition shall be mailed first-class postage or hand-delivered to the party taking the deposition for preservation and delivery to the Court, if and when necessary.

* * * * *

Whereupon,

WARREN A. NORD, PH.D.,
having been first duly sworn,
was examined and testified
as follows:

DIRECT EXAMINATION BY MR. WILCOX:

Q Dr. Nord, have you ever had your deposition taken before?

A No.

Q Okay. Let me just rehearse for you a little bit what the process is. As Mr. Gillen has probably already mentioned to you, I get to ask questions. Your obligation is to answer them. If you don't understand my question, just tell me. This is less-familiar terrain for me than it is for you, so it's entirely possible that my questions will not make sense to you. And if so, don't answer it; just tell me that--

A Okay.

Q --you can't understand that question and would I please try to do better, and I will. At any time you'd like to take a break, walk around, clear your head, use the facilities--this is not an endurance test. It is--

A All right.

Q --a search for your views as they pertain to this matter.

A Good.

Q I would like to begin by asking you to define some

terms that appear in the Rule 26 disclosure statement that has been produced in this case.

A Yeah. That's the--whatever the--yes.

Q And why don't we just mark one of these as Nord Exhibit 1 so we have a clear record of what we're talking about.

(PLAINTIFF'S DEPOSITION EXHIBIT NO. 1 MARKED FOR IDENTIFICATION)

Q Has the reporter now marked a copy of your report as Plaintiff's Deposition Exhibit 1 for the Nord deposition?

A (Examines paperwritings.) Yes.

Q In the first paragraph of your report, you refer to something described as "culture wars," or "our culture wars." Do you see that? It's in about the third line from the bottom?

A (Examines paperwritings.)

Q You say, "In both books, my aim has been to chart a middle course in our culture wars."

A No, I'm--

Q It's in the first paragraph.

A Oh, in the first paragraph. Okay.

Q Yes.

A (Examines paperwritings.) Yes.

Q Could you explain or define for me what you mean by "our culture wars"?

A You're starting with an easy question. Well, that's--that's a tricky question, because there--what counts as our culture wars is something that scholars and--and nonscholars disagree about. But I suppose that--I think of James Davison Hunter's book on--on culture wars as being the most interesting and helpful discussion.

Q Excuse me. Let me try again. I'm asking for your definition.

A Okay. I'm going to say I agree with James Davison Hunter. Our culture wars are--to some extent, culture wars are between religious folk and--and secular folk. But as Hunter points out--and I agree--more often, they're between liberal folk and conservative folk. And these wars have to do with how we define reality; how we make sense of reality; how we make sense of values; what the authority is for our moral judgments, our value judgments, our political judgments, our religious judgments.

And there's a kind of cleavage that runs through our culture that we see in political

campaigns, we see in certainly fights over religion in schools, between--Hunter calls them progressives and the orthodox. Most people would say between liberals and conservatives. By and large, the religious view becomes identified as the conservative view; the liberal view is--becomes the secular view. I think that's kind of unfortunate, because there are liberal religious folk and there are secular conservative folk, and that's why it gets so incredibly complicated.

But the point is--I think the fundamental point is that there are some fairly deep divisions in our culture--that have roots in religiously how we make sense of the world, morally how we make sense of the world, politically how we make sense of the world--that divide us, that we're constantly fighting over, and that shape an awful lot of the battles that go on over--over education. I could get a whole lot more specific, but--

Q Okay.

A --that's the general overview.

Q As it pertains to the issues in this case--

A Uh-huh (yes).

Q --would you say we're talking about the culture

wars or different perspectives on how we define reality?

A Yes.

Q Okay. One of the--one of the outposts, if you will, on that issue, how we define reality--we're talking evolution or not?

A That's oftentimes the way it gets worked out. That is to say, I think there's the general perception that there are fundamentalists, who believe in Genesis creation, and then there's all the rest of us reasonable folk. And certainly one of the things that I want to--I've wanted to do in a lot of my work is break down that distinction and say it's a whole lot more complicated. So that, for example, on the question of evolution, there aren't just two positions; there are seventeen positions, or maybe fourteen, or twenty-one. I don't know.

And--and so one of the interesting questions is that, well, one can certainly be religious and accept evolution, so one has to be more specific. And--and then the question goes to neo-Darwinism and what--kind of establishment science views of evolution, and whether there are alternative ways of understanding evolution.

So that the culture wars kind of mentality oftentimes cause us--and the media certainly exacerbate this--to focus--to--to push us into two opposing camps, when a lot of the purpose of my work has been to muddy the waters and to say it's not nearly that simple.

Q Okay. You used a phrase, "neo-Darwinism," which appears in the second paragraph of your--

A Yes.

Q --report. And could you tell us what you mean by "neo-Darwinism"?

A Well, I take the neo-Darwinian synthesis to be the combination of Darwin's theory of evolution, which focuses on natural selection as the mechanism of evolution, together with modern genetics, that provide an account of what natural selection works on, genes, and in this case, the random mutation and recombination of genes.

The significance--well, I'll let you ask the questions.

Q And in that same paragraph, the second paragraph of--

A Uh-huh (yes).

Q --your report, you refer to intelligent-design

theory, or--
A Yes.
Q --IDT.
A Uh-huh (yes).
Q And if you would, what is your understanding as to what IDT is?
A I take IDT to be a theory held by a number of scientists--Michael Behe, William Dembski, Stephen Meyer. I mean, Phillip Johnson has certainly--although he's not a scientist, has certainly done an awful lot to define the movement. The fundamental idea being that natural selection isn't able to explain much--that it's not adequate for explaining much of what needs to be explained in biology, and that design explanations are a legitimate al--provide a legitimate alternative explanation, one which--which seems to have a good deal to--design explanations have a good deal to say for--well, let me back up.

In the--particularly in the absence of naturalistic explanations, Darwinian explanations, in certain important points in--in biology and particularly in dealing with evolution, design explanations seem to provide a much better account

of what--what happened than the--the kind of gradualistic, neo-Darwinian mechanisms of--of establishment biology.

Q When you say "in the absence of a Darwinian explanation," are you referring to anything more than that Darwinian explanations currently are not able to--

A Yeah.

Q --answer--

A That's a good question. And--and of course--I mean, I can see right now that I didn't answer your last question very well, because in--in many cases, it's not just the absence of a Darwinian explanation which then opens the door for a design explanation.

I think the kind of argument that many of the ID theorists would make is that--particularly because of irreducible complexity, or specified complexity for Dem--in Dembski, that we--we get--that--that design explanations seem to be the particularly appropriate kinds of--of explanations in those cases where the complexity of the phenomenon to be--to be explained seems irreducible in some sense. So it's not just that there's not a

naturalistic explanation that's forthcoming; it's that the design explanation fits the--the phenomena better, the evidence better.

Q And would you agree that in addition to there having had to have been a design, there had to have been a prototype, or two, of those designs to get things moving? You can't just have a--a real biological observation that was designed without having had something put that design into effect. Would you agree with that?

A Are you--are you asking whether there's a designer?

Q Well, not just--

A Is that the question?

Q --a designer but also a creator--

A Yeah.

Q --to take that design and put it into real--the real world.

A Well, you know, the usual ID explanation is that what science, as they understand science, is capable of doing is--is providing a convincing design explanation, but that that leaves us well short of any account of how the design got there.

And it seems to me that that's a reasonable position to take, that--that science,

somewhat more liberally understood than establishment science, can get us to design, but moving beyond the--the design to--to a designer or an explanation of how the design got there is a question of a different kind probably. There, perhaps, philosophical or theological kinds of reasoning may be appropriate or may even be necessary.

And--and that--that position makes sense to me. I mean, I think all the time, I mean, just on a kind of common-sense level, we can recognize design in the world, in our world, in all kinds of ways, without having any idea who put it there or why it was put there. And, I think, similarly, in--in nature, one could recognize design but still not have any idea of how the design got there. And--and one might even want to say that, as I said, that's a different kind of question.

Q If I understand your view on this--and don't be reluctant, and I'm sure you won't be, to tell me if I'm mistaking something--you understand intelligent design to be an inference based on observations made in the real world.

A Yes. So far, so good.

Q And the inference that is made specifically is that something we humans would recognize as design appears in parts of the natural world.
A Yeah.
Q So far, so good?
A So far, so good.
Q Intelligent-design theory, as you understand it, stops there and doesn't go beyond that to argue as to the nature of the designer, the process by which the design became manifest in the world--
A Uh-huh (yes).
Q --or any like question. Is that--
A Yeah. I--I don't doubt that intelligent-design theorists--many of them have various philosophical and theological convictions, or accounts, explanations, that they might offer, in a nonscientific context, for explaining design. But my understanding is that they want to draw a fairly sharp line between what they can say as scientists about design and other questions about the--the--how the design came to be and the nature of the designer, which then become nonscientific questions, philosophical or theological questions.
Q As you understand the controversy surrounding

Darwin's theory of evolution, is it a controversy between intelligent-design theory on the one hand and neo-Darwinism on the other hand?

A That's the--the kind of flash point for the debate in--in our culture now. And those are the--the--

Q Fifty years ago, it might have been--

A Fifty years ago--

Q --creationism?

A --it would have been young-earth creationism. And so that's--that's the--the most visible point of--the--the most visible war--or battle in our culture wars now.

But those aren't the only two positions. That's true. Theologians and philosophers take a lot of--a lot of different positions.

Now, within science, I mean, there, the question, of course--the controversy is, is it science? And--and, you know, I--I'm not a philosopher of science, and I'm not a scientist, so I--I confess that I cannot speak with great authority here. I would say that someone like Stuart Kauffman's views of--of complexity theory and self-organizing phenomena in--in nature might be another alternative. But it's--it's certainly

the major alternative insofar as the--the battle is--is conveyed to the--to the larger public through--through the media, yeah.

And--and I would say, too, I suppose, within--within science itself or on the edges of science, it's a--it's a battle that--that--or an argument that's going on that's--that's widely noted--noticed, and oftentimes responded to, by scientists, so--establishment scientists.

Q Let me shift gears dramatically--

A Okay.

Q --and just touch on something that we have to cover.

A Uh-huh (yes).

Q And basically, this is going to be a series of questions by which I try to define how you prepared for your opinion here, and more particularly, what you might not have done--

A Uh-huh (yes).

Q --in preparing for your opinion here. Did you meet with any of the defendants?

A No.

Q Did you meet with any of the teachers--

A No.

Q --at Dover Area Schools, or any of the administrators?
A No. Uh-uh (no).
Q Did you read the biology textbook that the--
A No.
Q --Dover Area School uses?
A Uh-uh (no).
Q Did you read Of Pandas and People?
A I read it a long time ago, I guess shortly after it first came out, probably--what was that, late '80s, early '90s? Late '80s? A long time ago. I don't remember when I read it. And--and I confess I didn't read it carefully, but, you know, I got something of the gist of it.
Q And did you reread it--
A No.
Q --for your opin--
A No.
Q --your opinion here?
A No.
Q Did you read the Dover Area School District "Board Press Release"?
A Yes, I did.
Q Let me mark that Exhibit 2.

(PLAINTIFF'S DEPOSITION EXHIBIT NO. 2
MARKED FOR IDENTIFICATION)

Q And has the reporter now marked as Exhibit 2--

A (Examines paperwritings.) Yes.

Q --the press release that you referred to?

A Uh-huh (yes).

Q And did you read the District note on the teaching of evolution?

A No.

Q (Hands paperwritings to the witness.)

A (Examines paperwritings.) Well, this is the same-- this is incorporated into the press release.

Q Okay.

A Yeah. Yeah. So I have read that, yes.

Q All right.

(PLAINTIFF'S DEPOSITION EXHIBIT NO. 3
MARKED FOR IDENTIFICATION)

Q There is a slight difference between what's in the press release and the District note.

MR. GILLEN: Can I see a copy, Chub?

MR. WILCOX: Sure. (Hands paperwritings to Mr. Gillen.)

MR. GILLEN: Thanks.

Q (By Mr. Wilcox) The District note concludes with

the following--no. I'm sorry. I take it back. That's just paragraphed differently. Never mind.

Did you read any other materials describing the Dover School District policy or the implementation of that policy? And by "policy," I refer to the one on teaching evolution.

A I read--you know, I have read in the past a few newspaper stories about it, I guess.

Q Okay.

A That's pretty fuzzy in my mind, and it's some time ago.

Q Did you read the complaint or the answer?

A No. Uh-uh (no).

Q Were you forwarded materials by counsel in the case for you to review in connection with the preparation of your opinion?

A No, not before the opinion, I don't think. Afterwards, I read some of the--the testimony of other witnesses, but--but, I think, nothing--I think the only thing I received was this--(indicating)--before I wrote my opinion.

Q "This" referring to Nord Exhibit 2?

A Yes.

MR. GILLEN: Is this my copy, Chub?

MR. WILCOX: Oh.

MR. GILLEN: Is this two?

MR. WILCOX: (Hands paperwritings to Mr. Gillen.)

MR. GILLEN: Thanks.

MR. WILCOX: Sure.

MR. GILLEN: Thank you.

Q (By Mr. Wilcox) Can you--can you recall any other people you talked with in connection with the preparation of your opinion in this case?

A Well, just Pat. And Rob Muise. They're the only two.

Q And can you recall any other papers that you reviewed in connection with the preparation of your opinion?

A No. I--we--I agreed to be--am I witness? Is that what I--

Q An expert witness.

A An expert witness. I agreed to be an expert witness very shortly before the testimonies were due, and there wasn't time to do anything. So--so, no, I don't--I don't think that--I know there was probably a per--well, I mean, we--we talked a--(addressing Mr. Gillen)--you asked me to be it, and

then there was a kind of lull of a few--
Q "You" referring to Mr. Gillen?
A To Mr. Gillen.
Q Okay.
A And--and then there was a lull of a few weeks, and--and then, as I recall, a deadline, a looming deadline, and I didn't have time to do any new research. I've read--I teach about this a little bit, and--and I've read a fair amount. I didn't feel the need to do any--any more research, but I-- I didn't take the limited opportunity I had to do more reading.
Q I also have to go through your qualifications--
A Yes.
Q --relative to rendering an opinion in this case.
A Uh-huh (yes).
Q Am I correct that you are not a scientist?
A I am not a scientist.
Q And specifically, you are not a biologist?
A That's right.
Q And you have not--well, I shouldn't say it that way. Let me ask. What courses, college level or higher, have you taken in biology or life sciences?
A None. Oh, no, not in--not in life sciences, no. I

did study chemistry and--but not biology--in college.

Q Okay. Have you ever sat on a school board?

A No.

Q Have you ever taught secondary--

A No.

Q --level students?

A Uh-uh (no).

Q Have you ever served as a school administrator in the secondary level?

A No.

Q Now, what you have done is thought a lot about issues having to do with the intersection of science and religion?

A Yes.

Q Especially as they intersect in education?

A Yes.

Q And even more particularly, as they intersect in public education?

A Yes.

Q And you have read on the ways in which the courts in the United States have commented on that intersection?

A Yes.

Q Am I correct that, in your opinion, education needs to do more than it currently does to treat religion fairly?
A Yes.
Q And am I correct that in order to treat religion fairly, in your view, schools, including public schools, should not refrain from providing instruction on religious implications of the curriculum that is otherwise taught in public schools?
MR. GILLEN: Objection to the form. You can answer.
THE WITNESS: Oh, I can go ahead and answer?
A Yes. I'm happy to give an explanation.
Q Please do.
A It--it does seem to me that for a variety reasons, including the nature of liberal education, the--the nature of constitutional neutrality, as the Supreme Court has defined it, and kind of civic obligations that stem from the public nature of education, that public schools need to be sensitive to and respond to the larger kind of cultural discussion that we're having about various important issues, and

include all of the voices in that discussion. And some of those voices are religious voices.

So that it seems to me to be inappropriate to simply limit education to secular--even in public schools--to simply secular education and ignore religious points of view on those kinds of issues and topics addressed by traditional--the--the disciplines defined as they are in totally secular ways.

Q Among the life sciences, is there an issue framing more clearly the need for public education to treat fairly with religious views--I've gotten myself lost in my question, so let me back up and start over.

A I'll get myself lost in the answer, so that's fine.

MR. GILLEN: I don't think there's one of us who hasn't done that so far.

Q In your view, is the question of evolution freighted with religious views?

A Yes.

Q And would you explain why you believe that to be so?

A I guess there are a lot of reasons. The reason back in the 1920s that evolution became such a hot

issue was because of the rise of fundamentalism and the belief that--

Q By "fundamentalism," you're referring to Christian fundamentalism?

A Protestant--more specifically, Protestant fundamentalism, which defined itself in terms of the inerrancy of scripture.

And once--and that was the--that was the--fundamentalists believed in a lot of things, but--but that was perhaps the most important defining principle of Protestant fundamentalism, was the inerrancy of scripture in response to the growing liberalization of--of mainline-religion Protestantism in America.

And once--once it was believed that scripture was without error, in a kind of natural literalism that goes to it, then Genesis has to be read literally. And then we've got a conflict with evolution that--that really wasn't there until the rise of fundamentalism. My understanding is that evangelicals and conservatives had--had pretty much accepted evolution before the rise of fundamentalism.

So, that's certainly--that--that's what

gives rise to the controversy, and I think--and the Scopes trial, of course. And that still is what frames so much of the public discussion.

But that's not the only issue. I mean, another issue--and one more relevant, I suppose, to this case--is the question of neo-Darwinism in particular, rather than evolution in general, and the--the fact that neo-Darwinism is a purposeless process, an unguided, purposeless process that's built into the structure of neo-Darwinism. So that many more-moderate and liberal religious folk who have no trouble with evolution might still have a problem with--with neo-Darwinism as the--as the mechanism that explains evolution.

So the question is a--is a problem that many liberal religious folk have, although I think this is oftentimes lost in the culture-wars rhetoric, that evolution is--is evolution designed or not; does it have a purpose of not?

So, yes, I mean, people who--religious folk who aren't fundamentalists oftentimes have difficulties with neo-Darwinian evolution in--in particular. And then there are various kinds of philosophical problems and problems that

theologians raise about--about evolution, too, that--that don't become part of our culture-wars battles.

Q You said that neo-Darwinism is an unguided process--

A Yeah.

Q --as currently explicated by Darwinian evolutionists.

A Uh-huh (yes).

Q In contrast, you posit that there are religious adherents who would--who are uncomfortable with the notion of a purposeless--

A Uh-huh (yes).

Q --biology--

A Uh-huh (yes).

Q --and would have greater comfort with a biology that countenanced a purpose to life--

A Yes.

MR. GILLEN: Object to the form. Go ahead.

Q --that purpose, as I understand it, being derived from a god.

A Uh-huh (yes).

MR. GILLEN: Object to the form.

Q So, to be clear as to the culture wars--
A Uh-huh (yes).
Q --on one side of a divide, wherever the divide might be, there are secularists, who are content to view life and its evolution as undirected--
A Uh-huh (yes).
Q --and there are religious--I don't want to say "adherents," but believers--who view life as filled with purpose.

MR. GILLEN: Objection to the form.

Q Would that be correct?
A Yes.
Q And in your view, education, including public education, should present both sides of--

MR. GILLEN: Objection to the form.

Q --those worldviews.

MR. GILLEN: I'm sorry, Chub. And let me just cut this short. One, if you would--Chub's asking questions; it's a complicated subject matter--let him finish his question before you answer, so I can at least make a record about objections--

THE WITNESS: Okay.

MR. GILLEN: --just to the form of the

question, 'cause it's a complicated thing. I'm sorry, Chub, for cutting you off.

MR. WILCOX: Sure.

MR. GILLEN: Can--can you answer his question?

THE WITNESS: Would you tell me the question?

MR. GILLEN: I'm sorry, Chub.

MR. WILCOX: Sure.

MR. GILLEN: Can she read it back perhaps?

MR. WILCOX: Can--can it be repeated for us?

MR. GILLEN: Yeah.

(DISCUSSION OFF RECORD)

(Whereupon, questions, answers, and objections on Page 28 of this transcript, beginning at Line 1 and ending at Line 16, were read back.)

A Yes, but the "both sides" is--is a bit of a problem because, as I suggested, there are various kinds of concerns and problems that different kinds of religious folk have with evolution, as I said, between the kind of Genesis creationists and--and more liberal folk who--for whom the problem is

purpose and design.

The other kind of concern I have, I suppose, is--is that while the--while I--while I am--while I do agree that public schools--and public universities, for that matter--have some obligation to include religious voices regarding understandings of nature in the--in the--in the curricular conversation, that that's a different question, I take it, than the one this case is about, which is scientific alterna--alternative scientific ways of understanding nature.

So that I want--I would want to distinguish my, kind of, culture-wars analysis and my large--the larger framework I use to talk about religion in education from the question of intelligent design, which I do view as being scientific, as being a science understood a little bit more liberally than--than current science is, rather than as a religious position.

So I--I just want to make--make clear that--that there are two different kinds of arguments that I would give, one for including religious voices in the conversation--perhaps in science classes, perhaps not--and then the case at

hand with regard to intelligent design, which seems to me to involve a different set of issues.

Q In that answer, you said--and I think you said something like this earlier--that IDT, or intelligent design, is scientific if science is understood more liberally--

A Yes.

Q --than the National Academy of Sciences, for example--

A Yes.

Q --might describe it. And I would--I'd like to explore that for a moment. Am I correct that as science is viewed by, let's call them, purists--

A Okay.

Q --science insists on natural explanations for phenomena in the natural world?

MR. GILLEN: Objection to the form.

A Yes.

Q And--

A All right, but--yeah. Purists, establishment science, the--the dominant view of science is--is natural--naturalistic, yes.

Q And by "naturalistic," do you mean that only natural phenomena can be used as explanations?

A Yes, although there is a kind of philosophical complexity that I question. But, yes, I mean, I suppose I would say--

Q Okay.

A --that's right.

Q And to create a divide--

A Uh-huh (yes).

Q --supernatural explanations cannot be referred to--

MR. GILLEN: Object to the--

Q --in--in science--

MR. GILLEN: Object to the form.

Q --is that correct?

A Yes, although, again, I would want to say I think it's helpful to draw a distinction between supernaturalism "A" and supernaturalism "B."

Q What's "A" and what's "B"?

A "A" is traditional, orthodox religion, the idea of a supernatural god as a being who creates nature and who may intervene in nature from the outside by way of miracles or by way of implanting souls in people, as the Pope holds. That's one kind of supernaturalism.

Supernaturalism "B" doesn't require any kind of god like that, but rather is the idea that

you cannot understand nature apart from teleological causation, apart from there being purpose in nature or design in nature. So that--because one of the things that I believe--and there's a fairly rich philosophical and theological literature to draw on here--is that one can believe that there's design in nature or purpose in nature without believing in a--a kind of supernatural god that is the--the usual view in--in Judaism, Christianity, and Islam, for example.

So I think it's important to distinguish those two kinds of supernaturalism, but both are excluded from naturalistic science.

Q And "teleology" means?

A Purpose, telos, the end, that there is a--that nature works toward some kind of an end or goal, so that there's a purp--a design to nature.

Q Okay. You referred earlier to proponents of intelligent design, and you identified a Mr. Behe--

A Uh-huh (yes).

Q --Mr. Dembski, Phillip Johnson.

A Uh-huh (yes).

Q Have you made any effort to count noses--how many IDT people there are and how many mainstream

biologists or--

A Yeah.

Q --evolutionary scientists there are?

A I--I haven't made any formal effort to count noses, no. But invariably one forms impressions simply from reading the literature and, you know, seeing how many folks are--are writing about this. I don't read the--as I said, I'm not a scientist. I don't read the scientific journals. So it's kind of the--the more popular literature about it that I do read.

I do remember the--the big list of--of critics of Darwinism and defenders of intelligent design that appeared in The New Republic, and a couple of other places, I think, where there were three hundred, something like that, scientists who identified themselves as sympathetic to the movement or critical to--to neo-Darwinism.

So, you know, I--I have an impression that it's undoubtedly a small but perhaps--but, I think, significant minority of--of people in the sciences who have some kind of--and the other thing, you know, that--that's striking to me is that--the usual view is that, of course, all--or

all--virtually all establishment, you know, people who work within the naturalistic tradition of science are supporters of--of neo-Darwinism. But--but I'm--my impression, again, is that many of those folks have never taken the trouble to try and understand the issues--what is at issue with regard to intelligent design and the criticisms of neo-Darwinism.

So, to say that most all scientists are supporters of neo-Darwinism is a--a misleading statement, that the number of scientists who have actually taken the--the trouble to understand what's at issue and read the literature about the controversy, I suspect, is very, very small.

One of the things that struck me in--in listening to some people who defend intelligent design is--is that because of their educations, the narrowness of their scientific educations, they were never exposed to any kind of philosophical questions about methodological naturalism or the nature of science that might cause them to think more critically about neo-Darwinism. And only for reasons that--that perhaps have nothing to do with the science, or perhaps because they become

disenchanted with the--with the adequacy of neo-Darwinian explanations and they start reading more widely, do they recognize that they weren't really in much of a position ever to judge the adequacy of--of neo-Darwinism as--scientifically.

Thomas Kuhn says--in The Structure of Scientific Revolutions, he says that scientists receive the most-dogmatic training of--of anyone except theologians. And, of course, he's wrong. Theologians are much more liberally educated than scientists are. No scientist has to take a philosophy or a theology course in order to get a Ph.D. in science, but anybody who studies philosophy or theology has to study a good deal of science.

So I think the narrowness of scientific education in a way makes it much less likely that they're going to question neo-Darwinism. So to say that all scientists are--are supporters of neo-Darwinism hides a crucial--crucial problem.

Q Excuse me. By "liberal education"--

A Yes.

Q --are you referring to what we would generally refer to as the liberal arts?

A Yes, although part of what I've tried to do is develop a theory of liberal education that is in fact better than--than the prevailing views. And it's not that I depart all that much from people from whom I have in fact learned a lot. I have--it's not that I--I have all that unique an understanding.

But--but one of things that troubles me is--does bear on the discussion here and on what we've just been talking about. And that is, I think the conventional understanding of liberal education is that one should have a little science, a little literature, a little history, a little art, a little economics, and so that you study--you take different subjects.

And my problem with that way of thinking is that we don't teach students subjects; we teach them disciplines. We teach them the establishment way of thinking within economics--neoclassical economic theory--the establishment way of thinking in history, or in art, or in--or in science, and that a part of what makes education liberal--and then--and then what that ends up being is a kind of separatist education, where you--it's--it's like

encountering different items on a cafeteria line. I call it serial socialization. That is, you learn what the establishment--

Q You don't mean C-E-R-E-A-L, right?

A Yeah, the cereal on the cafeteria line. Oh, that's good. I like that. I'm going to use that, if I may. Thank you.

And--and a part of--of the purpose of liberal education is to draw connections between the different disciplines, to point out the conflicts, the tensions, the overlaps, the compatibilities.

And that's what students don't learn to do. They don't learn to understand what the relationship of the disciplines is. And the very intra--I mean, this is part of what philosophy does, is it tries to get at the--the connections and the relationships between disciplines so that we can think outside of each box in turn and ask larger questions about what is reasonable to believe, all things considered.

And that's part of what science education should do, it seems to me, that it doesn't do, is--is not just train scientists, but to get--to--to

help students understand what--the role science has in a liberal education requires establishing connections with other disciplines and ways of thinking.

So that science education should be more liberal than it is. It should not just narrowly focus students in on the establishment understanding of science but should broaden them philosophically--and, in fact, I would also add, religiously--by locating science in various kinds of cultural disputes.

Although here, with regard to this case, I would be happy if they would simply give students a broader understanding of the relationship of establishment science to other--to dissenters on the edges of--of science to get them to see that there are various ways of being--being scientific, that the idea of science itself is one that's--that's controversial.

Q This may be touching on a new subject, but--

A Uh-huh (yes).

Q --I perceive of it as an extension of what--

A Okay.

Q --you were just saying. There are two terms that

I've encountered in this case that I think bear differentiation and definition.

A Uh-huh (yes).

Q Methodological naturalism and philosophical naturalism.

A Uh-huh (yes).

Q And am I correct that--if I can call it "mainstream science" or "traditional science"--

A Uh-huh (yes).

Q --insists on methodological naturalism?

A Yes. That's--yes.

Q And am I correct that some scientists and other thinkers have developed a philosophical naturalism, which is a religious or a philosophic worldview rather than a methodologically scientific worldview?

MR. GILLEN: Object to the form.

A Certainly, that distinction is oftentimes drawn. Whether it holds up in practice is another question.

Q "Philosophical naturalism" means what?

A It's the idea that all of reality can be understood within naturalistic categories, so that in principle, unlike methodological naturalism, it

concludes that naturalism is--is adequate for explaining everything. A methodological naturalist would often--typically say that it--it may be that--that science can't explain everything but science should continue to be a method--to adhere to a methodological naturalism: Let's see how much we can explain that way, but maybe we can't explain everything in the end.

That distinction certainly can be drawn. My problem, again, is that in practice the distinction collapsed, given the way we do education nowadays.

Q Let me see if I can be more direct in trying--

A Okay.

Q --to go where I'm--

A All right.

Q --trying to go here. Methodological naturalists would say, "We insist on using our methodology to understand the natural world."

A Uh-huh (yes).

Q And philosophical naturalists would say, "The natural world is all there is;"--

A Uh-huh (yes).

Q --"there is nothing beyond that."

A Okay.
Q So the philosophical naturalists would say, "There is no divine purpose in life"--
A Uh-huh (yes).
Q --"and, indeed, there is no divinity."
A Uh-huh (yes).
Q The philosophical naturalist would say, "There are no absolute moral values; there are socially useful"--
A Okay.
Q --"values." So the philosophical naturalists would take a religious approach--
MR. GILLEN: Objection. I'm sorry.
Q --in term--religion in the sense of providing ultimate meaning--and say that there is no ultimate meaning.
MR. GILLEN: Objection--
Q Fair enough?
MR. GILLEN: Objection to the form. Go ahead. Answer.
Q And that was so clumsy, I'll come back and do it again.
MR. GILLEN: No. You know what, Chub, you and I both know it's a complicated subject

matter.

A Okay. If--given the religious answer, if--if "religion" means answering a question that has religious implications--like "Is there meaning?"--and if you say no, because you've given an answer to a religious kind of question, then philosophical naturalism, I suppose, could be called a kind of religion.

I myself don't like to use "religion" in--in that way. For--for me, a religious view is a view that holds that there is some kind of purpose or meaning to existence beyond naturalism, so that naturalism simply--it--it doesn't make much sense to call that a religious view. But that--that's a view about--that's my effort to try and avoid using the word "religion" in an unduly controversial or complicated way.

Q And forgive me, because my notes got in the way of my understanding. You said a religious view as you would view it requires that there is a meaning or purpose to life, did you say?

A To reality.

Q To reality?

A To reality. That's right. There is a dimension to

reality or an aspect of reality that--that transcends what we can know naturalistically. And the different great world religions have defined that in very different senses. And in some religious traditions, you--you have God, and in others, you have nirvana, or Brahman, or the Tao, and something that doesn't look all that familiar to our idea of God within the Western tradition, but it's still an understanding of reality that transcends in some--in important ways what--what a naturalistic scientific worldview allows us to--to say about reality.

And that's crucial to religion, to my way of thinking, so that naturalism doesn't become religious just because it gives negative answers to religious questions.

Q Okay.

A I'm--I'm not sure that much hangs on that, in the--in the end, even constitutionally, but--but I think that's the clearest use of--of the term "religion."

Q And to wrap up this segment--

A Okay.

Q --is it your view that that religious--strike that.

Is it your view that that appreciation

for the reality of a transcendent purpose to reality needs to be brought into both science and science education in public schools?

MR. GILLEN: Object to the form.

A Let me give you a qualified yes, because a straightforward yes would invariably be misunderstood. So--and again, my understanding--the--the conception of science education that I argue for is locating science, in part, historically and philosophically in relationship to other subjects, other areas of our cultural life. So that a good science education should help students understand the relationship of science to moral issues, political issues, religious concerns.

That doesn't mean that religious views should be understood to be--should be understood to provide some kind of legitimate alternatives to science, that they can become--that--that they--for example, that--that Genesis should be taught in a science class--class as a contender with establishment science, no.

Science classes should teach science. I think they should include some discussion of IDT because IDT should be considered science. At the--

at--at the least, students should be made aware of the controversy over whether IDT is science. But any science class should also locate students within the larger cultural conversation we're having about important things.

So, to that extent, religious, moral, and political views that science impinges on, has implications for, need to be part of the framework for locating students.

MR. WILCOX: Okay. Why don't we take a little break.

MR. GILLEN: Sure.

MR. WILCOX: We've been going for an hour.

MR. GILLEN: Certainly.

(ELEVEN-MINUTE RECESS)

Q (By Mr. Wilcox) If you will turn to the second page of your opinion--

A (Examines paperwritings.) Uh-huh (yes).

Q --there's a paragraph under the heading "Critical Thinking."

A Yes.

Q And it's the next-to-the-last paragraph. And you say, quote, "We disagree deeply in our culture about how to make sense of nature," and then the sentence continues.

A (Examines paperwritings.) Uh-huh (yes).

Q And I want to go into each of the parts of it.

A Okay.

Q In talking about this disagreement in our culture about how to make sense of nature, are you talking about this question whether there is or is not a transcendent purpose in reality?

MR. GILLEN: Objection to the form.

A Yes. But again, the--the controversy occurs on, I think, two different levels. One is the level of our culture wars, where the--the issue is oftentimes framed in terms of creationism versus evolution. And--and as I said, I--I think we need to recognize that there are alternative positions there, that the usual culture-wars rhetoric doesn't work very well.

And then there's also disagreement among--more narrowly among scholars--and, in fact, I think, among scientists--about how to make sense of nature, so--where IDT is--is one of the major

issues.

But that--it's not--that's not the only source of that kind of conflict. It comes up with regard to fine-tuning in cosmological evolution. It comes up with regard to the origins of life. It comes up with the nature of mind and morality. There are--there are conflicts there among scholars, among philosophers and scientists and sometimes theologians, that the public is simply unaware of. So--so, you know, we've got to do a kind of two-layer analysis, I think.

Q Okay. You continue in the sentence, "we disagree about evolution."

A Uh-huh (yes).

Q Is this the disagreement as to whether evolution has purpose or not, or is this the disagreement as to whether evolution explains the origin of species or not?

MR. GILLEN: Object to the form.

A Well, again, there are several different disagreements. As I said, there's--there's the culture-wars disagreement, where it's evolution versus creationism oftentimes. There's a more sophisticated analysis which--which says it's not

evolution versus creationism, but it's different understandings of evolution: Is there a design, is there a purpose to evolution? And then there's-- there's the--the conflict within and on the borders of science about whether or not there should be design explanations allowed into science. So--so it's a multilayered disagreement, I think.

Q And--and the third sentence--the third statement in this sentence is, quote, "we disagree about the relationship of science and religion."

A (Examines paperwritings.) Yeah.

Q And this is something that I don't think we've talked about yet this morning. What is the disagreement about the relationship of science and religion that you refer to?

A Well, one of the questions is, of course, whether design explanations should be allowed into science or whether they're inherently religious. And my view, as I say later in the paper, is that they should be allowed into science, that they aren't, by their nature, religious.

But there's--you know, there's a huge literature now on the relationship of religion and science. Ian Barbour, in the kind of work that's

done so much to define this whole area of science-and-religion studies, suggests there are various kinds of models: There's models of conflict; there's models of independence; there's models of integration. I forget--he's got four different models. Some other scholars, you know, come up with a different--different names and organize the relationships in different ways.

So this is an area of lively discussion over the last twenty, thirty, forty years as--as scholars have not assumed, as, I think, was much the case, that science and religion were two entirely separate phenomena for so long, and--but have--have talked about the complexity of the relationships and offered various kinds of models for understanding it. So it's to acknowledge that--that very lively debate among scholars.

Q You say, in the next paragraph, quote, "public education actively discourages critical thinking by failing to provide students any critical distance on the secular ways of thinking and living that they are taught to accept uncritically"--

A Uh-huh (yes).

Q --"in their various courses." I think I know what

you're saying, but I'm not sure. Does this get back to the notion of the cafeteria--

A Uh-huh (yes).

Q --and students are given courses--you know, here's a vegetable, here's a meat, here's a potato, here's a piece of pie--without being given an organizational framework as to how you make a meal?

A Yeah. They're only given food--they're only given choices from one food group, and--and so that--you know, a liberal education is--is the opposite of a narrow or a parochial education. And so by not including--most of my work has been concerned with--with including religious voices in that discussion. That's what make--religious voices are central in the--in the curricular conversation, if it's to be truly a liberal conversation and--and part of a liberal education. Contemporary education is illiberal by excluding religious voices.

Education, only a decade or two or three ago, used to be illiberal by excluding women's voices or the voices of members of minority traditions or ethnic groups. Their voices were left out. Is that just benign neglect? No. We

now all agree that--that there's something fundamentally illiberal about an education that doesn't include women's history, women's literature, women's points of view, or black history, and so on, or non-Western cultures.

So, you know, my argument is--is much like that, that--that a liberal education should include all of the major voices in--in the larger cultural conversation. Otherwise, education is--is screening out particular points of view. It's content discrimination or viewpoint discrimination.

Q When you use the term "religious voices"--

A Yes.

Q --do you mean anything different from persons having a religious viewpoint or thought reflecting--

A No.

Q --that religious--

A Voices coming out of religious traditions or who make religious kinds of arguments.

Q "Voices" is a metaphor for something.

A It's a metaphor.

Q And what's the something that it's a metaphor for?

A Well, for--for tradition. But the--a part of my

larger concern is that, too often, what limited study of religion there is in schools and universities focuses on traditions in their historical guise. So that in history classes, there will be something about Judaism or Christianity and--and Islam in the ancient world or medieval world. Maybe we'll even get a little bit of religion in the Reformation. Then, after that, religion drops out of--out of the textbooks and out of--out of education.

And so one of the points I want to make is that you need to include contemporary religious voices, not just religious traditions which we then locate in the distant past. It's a way of--of saying the contemporary conversation is what's really crucial.

Q And I'm trying to get at what you mean by "voices" or "conversation," because--

A Uh-huh (yes).

Q Are you--I would understand "religious voices" to mean including in the curriculum content that has a religious basis.

A Yes.

Q Is that what you mean by--

A Yes.
Q --"religious voices"?
A Yeah. Including texts. One of the important points that I want to make is that educators much--that--that public-school education, at least in secondary schools, should be more like, ideally--there are various kinds of practical problems, but, ideally, should be more like undergraduate education in using primary sources instead of relying so heavily on textbooks.

Primary sources are written from within various traditions, so that everything isn't screened through the--the filter of a textbook writer, who puts his or her own spin or--or understands everything in--in terms of some prevailing paradigm within that--that discipline. That students need to be exposed to the primary sources, to the voices of people within the differing traditions.

Q And "voices"--you mean the writings?
A The writings.
Q Okay.
A That's right. It's--"voices"--clearly, it's a metaphor, yes.

Q Okay. You say that public education actively discourages critical thinking. Are you making that as a purposeful statement or as an observational statement?

A Is it intended or not?

Q Yes.

A Some is; some isn't. I think a lot of it is naive, philosophically naive, that because most teachers are educated in the prevailing paradigms of their disciplines, they are not themselves educated to understand dissenting voices and alternative ways of--of addressing the subject at hand or of relating the subject at hand to other disciplinary approaches. They're--they're narrowly trained. It's not that they intend to provide students with an illiberal education or socialize or indoctrinate students into a particular--particular discipline. It's that--it's just that their--their education puts blinders on them, so that they have an unduly narrow view of what it is that they're supposed to do.

And religious alternatives are simply one of any number of ways in which this falls out. As I said, we had blinders with regard to gender and

race and ethnicity up until just a few decades ago. We didn't see that that was--produced an illiberal education.

I make that argument with regard to religion in particular, but also oftentimes with regard to secular moral views, for example, in--in some disciplines, that there's--that there's moral--that there are moral perspectives on the--the issue at hand, like in economics, that get filtered out by our effort--by the effort of--of the economic establishment to insist that--as the national economic standards do--that only neoclassical economic theory be taught. And that's--that's just a travesty of liberal education, that economics can't consider moral frameworks for--for understanding justice in the economic domain because we've got to teach students that--that everybody is a self-interested utility maximizer.

So the point always is to--to get the disciplines to broaden themselves in a way that acknowledges dissenting voices on the borders of those traditions and opens students to relationships between the establishment views in

the--in the discipline to other ways of making sense of the world and of the--the particular subject at hand.

Neoclassical theory is sort of like the methodological naturalism of--of the sciences. There's a--there's a real comparison there. I think most people would find--and certainly when I've talked with groups of people and we talk through this--that the kind of commitment to neoclassical economic theory in economics is--most people find appalling, other than professional economists. And of course, people are something more than that. Of course, justice questions should be involved in--in economics.

So, that kind of--that's part of my work, too, that the kind of battles that we're looking at--the kind of questions we're looking at in science also occur in other disciplines.

(DISCUSSION OFF RECORD)

Q On Page 4, you have a paragraph that begins, "It is true that we can distinguish, in principle, between a methodological naturalism"--

A (Examines paperwritings.) Uh-huh (yes).

Q --"and a philosophical naturalism." Would you

agree that the methodological naturalism that you refer to there is what we have been referring to as classical science or traditional science?

MR. GILLEN: Object to the form.

A The "traditional" and the "classical" seem to me to be not the right words to use, because classical and traditional science did involve design--have design explanations.

Q My--

A It's peculiarly modern science--

Q Modern science.

A --that wants to dispense with--

Q Okay.

A --naturalistic--or design explanations.

Q So "methodological naturalism" would be another way of referring to modern science?

A Yeah.

Q And--

A The dominant view, yes.

Q And the philosophical naturalism, you say, denies that there is any design or supernatural causes in the world.

A In reality.

Q But I would take it further--

A Uh-huh (yes).
Q --and imply, from philosophical naturalism, a negation of any reality beyond the natural world.
A Uh-huh (yes).
Q Do you agree with that?
A Yes, I think so.
Q Okay. Then you go on and say, "The educational problem is that unless students are made clear about this distinction, they will inevitably conclude that science does tell us everything that there is to be said about nature, and God plays no role in nature." What is your basis for that statement?
A (Examines paperwritings.) I wouldn't write that, first of all, the same way, if I were going to do that again, because that simplifies what--what my--my argument is. And the problem is this: We can draw that distinction, methodological and philosophical naturalism, in principle, easily enough. And that's fairly straightforward. I don't think--
Q And we can explain it to students, too.
A We can--we can explain it to students. The problem is that it's a--we don't explain--we don't explain

it to students in a--in a compelling--in a compelling way. And to do it in a compelling way to get them to see the point of it is, I think, difficult to do.

And granted, you--you can--you can make the distinction in--in two sentences. Okay. But then we go and teach them for a semester or an academic year, using science understood in terms of methodological naturalism, and that two-sentence explanation of the distinction gets lost because--because of the over--overriding power of--of what they learn afterwards through their whole study of science.

Now, that's not to say that it isn't important to draw that distinction. It is important to draw that distinction. It's just that that doesn't really go very far. It doesn't go nearly far enough to really get students to grapple with the--with the kind of philosophical issues that--that underlie the distinction, which is--is part of what a liberal education should do, and--and to show how drawing that distinction relates to these larger questions about our cultural disagreements over the extent to which science can

explain reality.

Q You say unless students are made clear, quote, "they will inevitably conclude that science does tell us everything that there is to be said about nature, and God plays no role in nature."

A Yeah. Well--

Q Why do you say they will inevitably conclude that? What is your basis?

A I--I should have said they will naturally conclude that, because I--I suppose it isn't inevitable that they will conclude it. But that will be the--the natural conclusion: Well, science doesn't tell us anything about--and--and when I said that I wouldn't have written it the second way, I--I wouldn't have--I wouldn't have written it the same way if I were doing it now, because I--I see a complication that obviously didn't occur to me when I wrote it. And that is, it's not just that God plays no role in nature, but the design plays no role in nature. And I--and I want to be very careful to distinguish those two questions.

And students learn--we require them to take, if they're going to university, four years of science in high school--

Q Can--I want to focus on high school here.
A Yeah. Four years of--of high--
Q Okay.
A --high-school science, and four years of science shaped by methodological naturalism. And it--it conveys to them, unless a good deal of time and effort is spent, the idea that science can actually tell us everything that's to be said about nature.

And--and that's controversial. And that inevitably--naturally, at least--slides over into a kind of philosophical naturalism. The only way to avoid that is to give them some kind of substantive examples of--and which a liberal education requires--of how science might have limitations and--and how design might figure into our understanding of nature, or even how nature, as understood by modern science, might relate to God.

MR. WILCOX: May I have that repeated, just the last twenty words?

(Whereupon, the sentence at Lines 11 through 17 on this page was read back.)

Q (By Mr. Wilcox) I did not understand your reference to design--
A Uh-huh (yes).

Q --in that last answer to necessarily be a reference to what we've been talking about as intelligent-design theory.
A Uh-huh (yes).
Q Did you understand it to refer to intelligent-design theory, or, more broadly, to the question of a transcendent god providing a purpose in life--
MR. GILLEN: Objection to form.
Q --or--or in reality?
A I'm not sure that I understand the question.
Q Okay. We've been talking design, I think, in two different senses.
A Uh-huh (yes).
Q One is the narrow, inferential, explanatory--
A Uh-huh (yes).
Q --sense of intelligent-design theory--
A Right.
Q --and the other is--and perhaps we haven't been talking about it; it's only me thinking fuzzily about it--design in the sense of a purpose--
A Uh-huh (yes).
Q --of reality--
A Uh-huh (yes).
Q --that purpose being informed by a transcendent

god.

MR. GILLEN: Object to form.

Q Is that consistent with your understanding?

A So, there are three possibilities here. One is the narrowest sense that--where a scientist might suggest a design explanation with regard to some fairly discrete phenomenon--how cells work, for example.

And then secondly, there's a larger question about whether that provides some kind of evidence for claims that there is a purpose in nature that--that--or a design in nature.

And then there's a third level, which is, how do we explain that design in nature? Do we appeal to a supernatural god--to a god or a supernatural being who causes it?

My argu--my position is that--of course, that you can make design explanations, and you can hold the position that there's design in nature apart from any commitment, theological commitment, to a god or to a supernatural being, that those are distinguishable--conceptually distinguishable kinds of--of questions. All the time, in--in our ordinary everyday relationships, and indeed in the

practice of science, we talk about things being designed with--without presupposing that--that we have to use religious language or theological language in doing that.

So, certainly, we can talk of the idea of design as conceptually independent of the--of the idea of God. But, of course, when we talk about the design inherent in cells or in fine-tuning after the Big Bang, of course, the big question is, how does that design get to be there? But it's still a conceptually discrete question. You don't have to have a religious--you--you can--you can still have evidence for and a make a good argument for design without having any kind of theological or religious commitments, it seems to me.

So I--I want to be careful to distinguish design questions from religious questions. And--and that's what allows me to say that design questions should be allowed in a somewhat enlarged science. That doesn't run us the risk of making science into a quasi-religious endeavor or a theological endeavor.

Q Can you identify for us one intelligent-design theorist who claims that the source of the design

was some extraterrestrial alien?

A Now, I know that Francis Crick argued that maybe life arose here as a result of intelligent beings elsewhere in the universe sort of implanting it. But he, of course, wasn't an intelligent-design theorist.

I guess I just don't--I don't see the point. No, I mean, intelli--but intelligent-design theorists claim that in the--claim that they can do--that they can make design arguments apart from theological convictions or--or commitments. And that makes perfectly good sense to me.

Undoubtedly, some, maybe many, maybe most of all them, do have religious convictions. But still, you can distinguish the--the design argument, the evidence for the design argument, from the theological position which they may or they may not hold. So that intelligent design as science doesn't imply or require any kind of religious worldview or conviction. It--it may well be that the only way--or that the best way--maybe I should say "the best way." It may well be that the best way of explaining the design is in terms of a supernatural god.

But there certainly are a variety of philosophical positions and very liberal religious positions which hold that there's design in the world but that it's not there because of a supernatural god, the kind of god that's part of orthodox religious traditions: Aristotelian views; process-theology, process-philosophy views; some feminist views of nature.

So--so--and again, I want to draw that sharp distinction between design on the one hand and supernaturalistic religion on the other. Design is supernaturalistic in sense "B." Design isn't allowed, given the constraints of methodological or philosophical naturalism, but you can still have design without committing yourself to supernaturalism "A," which is a designer--an independent supernatural god. Next question.

Q Do you know of any intelligent-design theorists who are not also practicing Christians?

A I don't know the religious backgrounds of many of them. I know Behe's a Catholic. I don't know if he's a good Catholic or a bad Catholic. That's his tradition. And I know that Phillip Johnson has made various kinds of remarks that suggest he's

religious in some deep sense. But, I mean, that's all--about all I know about their private religious views.

Q You pose the question, in your report, at the top of Page 5, "Is IDT science?"

A Uh-huh (yes).

Q And you suggest, quote, "Arguably, what should be taken seriously as science is in part, at least, a matter of what good scientists take seriously." That strikes me as fairly circular. How do you identify what is a good scientist if you don't have a notion of what science is?

A Well, it--it moves the focus from science in the abstract to what particular individuals do. So, first of all, it's important to point out the "is in part," because it's in part a matter of something else, which is philosophical considerations.

But one way of--of deciding what good science is is to look at what scientists do, and that shifts the focus: Okay, then, what makes for a good scientist? And--and the answer there is, given our ordinary understanding of science, it's somebody who's gotten a Ph.D. from a research

university, who perhaps teaches in research universities, who publishes in journals, and who has certain kind of credentials. And then what those folks do is--is define good science for us.

Some of the folks with those kinds of credentials--not many, but a significant number--the leading intelligent-design theorists have Ph.D.s from good, reputable research universities and teach in research universities, have published some in--in the peer-reviewed journals, and--and yet, they--and they--they know establishment science inside and out, and yet they have come to believe that methodological naturalism is too restrictive, that it's a--a kind of--well, it's in effect a kind of scientific fundamentalism that doesn't allow design explanations to be taken seriously.

And--and so one of the ways of defining what good science is is to see what scientists with the appropriate kind of credentials end up doing. And so it's important, I think, that these aren't people who went to Bible colleges or that rely for their understanding of nature on--on Genesis, but that they are thoroughly and totally at home in

establishment science, and yet feel the need to--to reject it--in part.

And this is--this goes to two of the--to part of the--the--one of the criteria I--I say: To what extent to the--does the theory draw on accepted science? And it's important for me that intelligent-design theory doesn't require us to give up carbon-14 dating, and belief in dinosaurs, and--and a thirteen-billion-year-old universe, or a four-and-a-half-billion-year-old earth, the way old-fashioned creationism does; that--that intelligent-design theorists can accept most of what science tells us about the world. They're rejecting something key in biology: natural selection.

Ernst Mayr said that there's a--there are five components to Darwinian evolution. And I can't remember them all, but it's the idea of evolution itself, and it's gradualism, and it's budding, and--and it's natural selection.

And--and a point that I think Behe makes is that intelligent-design theory requires us to say that natural selection is inadequate for explaining everything that happens. But you can

still accept an awful lot even of evolutionary science, even if you reject natural selection as an adequate mechanism for explaining evolution.

So--so, I mean, that's another consideration. You don't have to give up all kinds of things, all kinds of aspects of science, to be a good intelligent-design theorist. You can still hang onto ninety-five percent of science or ninety percent of biology, even if you--if you say natural selection is a--is a mechanism that doesn't allow us to explain everything that needs to be explained. That's important, I think.

Q In answering the question "Is IDT science?"--

A Uh-huh (yes).

Q --you suggest several tests or aids.

A Yeah.

Q The first is: "How many scientists take IDT seriously?" Here, do you have in mind absolute numbers, or a percentage, or whether any--

A No.

Q --scientists--

A I--I--there's--you know, it's sort of like "What age do people become responsible human beings?" You know, I mean, there's no magic number. The--

the question is--for me, is: "Is there a significant debate?"--

Q If there's one and you believe it--

A --"Is there a significant"--

Q --is that significant?

A Well, you know, if the one turns out to have been Copernicus, you know, that's significant--or Galileo, or somebody who goes against the--or--

Q So by "significant," you don't mean some number; you mean--

A There's no magic number, no. But on the other hand, you know, if it were just the point of view of one person, I don't see that textbooks and the curriculum would need to take it seriously. It's got--there has to be some significant number, and the idea has got to be of significant importance.

You know, in any place in the curriculum, you can't include all the ideas and all the points of view, so which ones do you include? By and large, you include the most-important ones. I would say you should also include the most-controversial ones, the ones that--that have the greatest significance in the larger culture.

And so the--this debate certainly ties

into culture-wars debates. It does that in part. But it also--and more importantly, more relevantly--ties into, I think, important discussions on the edges of science about how to define science, and to a tremendously important question of whether there's design in nature and in the world.

Now, that's a perennial philosophical question. It's not just a religious question. Philosophers have debated that quite apart from anything that looks like traditional organized religion. And--and so it's--I mean, certainly, the design question can be understood as a secular philosophical question, but insofar as it's a question to which collecting evidence and performing experiments is--is relevant, it can also be a scientific question, I think.

Q Okay. Let me continue, because we get to some of this.

A Okay.

Q You ask--with reference to how many scientists take IDT seriously--

A Uh-huh (yes).

Q --"What is (or has been) their standing within

establishment science?"

A Yeah.

Q Other than Michael Behe, can you identify for us one intelligent-design theorist who has a standing within establishment science? I'm not talking about mathematics; I'm talking science.

A I--I guess, if the question is "Are there people who established a relationship and published in science before they became intelligent-design theorists?" I--I don't know. You know, about the best that I can do in response to that question is to say I'm not a scientist, and I do observe this debate more through the kind of general literature than through my reading of scientific journals or the science--the science itself.

Q You continue: "What kinds of research have they done?" I--I assume here you're talking about IDT scientists and what kinds of IDT research have they done?

A No, not necessarily. Have they done--but here, it's important--again, I mean, anybody who gets a Ph.D. from a research university is going to have--have done research in establishment science, and so that's crucial.

How familiar are they with establishment science? What kinds of credentials do they have because of their--their educations and things that they might have published apart from--from IDT? And it's a more-or-less kind of question. That's relevant to--to judging--and--and again, how much of establishment science do they have to reject?

If you're a creation--an old-fashioned creation scientist and have to give up carbon-14 dating, and the age of the earth, and dinosaurs, and all kinds of other things like that, you know, that's an argument for saying that just can't be considered science. But I take it that most of the IDT people don't do that, that they accept an awful lot of science.

Q Do they accept that man evolved from lower life forms?

MR. GILLEN: Object to the form.

A I don't know. I suppose I have to say I don't know the answer to that. I know in--in at least a few cases--I mean, Behe, I know, accepts evolution; he's an evolutionist. And as a matter of fact, he said--in a New York Times piece this spring, he says most IDT theorists are evolutionists; it's

just that they think the design has to enter into the question of evolution. So, in some sense, yes, we descend from other life forms. It's just that you can't explain that evolutionary process in neo-Darwinian terms--or you can't explain it fully in neo-Darwinian terms.

Q Do IDT theorists tend to believe that the great majority of species were--suddenly appeared--

MR. GILLEN: Objection to form. Spec--

sorry.

Q --with no record in the fossil record?

A I--

MR. GILLEN: Objection to form.

Speculation.

A I--I don't know.

Q Do you remember reading that in Pandas and People?

A No.

Q You pose the question "To what extent does the theory draw on accepted science?" "Draw on" is a little vague. Is it your view that intelligent design draws on methodological naturalism?

A It certainly draws on--I mean, it certainly draws on--on other aspects of science. And insofar as--as pretty much all science is defined by

methodological naturalism, it certainly draws on the conclusions of that science to--as--as part of its case.

I mean, again, to think of Behe, he doesn't--you know, this doesn't come all out of the blue, his theory. He's--he locates his design arguments in the context of very deeply textured understandings of the cell, which is drawn from--from establishment science. So it's--it's not, again, like the old-fashioned creation scientists, who dismiss so much of establishment science and--and make arguments that are unrelated to traditional or--or modern establishment science. It--again, it just seems to me to be quite a different kind of--of thing.

Q Let's try to get at this another way, perhaps. Do you understand intelligent-design theory to be a testable and tested hypothesis?

A Yes, although the tests certainly would be somewhat different from those employed in methodolo--within a methodological naturalism. They may be statistical tests, like Dembski--Dembski offers, or, you know, the notion of irreducible complexity that Behe uses. I mean, that's certainly--that's--

it's a way of testing an idea, but it's not the--
the standard way of--of methodological naturalism.
The--the arguments for fine-tuning in--in
cosmology, again, rely on very sophisticated kinds
of mathematical and statistical analyses to suggest
that the nature of our universe--the idea that it
is by accident the kind of universe that produces
life is--are extremely improbable. Well, I mean,
that's a way of testing, I think, a design claim,
but it's not the way of testing that's found, I
think, in much science. Although here I'm really
going beyond what I can talk about, because I know
various kinds of scientists use various kinds of
statistical analyses to--to support causal claims,
for example. So I--you know, I probably should
acknowledge my limitations, though I--

Q Okay. You referred earlier to seeing a list of two
or three hundred names--

A Yes.

Q --in, did you say, The New Republic?

A I know The New Republic, and--and I--my impression
is that that list appeared in a couple of other
places, maybe The New York Times. I--I saw it in
The New Republic.

Q Do you know the context in which it appeared? Was it a paid ad, or an Op-Ed submission--

A Oh, I--

Q --or a--

A No, it was--it was a paid ad. Sure.

Q Okay. And do you know who paid for the ad?

A No. I could guess, but, no, I don't know. I don't--I don't remember.

Q The Discovery Institute?

A I--that would be my guess, but I--

Q Okay.

A --don't know.

MR. WILCOX: Off the record.

(DISCUSSION OFF RECORD)

MR. WILCOX: Okay. Back on.

Q (By Mr. Wilcox) You continue in your list of aids or tests: "To what extent is it an ad hoc theory?"

A Uh-huh (yes).

Q You'd better explain what you mean by that for me.

A (Examines paperwritings.) Well, the next sentence explains it. That is, "Does it grow honestly out of the evidence rather than out of prior ideological or religious commitments?" An explanation that--that really doesn't grow out of

evidence but grows out of convictions that someone already has would be an ad hoc theory.

Q Okay. So those are two connected--

A Yes, that's right.

Q --questions?

A I should have said, "That is, does it grow out," but--and--and let me--I--is your question does design--is design theory ad hoc? No.

Q I'm going to go to the next--

A All right. I'll wait for your question.

Q --question. To answer whether it grows honestly out of evidence imports a notion of trustworthiness--

A Yeah.

Q --that I'm not sure I can address. Do you feel that you have insights as to the honesty vel non of the IDT theorists?

A I don't have any deep insight into--

Q Okay.

A --into their honesty, or into the honesty, I should say, of--of--

Q Neo-Darwinists?

A --some neo-Darwinists. That's right.

Q Okay.

A 'Cause you can make the same kinds of arguments in--in either case. I mean, people say that-- that--a lot of people say that design theorists-- theory really grows out of religious convictions, and some people say that neo-Darwinism really grows out of atheistic convictions.

Darwin--Darwin himself couldn't believe in a personal god after the death of his ten-year-old daughter. You know, does that have something to do with the fact that he now can ex--that--that he wants to come up with an explanation of the world independent of a--of a theistic god? I don't know. My suspicion is that probably Darwin's theory did grow out of a--not out of his re--his personal rejection of a religious god. But certainly there are some neo-Darwinians who probably hold their views at least in part because they can't tolerate the idea of a god.

So how do you assess the honesty? I don't know. Certainly, many neo-Darwinians, I think, come to their views because that's their best reading of the evidence, rather than out of any kind of prior religious convictions. And I-- and I suspect that at least some IDT theorists,

maybe most of them, also come to their convictions out of an independent assessment of the evidence. Maybe they're open to design explanations because of religious convictions that they have, but--but that's a different question from whether those religious convictions actually drive or shape their conclusions as scientists.

Q Okay. You continue that "whether or not IDT is good science is in part, at least, a philosophical question."

A Yeah.

Q And you then state, "Modern science has prided itself on its openness to new evidence and to the potential falsification of its theories." Would you agree that modern science, however, is not open to different methodologies; it insists on--

A Yes.

Q --methodological naturalism?

A Yes. And that then becomes the kind of philosophical question that it's important for science--scientists themselves and students who study science to be educated about: Is methodological naturalism--should methodological naturalism define modern science? Because if--if

that question isn't opened up for discussion, then--then you get what I call scientific fundamentalism, whereby students are expected to accept methodological naturalism more or less as a matter of faith, or, that is to say, of trust in the scientific establishment, rather than any kind of reasoned conviction about it.

The only way to--to have a re--a reasoned position on methodological naturalism is if you understand something of the alternatives or the-- the debate about the adequacy of methodological natural--methodological naturalism going on in our larger intellectual life.

Q To some extent, intelligent-design theorists reference things like Mount Rushmore.

A Yeah.

Q You're familiar with that--

A Yeah.

Q --sort of "I know it when I see it"?

A Uh-huh (yes).

Q That, of course, presupposes that the intelligence underlying the design is an intelligence much like human intelligence, doesn't it?

A Yeah. Well, I mean, that analogy does, yes. Or by

analogy, yes.

Q Which connotes that man is created in the image of God, does it not?

A Well--

MR. GILLEN: Object to form.

A --no, because, again, I want to distinguish between supernaturalism "A" and supernaturalism "B" simply because there are some folks in the history of thought who are supernaturalists "A," and there are some folks who are supernaturalists "B," and--and intelligent design is compatible with either.

It doesn't require God understood in traditional terms of Judaism, Christianity, and Islam. It could be simply the presence of design in the universe in ways in which other philosophers have understood as--as a possibility but that doesn't rely on--on the idea of God. So--and that's a crucial distinction. I--I don't want to lang--we don't--we don't necessarily have to have God just because we have design.

Q I'd like to switch gears and talk about the educational value--

A I'm happy to switch gears.

Q --of the Dover Area School District--

A Okay.
Q --update of the biology curriculum. The biology curriculum was updated to include a preliminary statement as follows, quote: "Students will be made aware of gaps, slash, problems in Darwin's Theory and of other theories of evolution, including, but not limited to, Intelligent Design." What are the--do you have any understanding as to what is meant by the "gaps, slash, problems in Darwin's Theory"?
A (Examines paperwritings.) I don't know what--since I haven't read any literature or talked with any of the people--what the authors of that statement mean. I--I can speculate as to what it might be or what I would take them to be, the--the gaps/problems.
Q Would it, in your mind, be a reference to gaps in the fossil record, for example?
A It could be. That's certainly one of the--the kinds of gaps that oftentimes are mentioned, particularly in--in intelligent-design literature.
Q And could it be also the difficulty that evolution has in explaining the crossover from chemistry to life?

A That would certainly be one of the possibilities, yes.
Q Can you think of any other gaps, slash, problems in Darwin's theory?
A Well, I think another big one would be the development of--of sexual reproduction. My understanding is that--this is nothing I'm an expert on, but my understanding is that that does create a large problem, how you get sexual reproduction where only the--half the genes of--of each parent become transmitted to the offspring, that that's not what neo-Darwinism would--would lead one to think should happen. So how do you--how do you get bisexual reproduction? That might be one. I don't--I don't know.

I mean, certainly, there are particular kinds of cases, the things that Behe talks about, in--in cellular biology and biology. There's--there's the kind of problem that Gould tried to address with punctuated equilibria, the rapid transitions in evolution. I suspect that's probably one. And then the absence of--of fossil--intermediate fossils in those kinds of cases. I suspect those are the kinds of things, but I don't

know what in particular the authors meant.
Q Well, let me just test--see if I understand--strike that.
I'd like to ask you if you have an understanding as to the structure of this sentence. One way to read it is that students will be made aware of gaps/problems in Darwin's theory and that they will be made aware of gaps/problems in other theories of evolution.
A Yes.
Q Do you read it that way?
MR. GILLEN: Objection. Form. Speculation.
A (Examines paperwritings.) I'm puzzled as to that sentence, too. I--that seems to be--do you want to a suggest another reading to it?
Q Another reading might be "Students will be made aware of gaps/problems in Darwin's theory, and they"--
A And then made aware of other theories.
Q --"and then they will also be made aware of other theories of evolution, including intelligent design."
A Well, I suspect that's what it means because--

Q The latter?
A Right, probably, but--but I don't know.
Q Okay.
A I don't know.
Q In your view, is intelligent design another theory of evolution?
MR. GILLEN: Objection. Form. Speculation.
A Well, I mean, I--my impression is that at least some, Behe says most, intelligent-design theorists accept evolution. The question is the mechanism of evolution. I don't know whether that's the case. I--I just don't know whether most intelligent-design theorists accept evolution in--in some form. Well, I don't know.
Q Okay. So, if the school board had in mind that intelligent design was an alternative theory of evolution to Darwinian theory--
A Uh-huh (yes).
Q --you would say that that's not consistent with your understanding of intelligent design?
A I'm sorry. Say that again? If--
Q If the school board--
A Uh-huh (yes).

Q --understood that intelligent design was a theory of evolution--
A Uh-huh (yes).
Q --that stood in contrast to Darwinian--
A Uh-huh (yes).
Q --evolution, you would say that is not consistent with your understanding of intelligent design?
A I guess what I want to say is that intelligent design is certainly compatible with evolution, or many--many intelligent-design theorists, my impression is, accept evolution but reject natural selection as the--as able to explain evolution. But--but I just--I don't know what that sentence means.
Q And isn't it also true that many intelligent-design theorists don't accept that some aspects of biological life--
A Uh-huh (yes).
Q --could not be the product of evolution?
A I mean, certainly, there are some who believe that--
Q Behe, for example, doesn't use--
A Yeah. That's right. Not the product of neo-Darwinian evolution.

Q Of evolution at all?

MR. GILLEN: Objection to form.

A No. I mean, I think Behe is--is an evolutionist. I mean, he says that.

Q Doesn't his example of the bacterium flagellum--

A Well, the question is--

Q --posit that this organism is so irreducibly complex that it could not have evolved?

A No. No. I think his position is that it can't have evolved by neo-Darwinian mechanisms, that there must be design, but the design doesn't have to be a kind of miraculous intervention by a supernatural god. And that's the point, again, in my supernaturalism "A" and my supernaturalism "B." It could be that there is design implicit in nature, there's teleological causation in nature. That's one of the possibilities. And Behe says he's an evolutionist; he believes that evolution has happened; it's just that natural selection as a mechanism can't explain how evolution took place, that there has to be a design in--in nature.

Now, how that design gets into nature, again, is a complicated question, about which, I suspect, intelligent-design theorists will

disagree. And that may be in part a philosophical or a theological question. But that's different from whether there actually is design in nature.

So I think--I think Behe is an evolutionist. And I take it that--that at least some other intelligent-design theorists are evolutionists; it's just that they reject the neo--neo-Darwinian explanation for evolution.

Q Neo-Darwinian in the sense now that it's purposeless?

MR. GILLEN: Objection to the form.

A Well, in--in the sense that it relies on explaining evolution in terms of natural selection acting on the random mutation of genes, which is a purposeless, unguided process, yes.

Q Okay.

A That is, one that does not rely on design explanation or teleological causality. Yeah.

Q What is your understanding as to how Behe explains the origin of the bacterium flagellum?

A Oh, I don't know. I can't explain that.

Q Or any phenomenon in life at all?

A Well, I mean--(pause)--

Q What I'm getting at is: Isn't design theory--

A Uh-huh (yes).
Q --a theory that design is manifest, without any explanation as to how it got there?
A Well, my impression is that most design theorists would say you can identify design and that it's another question how it got there.
Q And intelligent-design theory stops short of explaining how it got there, doesn't it?
A Yes.
Q The statement, curriculum statement, continues: "The Origins of Life is not taught."
A Yeah.
Q Do you understand what that refers to?:
MR. GILLEN: Objection. Foundation. Speculation.
A No, I don't. I mean, I--again, I can speculate, but I don't--don't know what that refers to.
Q What do you think it refers to, or don't you even think--have any thought on it?
A Well, one possibility would be that simply the--the--I mean, it could be that--my--my understanding is that some textbooks have chapters or sections that deal with the origins of life out of nonliving matter, and if that's what we mean by "the origins

of life," it could be that that question simply isn't addressed in the--in the--in the curriculum. That's a gap in the curriculum. So that--I mean, that may be the case. I--so that if that's what we mean by "origins of life," we just don't address that here in--in our curriculum.

Q Let me pause right there.

A Okay.

Q And if you assume that that's what they mean--

A Well, I don't know what they mean. That's--

Q But if you assume--

A --speculation.

Q But if you--if you speculate--

A Yeah.

Q --and that's a way of assuming--

A Yeah.

Q --that that's what they mean, would you regard that as a useful--how do you pronounce it?--pedagogical approach, or is that counterproductive? For a liberal education.

A For a liberal education--

MR. GILLEN: Nice, Chub, nice.

A All right. You make me--you make me say that that's--that's counterproductive. But the--and I

can--I could--that's not the only possibility. The other possibility would be that--another possibility would be that they mean "We simply don't raise religious or philosophical questions about where life came from. We stick to science." I mean, it could mean that. That might be a somewhat naive view, but it--it could mean that, too.

Q Okay. The statement continues, quote, "Intelligent Design is an explanation of the origin of life"--

A Uh-huh (yes).

Q --"that differs from Darwin's view." What was Darwin's view on the origin of life?

A I wouldn't--I wouldn't--I wouldn't write the sentence that way, either. The point is--all right. If--if "the origin life" does mean how do you get from nonliving matter to--to life, then there's no Darwinian explanation. And in fact, as I understand it, that is a huge scientific mystery still. We--we just don't know how--how that happened either on grounds of methodological naturalism or maybe any other, other than religious or philosophical, I suppose. There are possibilities there.

So--so, yes, if--if the reference is to the transition from--from nonliving matter to living matter, then there wasn't a Darwinian theory about that. Darwinism only kicks in once you've got reproduction.

Q So, if instead we read this as referring not to "origin of life" but to "origin of species"--

A Origin of species and--and how did human beings come to be out of prehominids or--or whatever, then it's true that intelligent design might well have--or--or would have a different account of how that story goes because of its willingness to use design explanations.

Q If intelligent-design theorists are primarily evolutionists, it's not really a different explanation for the origin of life, is it?

MR. GILLEN: Objection to--

A Oh, sure it is. Sure it is.

Q It's only a difference from neo-Darwinism--

A Yes.

Q --not from Darwin's view, correct?

A No.

MR. GILLEN: Objection.

A It would also be from Darwin's view. And what

Darwin didn't have was modern genetics. But Darwin still had natural selection, and that was the mechanism that he thought worked on chance variations. But he couldn't explain the chance variations, and--and biologists couldn't till we get modern genetics.

But, still, for Darwin--Darwin says in his autobiography there's no more direction in evolution than in the way the wind is blowing--how does he put it?--there's no more design in--in evolution than in the way the wind blows. And Darwin was clear it was an unguided, purposeless process.

So, if you--if you introduce design, if you allow design explanations, you've at least got the possibility for a--a quite different account of how human beings come to be. Now, you--

Q Now, let me interrupt--

A Okay. All right.

Q --if I may, because I would ask you to point me to the writings of any intelligent-design theorist that claims there is a purpose in evolution and explains what that purpose is.

MR. GILLEN: Objection to the form.

A I--I think that neo-design--pretty soon, we'll have neo-design theory.

Q We already do.

A Intelligent-design theory is in its infancy, and--and, you know, maybe--you know, it may be it won't be long-lived. I--I don't know. But I don't think there's anything like a full-fledged, at this point, intelligent-design theory that--what, I mean, Behe does is show that at the cellular level there are various kinds of--of problems.

There are others--there are other gaps in the evolutionary account that we talked about earlier for which design explanations--for--for which we might find or appeal to design explanations, but--but I don't think there's anything like a full-fledged intelligent-design theory yet.

But still, what intelligent-design theorists have come up with is very suggestive and--and, I think, significant, in part because of its implications, and particularly for its--the questions it raises about the nature of science and whether science needs to be defined more broadly.

Q Can we agree that, as you understand it,

intelligent design is not an explanation of the origin of life in the sense of life going from innate chemistry to living matter?

A I don't think that there's a complete theory there. There's--that's my impression. Again, I mean, I'm--I'm a philosopher looking at this literature from some distance, but my impression is that there's not a complete theory of how design figures in at all stages of evolution, that there are some gaps, some problems for Darwinists, and there are some particular places where design looks like a pretty obvious explanation where there are no competing Darwinian explanations. So that there's kind of the sketch of a--of an alternative theory that's--that's available. But--but, obviously, a lot of work still needs to be done to fill in that sketch.

One other thing that I'd say here, too, that seems to me to be important, and--and that is that, I mean, one of the reasons that I take design theory seriously as a possible explanation, competing explanation, is that it seems to me that you can make a fairly strong case for design in cosmological evolution, the kind of anthropic

fine-tuning arguments that have received a lot of discussion among cosmologists and philosophers.

Q Just--

A At one end--

Q Just so we are--are communicating, "cosmology" meaning how the universe got to--

A Yes.

Q --be the way it is?

A Yeah. In the--in the wake of the Big Bang, the very extraordinary set of coincidences that allowed--that made this universe a universe that in the end produces life. The--the extent to which cosmologists and defenders of the naturalistic worldview have to go to to re--to discredit that idea usually requires the appeal to an infinite number of universes, which is an extraordinary move to make.

So--so, you--you get a kind of plausible design argument out of fine--cosmological fine-tuning. And on this end, thirteen billion years later, there's--there's a fair amount of--secular philosophers oftentimes reject naturalistic explanations of the mind. One doesn't have to be religious, by any means, to believe that naturalism

is inadequate to explain the mind, that you need--that--that mind is something that requires a quite different kind of explanation than modern science and naturalism can--can provide.

So that at both ends of our thirteen-billion-year history, you've got design that--that oftentimes is--is argued for on secular grounds rather than religious grounds. So that the intervening stages of how life came to be and--and biological evolution--that--that there are design explanations which are now being made available seems to fit a larger pattern than--so, in part--that's one of the reasons that I take it seriously, is that it--it fits that larger pattern, and you don't just look at the--you don't have to just look at the kinds of arguments that Behe makes about cells. That's an important piece of the puzzle, but--but the puzzle's a big puzzle.

Q Spanning thirteen billion years?

A Spanning thirteen billion years, yeah, that's right.

MR. GILLEN: Let the record reflect it is not a young earth.

THE WITNESS: Yeah.

Q The statement goes on to say, quote, "The school leaves the discussion of the Origins of Life to individual students and their families." In your view, that is not a good thing, is it?

MR. GILLEN: Objection to form.

Q Shouldn't a liberal education address discussion of origins of life?

A Yes. But--but again, I don't know exactly what the authors meant by--

Q Whichever they mean--

A --teaching the origins of life.

Q --whether they mean converting from innate chemistry to living matter--

A Yeah.

Q --or whether they mean how speciation occurred--

A Yeah.

Q --whichever they meant, you would think schools--

A Well--

Q --a liberal education should address it?

A A liberal education should, and invariably does. It's just a question of whether it's implicit or explicit.

Q Then this--there's an explanation, which reads, quote, "The foregoing statements were developed to

provide a balanced view." Balanced among what, as you--as you understand it?

MR. GILLEN: Objection. Form. Speculation.

A Well, I suppose there are two ways of reading it. One is balanced between--well, let me say the way that I want--I want to read it. It's balanced between design--between design views and neo-Darwinian views.

Now, obviously, it's not balanced, because the school teaches--the curriculum requires and the textbooks are full of neo-Darwinian evolution, so it's not balanced in the sense of equal time, and it shouldn't be. I--I don't argue for equal time. But it is--it's balanced in the sense that it acknowledges that there are alternative ways of understanding nature that--that--it acknowledges that there are alternative ways of understanding nature, so that students don't just think that the only explanation is--is the neo-Darwinian explanation.

So, in a kind of minimal sense of "balanced," it--it acknowledges that there's an alternative. It makes students aware of the fact

that there's an alternative. But it's not balanced in the sense of equal--equal time, of course.

Q There's a sentence in the explanation at the bottom: "The Superintendent has directed that no teacher will teach Intelligent Design, Creationism, or present his or her, or the Board's, religious beliefs." From that combination of references, would you infer that intelligent design, creationism, and religious beliefs, either by teachers or the board, are all wrapped together as of one nature?

A No.

MR. GILLEN: Objection. Speculation.

A No. No, I--again, I don't know, but--but that's certainly not the way I would read it. That's a series of possibilities, and they don't all have to--to be religious.

Q Okay. And then it continues--

A Okay.

Q --"The Dover Area School District supports, and does not discriminate against, students and parents who have competing beliefs, especially in the area of the Origin of Life debate." That's a reference to competing religious beliefs, is it not, the

culture wars?

A Well, competing beliefs wouldn't have to be religious beliefs. They could be naturalistic or secular or atheistic beliefs.

Q That's what I reference when I say "the culture wars," between--

A Yeah. Yeah.

Q --secular versus religious.

A Okay. All right. All right. Yeah.

Q Isn't that how you understand this? This is a reference to the culture wars that we talked about--

A Well, yeah, but then I--

Q --at the beginning?

A You remember I--I also said that there's two readings of "culture wars." One is religious versus secular; the other is liberal versus conservative. And so it gets messy.

Q Do you understand this to be liberal versus conservative?

MR. GILLEN: Objection. Foundation.

A Well, again, I don't know. All I can do is--is speculate, and I suspect that it--it--yeah, it applies. It says that we--we're trying to be

religiously neutral, I suspect, as the Supreme Court requires us to be, and that means we're not going to discriminate--discriminate against any people in terms of their religious beliefs or their nonreligious beliefs.

Q Then it continues: "School districts are forums for inquiry and critical discussions. The above statement and the District's revised Biology curriculum together provide an opportunity for open critical discussion." You would disagree with that, wouldn't you--

A As--

Q --at least not at school here?

A Not nearly as open and as critical as it should be. The question is whether this is minimally--whether this is acceptable, I guess. And, you know, I think it's acceptable, but--but I would--I would go much further.

MR. WILCOX: Okay. Time for another break?

MR. GILLEN: Yeah.

(SEVEN-MINUTE RECESS)

MR. WILCOX: If you don't mind, would you mark this as Nord Exhibit 3--or 4, I guess this is.

(PLAINTIFF'S DEPOSITION EXHIBIT NO. 4 MARKED FOR IDENTIFICATION)

Q (By Mr. Wilcox) Let me show you what's been marked as Exhibit 4 to your deposition.

MR. GILLEN: I heard about this.

Q And I'll ask if you have encountered that before.

A (Examines paperwritings.) No, I haven't.

Q Are you familiar with an organization called the Center for the Renewal of Science and Culture?

A Is--I've heard--I've heard of it. That is part of the Discovery Institute, is it?

Q Correct.

A Yeah.

Q The Center, according to this, is directed by Dr. Stephen Meyer. Have you heard of him?

A Yes. Yes, I have.

Q Do you understand him to be one of the intelligent-design-theory proponents?

A Yes.

Q "The Wedge Strategy" is the title of the document. Have you heard of the wedge strategy before?

A Oh, I've certainly heard the term "the wedge" used

before, in connection with Phillip Johnson, but--

Q Have you heard it used before in connection with intelligent-design theory?

A Yeah. Yeah.

Q What do you understand the wedge strategy to be so far as intelligent-design theory is concerned?

A Only in the most general sense, it's, I guess, the--the use of design experience--design arguments to--to underwrite a somewhat different understanding of--a radically different understanding of nature from that that modern science and methodolo--methodological naturalism allow for. That is, an understanding of nature which is--which is designed rather than, as neo-Darwinism would say, an unguided, purposeless--would have it, an unguided or purposeless project--process.

Q Okay. According to "The Wedge Strategy," the paragraph at the next to the bottom of Page 1, quote, "Discovery Institute's Center for the Renewal of Science and Culture seeks nothing less than the overthrow of materialism and its cultural legacies. Bringing together leading scholars from the natural sciences and those from the humanities

and social sciences, the Center explores how new developments in biology, physics, and cognitive science raise serious doubts about scientific materialism and have reopened the case for a broadly theistic understanding of nature." Do you understand that the "new developments in biology" referred to here is intelligent-design theory?

A I guess. I haven't read this document, so I--

Q Okay. Let's continue. Under "Five Year Strategic Plan Summary"--

A (Examines paperwritings.) Yes.

Q --on Page 2, it begins, quote, "The social consequences of materialism have been devastating." It continues, "In order to defeat materialism, we must cut it off at its source." And it talks about "a `wedge' that, while relatively small, can split the trunk when applied at its weakest points." And then it gets closer to what we've been talking about here--

A Uh-huh (yes).

Q --and it says, quote, "The very beginning of this strategy, the `thin edge of the wedge,' was Phillip Johnson's critique of Darwinism begun in 1991 in Darwinism on Trial, and continued in Reason in the

Balance and Defeating Darwinism by Opening Minds. Michael Behe's highly successful Darwin's Black Box followed Johnson's work. We are building on this momentum, broadening the wedge with a positive scientific alternative to materialistic scientific theories, which has come to be called the theory of intelligent design."

Is it your understanding that the design institute--I'm sorry--the Discovery Institute purposefully has promoted intelligent-design writings and intelligent-design theory as a way of developing the thin edge of the wedge into a broader wedge?

MR. GILLEN: Objection. Speculation.

A You know, I--I haven't--I--I know what the Discovery Institute is. I know that intelligent-design theories--theorists often, maybe usually, have some kind of affiliation with it. It's a kind of think tank for intelligent-design theory. But I've never--I don't--no, I did once. I went to the Web site to track down a document, but I think that was the only time I view--visited their Web site. I've not read any of their materials, so I just don't have any kind of independent understanding of

what their mission or--or goal is, other than generally to support intelligent-design theory.

Q Okay. And then it continues, in this same strategic-plan summary, quote, "Design theory promises to reverse the stifling dominance of the materialist worldview, and to replace it with a science consonant with Christian and theistic convictions." Is this the first you've heard of that aspect of the Discovery--

A Well, I know that's a--

Q --Institute's program?

A --charge that's oftentimes made of intelligent-design theory, that it's a kind of front for--by its critics--for a religious worldview.

Q Do you know that--that Exhibit 4 is not by the critics of intelligent design--

A No, I--yeah.

Q --but by the proponents of--

A Yeah. No, I--

Q --intelligent design?

A I appreciate--

MR. GILLEN: Objection. Foundation.

A No, I--I appreciate that fact. I'm--but you asked me if I was familiar with that idea, and I'm

saying, yes, I'm familiar, because that's--that's a claim that's oftentimes made by--made by critics, and--and so I'm only familiar with it in that sense.

Q Okay. If you turn to the page that's numbered zero-one-two-four-four (01244)--

A (Examines paperwritings.) Yes.

Q --it refers to "The Wedge Strategy Progress Summary," and under "Books," it says--

A Uh-huh (yes).

Q --"William Dembski and Paul Nelson, two Center for the Renewal of Science and Culture Fellows, will very soon have books published by major publishers."

A Uh-huh (yes).

Q This is--the Dembski here is the same Dembski you referred to earlier--

A Yes. Yes.

Q --as one of the leading proponents of intelligent design?

A Uh-huh (yes).

Q Do you know Paul Nelson to be a proponent of intelligent-design--

A Yes.

Q --theory?
A Yes.
Q I'm sorry?
A Yes. Uh-huh (yes).
Q And then it refers to Michael Behe's Darwin's Black Box book. Do you understand him to be a leading proponent--
A Yes. Uh-huh (yes).
Q --of intelligent design? And then it refers to, on the last page, the goal of getting intelligent-design theory out into television and radio, and newspaper and magazine articles. That's the popular press that you've referred to--
A Uh-huh (yes).
Q --where most of your reading about intelligent design--
A Yes.
Q --has come from?
A Yeah. Well, I wouldn't say the popular press. Most of it's come from reading scholarly work, not the scientific--the nitty-gritty scientific stuff but the--the more scholarly work in the kind of philosophical questions that raise the--the philosophical questions about design and--and

naturalism. That's where most of my impressions of the movement come from.

Q If Exhibit 4 to your deposition is in fact a statement by the leading proponent of intelligent-design theory, would you still say that it--intelligent-design theory passes the test that you've set out in your report of being honestly drawn from the evidence and not an ad hoc--

A Yeah.

MR. GILLEN: Object--

Q --view? This would cause that into question--call that into question, wouldn't it?

MR. GILLEN: Objection to form.

A Not necessarily. That is to say, one can still draw--I mean, just as one can have atheistic reasons for liking neo-Darwinism but that doesn't call into question the adequacy of neo-Darwinism, so one can have theological or philosophical convictions for a design--a world of design that doesn't necessarily call into question the adequacy of the actual design explanations.

So Dawkins and--and Daniel Dennett and Stephen Jay Gould don't discredit Darwinism because they argue from Darwinism to an atheistic world.

Gould says--in one of his essays, he says he really likes the cold-bath theory of reality, that--that somehow or another, a world without God, of--of struggle, is a world that's--he finds, in his stoic temperament, rather congenial. But that doesn't discredit his work in paleontology. So you can draw that distinction.

Now, you know, whether, in fact, their theological convictions color their scientific work, I can't say. What I--what I would argue is that they needn't.

Q This, I think, might go a little beyond your report but is drawn from some of your books. You have expressed the view that schools, in order to be fair, should take religion seriously--

A Uh-huh (yes).

Q --and that to do that, they should address explicitly--I'll use your metaphor--religious voices--

A Yes.

Q --as they relate to the subjects in the curriculum. And I am curious as to selecting among the various religious voices. Is it your view that schools should present the religious voices that are

reflective of the community in which that school is located?

A It depends in part on what the subject is.

Q Well, let's talk about evolution and biology.

A I would say that a biology textbook should have, rather than the perfunctory introductory chapters that they now have on scientific method, which may not say anything other than--which offer--which typically offer a short and--and perfunctory and philosophically simplistic idea of scientific method--that rather than that, textbooks should have a substantive introductory chapter, in which they locate biology historically and philosophically in terms of our ongoing discussion--not just current culture wars but intellectual discussions, for example, about the role of design in nature, and make students aware of--of this larger intellectual and cultural context, so that they can appreciate that what they're going to study is controversial in certain regards, and--and they aren't simply taught it as if it's the only way of understanding nature.

Now, what--what points of view, what alternatives do you--do you bring up? How much

space do you have? You--you always have to, in any subject, balance depth with breadth. And so how many alternative ways of understanding nature do you include is going to be shaped in part by judgments about how much space do you have to give them to make them at least minimally coherent. Do you include ten alternatives, but give them a paragraph each, or do you include five alternatives and give them two or three paragraphs each? And it's--it's a complicated question.

In general, I think the idea should be: Given the historical and philosophical debates about how we make sense of nature, methodological naturalism, questions of design, questions of God, are there three or four or five ways of thinking about nature that are historically and, in our contemporary world, sufficiently important so that students must--must be--should be made aware of their existence if they're to be liberally educated, if science isn't just to be a form of socializing students into what contemporary--the dominant way of understanding nature of contemporary science? So, you know, I really can't answer that question until you let me know how many

pages I can have and--and how sophisticated the teachers are going to be.

I mean, that's another question, too. Teachers aren't prepared to deal with that kind of material, and so it's a matter of--of science education for the science teachers and preparing them to have a little broader understanding of what science education is. And the science--national science standards say students need to--science should be taught in historical context. They just don't fill that out in very interesting ways philosophically speaking.

Q There are probably hundreds of millions of Hindus--

A Uh-huh (yes).

Q --who have a view of the meaning of life.

A Yeah.

Q Should that be taught in our public schools in central Pennsylvania?

A I think all students should be required to take a course in--high-school students should be required to take a course in religious studies that exposes them to the way several major religious traditions understand the world. And I think it's good to include an Eastern religion in there.

Q This raises another subject altogether. To what extent, in your view, should the issues that we've been talking about today--specifically, secular versus religious ways of understanding the nature of reality--be addressed, in your opinion, in a high-school ninth-grade biology class, or would it be better if they were addressed in a well-designed comparative-religion, religious-studies class?

A Yeah. Well, my answer is--is both, in general. That is to say, I argue for minimal inclusion when courses deal with particularly important and particularly controversial issues--religiously controversial or religiously important issues. There should be some minimal inclusion in an economics course, a literature course, a science course. It makes students aware of the controversies, and what's controversial and what isn't, and for whom.

But recognizing that that kind of minimal inclusion isn't going to produce any deep understanding on the part of students, I think that a liberal education requires that they also take a course in religious studies that gives them a more in-depth understanding of several different--

several major religious ways of understanding the world, both in their classical forms and with regard to how we live our lives here and now. That isn't going to happen any time soon.

And--and that's a--that's a very controversial position. I--I think that's what the liberal education requires. Indeed, I think if you really spell out what constitutional neutrality requires, that's the--the best way of having neutral schools.

But it's--it's not just for religious reasons. My theory of liberal education doesn't just require--I mean, I--it's a broader theory. It's one which I, in my--my own research and work, have applied to religion, but the theory also requires that students learn alternative secular ways of making sense of the world when there are controversies.

And--and that's--I mean, that's the reason that I think my way of thinking about liberal education applies to intelligent-design theory, is because--I mean, just as students need to learn about Republicans and Democrats, between communitarian and--and liberal and neoclassical

ways of thinking about economics, they need to understand different secular--different scientific--different ways of understanding science and the--and quite apart from any claims that I want to make about religion.

Critical--the point of a liberal education is to enable students to think critically. And you can only think critically when you understand alternatives to the--to the conventional wisdom. And--and that's what we don't do very well. As I said, education is more or less serial socialization rather than any kind of informed critical understanding. And--and so it really doesn't have anything--the theory of liberal education doesn't have roots in anything religious or--it just happens that that's what I've applied it to in most of my work.

Q One criticism that has been made of intelligent-design theory is that it is essentially an argument from ignorance--

A Yeah.

Q --meaning that intelligent design says, "If I see something that I can't explain as a matter of evolution"--

A Uh-huh (yes).
Q --"then it must be the product of design."
A Uh-huh (yes).
Q That's a sort of false dichotomy, is it not?
A Yeah. It--I mean, one--one could imagine there being alternative--one could imagine there being alternative naturalistic explanations to those of neo-Darwinism. And--and maybe complexity theory is an alternative naturalistic explanation. I just don't know enough about it to say. In fact, neo-Darwinism and intelligent-design theory seems--seem to be the only two significant contenders right now.
Q If one were to conclude that intelligent design was not scientifically valid--
A Uh-huh (yes).
Q --at least as modern science is defined and limited--is it your view that intelligent design should nonetheless be taught because of its willingness to--because of the vehicle it provides for addressing questions of the purpose of reality?
A Well, I mean, right now, the crucial question is whether it's science and whether our understanding of science should be broadened enough to include

design explanations. Now, are you saying, "Suppose, in the long run, we decide it isn't good science; then should it still be included?"

Q Yes, because of its heuristic benefit, its pedagogical benefit.

A Well, you know, in a sense, I want to say my position is it should be included--considered good science, so I don't--I'm not sure I want to speculate about what happens if we decide it isn't good science.

But, you know, I--I do think that students should be made aware of--just as I think they should be made--made aware of various kinds of religious ways of understanding not just nature but the economic world, or history, or human nature, that there is some value in exposing students to at least some kind of rudimentary understanding of nature as being designed, even--even if intelligent design--quite apart from intelligent-design theory.

There are theological and philosophical arguments one can make for the idea there's design in nature, some of which I--the philosophical arguments, I happen to think are quite good, and that provide a kind of alternative that give people

critical perspective on naturalism.

So--so, yeah. I mean, I want to say that students should be exposed to the--to various ways of understanding all of the subject matters that--that they learn about in school if they're to think critically about them. But I happen to think that nat--that intelligent design has a reasonably good chance of coming to be seen as--as good science, although it's deeply controversial now. But the controversy's itself a reason for educating--making--making students aware of it.

Q Well, controversies sometimes are formed by loudly proclaiming something.

A Yeah.

Q Just because there are some loud proclaimants--

A Uh-huh (yes).

Q --of an idea doesn't mean that it should become part of the curriculum in public education, does it?

A You know, I mean, one answer I want to give is, well, you know, it depends on how loud the proclaimants are, because students need to understand cultural controversies. I mean, even--even for things that aren't at all intellectually

respectable, students should understand something--something about them. If they're important in our culture, they should be given some perspective on them.

But, you know, I want to say that the intelligent-design argument isn't one primarily about shouting louder. It's one that has serious intellectual merit and that is part of, as I said, a larger discussion about design that goes back to cosmological fine-tuning and goes to how we understand the mind. It fits into that larger story. And it also fits vertically into--into a history in which philosophers as well as theologians and scientists have used design explanations. So it's--it's--the idea that there might be design in biological evolution or in our understanding of biology fits into several larger patterns, the vertical pattern of--of historical understandings of nature and the contemporary pattern of--it goes to cosmology and how we understand the mind. It has a--so it has a legitimate place because of its location in--in those ongoing philosophical controversies.

(Pause.)

As well as in--in terms of the particular kinds of intelligent-design arguments that are now starting to be made by people like Dembski and--and Behe. But--but those arguments are--aren't out of the blue. They--they have cultural and intellectual importance in part because they--they fit in--into larger patterns that give them a kind of credibility, I think. Possible credibility, at least.

Q If a ninth-grade public-high-school biology course were to teach the science that almost all scientists believe is correct--

A Uh-huh (yes).

Q --and leaves it to churches and parents to instruct on moral and metaphysical questions--

A Uh-huh (yes).

Q --what's wrong with that?

A Well, their students won't be educated, and they'll--they'll be at the mercy of--of parents who may or may not understand much about these larger intellectual issues. Most of them won't understand about these larger--larger intellectual and philosophical issues, because they weren't themselves liberally educated or well educated

about it. So a liberal education requires that-- that schools provide students some kind of an understanding of these larger philosophical, sometimes religious, questions. Otherwise, we leave them unable to think critically about the conclusions that we present to them.

Q And I take it, in your view, the ninth grade is certainly none too early to start?

A I--no. I--I think there's a real question about when students became--become mature enough to deal with controversial kinds of issues and able to understand the alternatives. So that I would say there's a real difference between elementary and secondary schools in when we start introducing them to--to deeply controversial points of view and arguments and discussions.

But ninth grade is when many students study biology, and it may be the only time that many students study biology. So that it's essential that they get some introduction to the fact that there are contending ways of understanding nature at that time.

Q Would it be better, in your view, for high schools to teach biology in the twelfth grade instead of

the ninth grade?

MR. GILLEN: Objection. Speculation.

MR. WILCOX: As to what his own view is?

MR. GILLEN: Well, yeah. What did you ask him? I'm sorry, Chub. I thought you said--should they do it?

THE WITNESS: I'm--I only speculate about my own views.

MR. GILLEN: Okay. Good.

Q (By Mr. Wilcox) No, I detected in your last answer the notion that because that's where high schools teach biology that's where it has to be addressed. But I'm saying--

A It's not the only place where it has to be addressed. I mean, I think physics courses should deal with the question of cosmological fine-tuning and--

Q But I'm sticking with biology for a minute and--

A Yeah.

Q --and the meaning of life--

A Yeah.

Q --what--what--the question whether there is meaning or purpose in biological life.

A Right.

Q I had the sense of your earlier answer that perhaps it would be better if students were a little older and more sophisticated when they were introduced to these concepts. But I heard you to be saying since that's where schools teach biology--

A Yeah.

Q --that's where they have to address this. And that lead me--led me to my alternative suggestion: Would it be better, in your view, for high schools to defer teaching biology--and along with it, teaching--

A Yeah.

Q --additional explanations as to the significance, meaning, purpose of life--when students were a little older and better able to grasp--

A Well, if students took biology when they were seniors instead of freshman, they would probably be in a better position to understand some of the controversies. They would be more--they could be more intellectually sophisticated and--and make sense of it better. That's true. But--but you're--you--you can't teach everything when students are seniors. I mean, you've got to teach them some things when they're in ninth grade, some

things when they're in tenth, and so on. And--and you have--you have to balance that with arguments that science educators would make about what the proper sequence should be in teaching students the sciences. And ninth grade isn't too early to give them some sense of what's at issue. So, you know, there are a lot of variables that you weigh when you decide what--what to teach them when.

But, yes, in principle, it would be nice if students were a little older and more mature and better able to understand some of the issues than they are in--in ninth grade. But then you might have to teach physics in ninth grade, and then you couldn't make the--they wouldn't understand some of the alternatives there. So, you know, I don't know how you sort that out.

Q If you would, turn to the top of Page 8 of your report. The--you make some statements here that I just need to have your help understanding.

A (Examines paperwritings.) Uh-huh (yes). Okay.

Q You say, quote, "Because scientific theories can be confirmed they aren't mere speculation." I'm not quite sure what you mean by that. Do you--

A Well, I think some people who talk about evolution

being--or, you know, Darwinism being a theory mean--mean to discredit it by saying it's mere speculation. So the scientific establishment has responded in turn that a theory isn't mere speculation and hypothesis, that the theories can be confirmed.

And I think that's a--that's a valid viewpoint. Theories can be confirmed. They can be confirmed more or less. And, so, oftentimes, neo-Darwinism--or evolution, the idea--the theory of evolution is contrasted with heliocentric theory or the theory of gravity, which have so much confirmation that--that it's wildly misleading to suggest they're mere speculation. And I--and I agree with that.

So the--the effort on the part of--of some opponents of evolution to say that it's a--it's a--it's a mere theory, I think, missed the legitimate scientific point that theories can be confirmed.

Q Okay. And then you say, "I believe it is appropriate for science texts"--and, I assume, science teachers--

A Uh-huh (yes).

Q --"to teach students that most scientists believe that neo-Darwinism is a confirmed theory."
A Yes.
Q And then you continue by saying, "Still"--which I interpret as kind of a "however"--"the distinction"--
A (Examines paperwritings.) Yes, you're right. That's a still--that's a "however" "still."
Q --"the distinction rightly suggests that because neo-Darwinism is a theory, its confirmation rests not simply on observation"--
A As do facts.
Q --"but on a wide range of complex considerations which are potentially open for reinterpretation."
A Yes.
Q Now, you lost me there, because I thought confirma--theories are confirmed by observation and not by a wide range of complex considerations.
A Oh. Facts--facts are things that we observe directly. Theories hinge on all kinds of things we can't observe directly.

So that--I mean, it's a fact that the cup is right here. (Indicating.) I can observe it directly. But that--the fact that the cup is made

out of electrons and protons and neutrons and photons and, you know, all of those things--that's a theory. That's--that has to do with atomic theory. And--and I can't observe any of that stuff directly. That's a--that hinges on all kinds of scientific laws and--and complicated theories, which have implications for our observations but--but go way beyond our observations.

So that the theor--neo--neo-Darwinism as a theory rests on a whole set of complex considerations and complex kinds of arguments and--and evidence. We can't observe evolution. And--and that's important, because factual judgments can be confirmed directly by virtue of our observations; theories can be more or less confirmed, but they go way beyond our immediate observations.

So, most scientists, I think, believe that neo-Darwinism is a confirmed theory. Now, I would say probably--and I perhaps should have said that--that its confirmation has a high degree of probability for most scientists. Most scientists accept it as a confirmed theory.

But because--but there's still a point to

the kind of objection that some people make to--to evolution, because its confirmation rests on a whole set of complicated considerations that are perhaps open to alternative interpretation, namely design interpretations.

Q Okay.

A But--but I think that students should be taught--you know, I'm not in favor of--of balanced treatment in the sense of giving equal time to alternative theories. And in my ideal biology textbook, you know, you don't give equal time to Biblical creationism, or--or just limiting us to scientific views, to design theory and to establishment science, but, of course, establishment science has got to receive most of the--the time and--and--pages in the textbook and hours in the--in the class. But you can't exclude legitimate alternatives.

And so design theory has to be taken at least seriously enough so students are made aware of it and given, ideally, some sense of what it is. Short of that, the kind of disclaimer that Dover wants to have seems to me to be a very, very modest step in the right direction.

Q Under the heading "The Present Case"--
A (Examines paperwritings.) Yes.
Q --you say, "By making students aware of the controversy surrounding Darwin's theory of evolution, including IDT, the Dover School District is promoting legitimate, secular, pedagogical goals and enhancing their science education and student learning." Given some of the ambiguities, inconsistencies, problems, and gaps that we've noticed in the--
A Yeah.
Q --board's statement, and the fact that it is just read and then abandoned for the rest of the--
A Yes.
Q --semester, do you think this might be an overstatement here?
A (Examines paperwritings.) It is promoting a legitimate, secular, pedalogic--pedagogical goal, and it is minimally enhancing their science education and student learning.

I mean, you're right. It's--it's--you know, I--I think Judge Cooper's decision was ludicrous because he thought that that little disclaimer that they pasted in the Georgia

textbooks somehow or another conveyed the idea that the--that the school board was on the side of--or was--was opposed to--to teaching--teaching evolution, in spite of the fact that the school board chose the textbooks, which, as he acknowledged, had hundreds of pages on evolution.

So, I mean, it's ludicrous to attach that much importance to the sticker--which also, of course, means, you know, why are you-all so upset about it?--because it--it doesn't have that kind of cosmological import.

But--but it serves the--the goal in a--in a kind of mini--minimal but important way of--of making students aware of the fact that there are alternatives. And that in itself is worthwhile even if it isn't nearly as--as--have the kind of substantial implications that it--that it should.

I mean, as I said, I would have students learn something much more about the philosophical and historical issues relating to design and--and methodological naturalism and neo-Darwinism than is--than is usually done, but at least make them aware of the fact that there's a controversy.

Q Okay. The controversy that you're referring to in

this statement--
A Uh-huh (yes).
Q --that we just quoted is as to whether there is or is not purpose underlying life?
A It's--it's the--it's to make them aware of the controversy regarding design explanations in biology, yes, that--that there is an alternative theory for understanding nature that--that involves design explanations, yes, and so is--you know, I want it to be much more substantial than it is to--to really serve the purposes of liberal education. But it--but it--it serves the minimal purpose of alerting them to a controversy that's--that's real and that's important.
Q And that's the contro--the controversy is--
A Is--is over whether design explanations have a role in biology.
Q And by "design explanations" here--
A Uh-huh (yes).
Q --we're using it not in the sense of design of a particular bacterial flagellum but rather in the broader sense of "Is there purpose to life?" Is that--
MR. GILLEN: Objection to form.

Q Isn't that what you mean?
A The--the two are related, but, I mean, intelligent-design theory, insofar as it holds that there are design explanations that are--are plausible, that are reasonable explanations, is compatible with and open to the possibility, then, that there is some kind of larger design in nature. It's also open to the possibility that there's a supernatural explanation, but it doesn't require any of those things.

But--but, yeah, I mean, I think that--that the--that the controversy is over whether or not--that--the--the underlying principle is that when there's a controversy, students should be made aware of different points of view.

Now, there's a controversy over evolution. Some of the points of view are religious. And I think they should be included at--at some point in the--in the curriculum. Where, is an important question, obviously.

But there are also--there is also a--a scientific controversy, at least if we are willing to have a somewhat broader definition of science than establishment science holds. There's a

controversy about that, what it means to be scientific. And students should inform--be informed about that.

And--and then the controversy is, do design ex--are design explanations legitimate? I--I think, since there is a respectable case that can be made for that, that students need to be made aware of it. "Respectable" meaning, as we talked before, in terms of arguments and evidence cited by people who have credentials in science and who use other aspects of science as--as--in the process of being scientists, who--who don't flatly reject everything that science has to say, and that aren't incompetent and un--uneducated in establishment science.

Q Let me see if you can agree with this--

A Okay.

Q --statement: Throughout your opinion, you have referred to significant disagreement and important controversies. Isn't it true that what makes the controversy important is the implications as to whether there is a meaning to life--

A Uh-huh (yes).

Q --other than sheer random, unguided, purposeless

actions of atoms?

A Yeah. I mean, that's what--that's what makes the controversy important to most people. And--and I can't--I don't know what--I've not talked with and I've not read what the school board said about it, so I--you know, I can't speak to--to that.

But, for most people, undoubtedly, that's why it's important. That's not the only reason or maybe even--I mean, that's one--one reason why students should be educated about the controversy.

But the other reason is because there is a debate, a controversy, among scientists about what counts as a good and an adequate scientific explanation. And that controversy in and of itself is important enough to warrant refu--reference to intelligent design, I think, in--in the curriculum.

Now--now, many people, no doubt, would--would say, "I could care less about this--this debate among scientists and--and who gets to count as scientists and who doesn't. I believe what Genesis tells me." I--I mean, of course. And that's why this debate is so important to many people.

But that's not the only reason it's

important. And--and the warrant of references to intelligent design, and ideally some discussion of it, stem from the fact that there is--there is a serious intellectual controversy among scholars, credible scientists, and philosophers who--some of whom are secular, not--not religious, about the nature of design in--the nature of design in nature, the--whether--whether there's design in nature. And, as I said, not just in biology but also in cosmology, and also in how we understand the brain and the mind, and in other areas of science.

So it's not just this case, even though that's the one people pick up on 'cause that's--that's the one that is personally--it's a part of our culture wars.

Q Do you believe ninth-grade biology students should be taught that man and the species as we know them today did not gradually evolve from other life forms but appeared suddenly in the historical record?

A If you mean should they be taught that that is true, the answer is no. That--that would be, in fact, an endorsement of a religious worldview, and

it would be unconstitutional and would also be--I mean, it's a deeply controversial position held by a minority of scholars.

So, no, they shouldn't be taught that that's true. But as I said earlier, it seems to me that an introductory biology text, whether in undergraduate school or in high school, should locate biology within historical and philosophical controversies, so that if students are to be liberally educated, they appreciate the tensions, the conflicts, the overlaps between various ways of making sense of nature.

So, yes, I think a Biblical text--I mean--Biblical--a biological text--which is a Biblical text to some people--a biological text might well say something about creationism and Genesis--not much, but a little--talk about the differences between that and intelligent-design theory, talk about other ways, maybe Lamarckian evolution--

Q Would it be okay--

A --so--

Q --for a text, and teachers teaching in accordance with the text, to explain to students that, you

know, for a long time, Western man thought that God created the earth and everything in it just the way the Bible said--

A Sure.

Q --and that notion has now been scientifically discredited by everything we've come to understand through study of the fossil record and the nature of life processes?

A No. I--I think probably it would be const--legally wise to--to qualify that last judgment and say that most--many scientists--most scientists--

Q Ninety-nine-point-four--

A --believe something--believe something otherwise--

Q Ninety-nine and forty-four--

A --right--than simply say--

Q --one-hundredths percent?

A --than simply say the Bible is wrong.

Q But it--it would be okay, in your view, to teach that ninety-nine and forty-four one-hundredths percent, or whatever the number is--

A Yeah.

Q --think that that's--

A I argue, in--in that book and elsewhere, for what I call the principle of cultural location and weight.

That is to say that when we locate students in con--in--when we locate contemporary science or contemporary economics or whatever in the larger cultural conversation, students shouldn't just be presented with alternatives like our cafeteria line, again. They should be given some sense of what the--what the majority positions are, what the minority positions are, and for whom.

So, yes, I think sci--I think students should be taught in biology classes that the majority--the vast majority of scientists hold to a neo-Darwinian view, but that not all of them do.

And I would, you know, want to convey the idea that--that, of course, many scientists don't deal with biology and neo-Darwinism, but of those who do, the vast majority hold to neo-Darwinism; but it isn't the only view, and--and there are people who raise questions about it who have credentials as--as scientists, and so you need to learn something about it.

You don't give equal time to the two points of view. Of course, the dominant establishment view gets the most time and the most pages in the textbook. But the other point of view

has to be mentioned. It has to be acknowledged.

MR. WILCOX: Thank you very much.

MR. GILLEN: Thank you, Chub. Thanks, Warren.

(WITNESS EXCUSED)

(WHEREUPON, THE DEPOSITION WAS CONCLUDED AT 12:38 P.M.)

INSTRUCTIONS TO WITNESS:
Please read carefully the following Witness Certificates and then sign and date the appropriate certificate.
Do NOT sign both of them!

IF YOU MADE CORRECTIONS, SIGN CERTIFICATE (A):

CERTIFICATE OF WITNESS (A)

I, _____, a witness in the above-entitled action, do hereby certify that I have reviewed the transcript of my deposition and have attached corrections to the same, along with the reason for each correction.

Signed this _____ day of _____, 2005.

_____
(WARREN A. NORD, PH.D.)

IF YOU DID NOT MAKE CORRECTIONS, SIGN CERTIFICATE (B):

CERTIFICATE OF WITNESS (B)

I, _____, a witness in the above-entitled action, do hereby certify that I have reviewed the transcript of my deposition and have made no corrections to the transcription.

Signed this _____ day of _____, 2005.

_____
(WARREN A. NORD, PH.D.)

rrl: (6-7-2005)

STATE OF NORTH CAROLINA -146-

COUNTY OF DURHAM

C E R T I F I C A T E

I, Rebecca R. LeClair, CVR, a Notary Public in and for the State of North Carolina, duly commissioned and authorized to administer oaths and to take and certify depositions, do hereby certify that on June 7th, 2005, WARREN A. NORD, PH.D., being by me duly sworn to tell the truth, thereupon testified as above set forth as found in the preceding 145 pages, his examination being reported by me verbatim and then reduced to typewritten form under my direct supervision; that the foregoing is a true and correct transcript of said proceedings to the best of my ability and understanding; that I am not related to any of the parties to this action; that I am not interested in the outcome of this case; that I am not of counsel nor in the employ of any of the parties to this action; and that signature of the witness was not waived.

IN WITNESS WHEREOF, I have hereto set my hand and affixed my official notarial seal, this the 28th day of June, 2005.

_____

Notary Public

My Commission Expires 03/04/2006

Rebecca R. LeClair, CVR
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910/433-2926 (Fayetteville)
910/790-5599 (Wilmington)

IN THE UNITED STATES DISTRICT COURT
FOR THE MIDDLE DISTRICT OF PENNSYLVANIA
CIVIL ACTION NO. 4:04-CV-2688

TAMMY J. KITZMILLER; BRYAN REHM, CHRISTY REHM; DEBORAH F. FENIMORE; JOEL A. LIEB; STEVEN STOUGH; BETH A EVELAND; CYNTHIA SNEATH; JULIE SMITH; ARALENE D. CALLAHAN ("BARRIE"); FREDERICK B. CALLAHAN, Plaintiffs, vs. DOVER AREA SCHOOL DISTRICT; DOVER AREA SCHOOL DISTRICT BOARD OF DIRECTORS, Defendants.	A D D E N D U M T O D E P O S I T I O N O F W A R R E N A. N O R D, PH.D.

PAGE	LINE	SHOULD READ	REASON FOR CHANGE

Signed this the _____ day of _____, 2005.

_____
(WARREN A. NORD, PH.D.)

rrl: (6-7-2005)

E X A M I N A T I O N I N D E X

E X H I B I T I N D E X

Exhibit No.	Description	Page Marked
Plaintiff's 1	Federal Rule of Civil Procedure 26 Disclosure of Expert Testimony, Warren A. Nord, Ph.D.	5
Plaintiff's 2	Dover Area School District Board Press Release for Biology Curriculum-- 11-19-04 (P01307 and P01308)	18
Plaintiff's 3	District note on teaching evolution (000012)	18
Plaintiff's 4	"The Wedge Strategy," Center for the Renewal of Science & Culture (P01240 through P01245)	106