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PRESENTATION HELD BEFORE THE SCIENCE COMMITTEE
of the
KANSAS STATE BOARD OF EDUCATION

TRANSCRIPT
OF
PROCEEDINGS

Held on the 6th day of May, 2005,
beginning at 1:00 p.m., at Memorial Hall, 120
West 10th Street, in the City of Topeka, County
of Shawnee, State of Kansas, before Dr. Steve
Abrams, Chairman of the Kansas State Board of
Education; Ms. Connie Morris, member; and Ms.
Kathy Martin, member.

APPEARANCES

The Minority appeared by and through its
counsel, Lathrop & Gage, 2345 Grand Boulevard,
Suite 2800, Kansas City, Missouri 64108, by
Mr. John H. Calvert and by Arnold & Porter, 555
Twelfth Street, NW, Washington, DC 20004, by
Mr. Edward Sisson.

The Majority appeared by and through its
counsel, Iri gonegaray & Associates, 1535
Southwest 29th Street, Topeka, Kansas 66611,
by Mr. Pedro L. Iri gonegaray.

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CHAIRMAN ABRAMS: It is now one
o'clock. We're going to go ahead and get
started again. Mr. Calvert.
MR. CALVERT: Thank you. I would
like to call as our next witness Bryan Leonard.
Mr. Leonard is a high school biology teacher
from Ohio.

DIRECT EXAMINATION

BY MR. CALVERT:

- Q. Bryan, thank you for being here. Would you
please tell us a little bit about yourself,
your background, where you're currently
employed and-- and a bit about your work on the
doctoral degree?
- A. Yes. Thank you. My name is Bryan Leonard. I
received my Bachelor's of Science Degree in
biology education. I received my Master's
Degree in microbiology. I'm currently working
on my Ph.D., actually a Ph.D. candidate at the
Ohio State University studying science
education.
- Q. And are you also employed as a high school
teacher?
- A. Yes, I am, with-- in a suburban area right

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- outside Columbus, Ohio
- Q. Is that a privatized school?
- A. Yes, it is.
- Q. And how long have you been teaching high
school?

6 A. Teaching high school biology for nine years
7 now.
8 Q. What is the work of your-- you're working on a
9 doctorate degree. Right?
10 A. Yes, sir.
11 Q. And could you tell us a bit about that?
12 A. I'm working on basically my doctoral
13 dissertation deals with the area of evolution
14 education, and specifically I'm looking at
15 basically students reactions how-- how students
16 react, how students believe and so and so forth
17 when they're taught the scientific information
18 both in terms of supporting and challenging
19 macroevolution.
20 Q. Have you been involved in applying that
21 knowledge to lesson plans for a while?
22 A. Yes. I was able to be a part of the science
23 writing committee for the State of Ohio in
24 which each of the members on the science
25 writing committee, we had to write exemplar
0004 curriculum lessons plans that were in line with
1 the Ohio State standards. And I serve on-- on
2 that committee for those-- (reporter
3 interruption). Writing science curriculum for
4 our 10th graders.
5 Q. And in your high school you're teaching 10th
6 grade biology?
7 A. Yes, I am.
8 Q. Teaching it how?
9 A. Well, the way in which I teach it is similar in
10 a way in which basically we wrote the lesson
11 plan that was-- that-- that serves as the
12 curriculum model lesson, entitled Critical
13 Analysis of Evolution. So that particular
14 lesson plan, I was the original drafter,
15 however I had a number of people who were
16 involved in generation, shaping and the molding
17 of that particular lesson. Went through an
18 extensive peer review process. And the way in
19 which I teach evolution in my high school
20 biology class is that I teach the scientific
21 information, or in other words, the scientific
22 interpretations both supporting and challenging
23 macroevolution.
24 Q. How long have you been doing it?
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1 A. I've been doing it for about-- I think this is
2 probably about my fifth year. About five or
3 six years now.
4 Q. And just going back a bit-- well, no. Why
5 don't you tell us how your students, parents
6 and school administrators and so forth have
7 reacted to that-- that format, and are they
8 aware you're teaching it that way?
9 A. Yes. Parents are aware. The administrators,
10 they're aware. They've been very supportive.
11 All of the responses that I have received from
12 the parents have been just overwhelmingly
13 supportive of it. I received calls, e-mails,
14 parents pull me aside in the hallway as they
15 came through the school. Just-- just very,
16 very ecstatic in the way in which I've been

17 teaching it.

18 The students actually have been really
19 enjoying-- enjoying that lesson as well as, and
20 I don't know.

- 21 Q. And you're going to-- as we get further in this
22 dialogue, we'll pull the-- your power point
23 demonstration out that you have. You'll have
24 an opportunity, I guess, to explain that lesson
25 plan and the way in which you've been teaching

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1 in your both sided approach in your high school
2 class.

3 I want to get back in history a bit. As
4 I understand it, I believe it was 2002 the
5 State Board of Ohio adopted a science standard
6 that would cause students to understand how
7 science is criticized evolutionary theory. Is
8 that the case?

- 9 A. Yes, that's correct.

- 10 Q. And as a result of that indicator, after the
11 adoption of that, the Ohio State Board
12 commissioned a group of scientists to develop
13 lesson plans to support that. Is that correct?

- 14 A. Yes. A group of scientists, a group of science
15 educators, both in teaching high school biology
16 as well as evolution biology.

- 17 Q. And you were assigned that committee and worked
18 with it?

- 19 A. Yes, sir.

- 20 Q. Will you be discussing that in your power point
21 or is this a good time to launch into that, or
22 is there anything that you need to tell the
23 people before you do that?

- 24 A. Um, at least --

- 25 Q. Beg pardon?

- 0007
1 A. I said at least in terms of additional things,
2 maybe some additional things to kind of
3 generate that power point.

- 4 Q. Maybe you could tell us a bit about the process
5 of developing a lesson plan and your
6 involvement in the committee?

- 7 A. Okay. The lesson is-- is a-- is a product of a
8 lot of steps. There's a lot of kind of
9 quote-unquote very-- a lot of fingerprints that
10 are on this lesson plan.

11 As I said, I was the original drafter,
12 however, I presented the lesson in front of our
13 writing committee, our 10th grade writing
14 committee. The 10th grade writing committee
15 consisted, again, of-- of research scientists,
16 a veterinarian, high school biology teachers,
17 and so having gone through that process, the
18 lesson was kind of tweaked, molded, shaped into
19 the best lesson that we could actually design
20 to the students in Ohio.

21 The lesson was also tweaked and shaped
22 and molded by other people. Our advisory team
23 had input in it. The Ohio Department of
24 Education officials, they had input in it, and
25 also the lesson was field tested, so we sent it

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1 out to the field, university professors, other

biology school teachers, community members, scientists. They all read it. There's a number of them who actually reviewed the lesson. There's some who actually-- actually used the lesson in the classroom, okay, per the-- our-- our requests for the field test and to give us feedback. And we tried our best to respond appropriately to the feedback to design the lesson how to best serve our students.

So like I said, this lesson went through an extensive, extensive peer review process, and what we have here is basically what we think is a good product that's going to benefit students and an excellent product that's going to help increase students' knowledge on evolution.

Q. You might touch on what were the goals of-- of this product, and does that lead into your power point?

A. Yeah, it could. Basically the-- the-- the goal of this lesson simply was to help students' knowledge of macroevolution, so that was basically the main goal of our particular lesson. Again, what type of things can we as

educators, what type of things we as drafters of this lesson, how can we actually and sincerely put our students in a better position to learn evolution.

So as you see here-- I'm going to have to walk. I'm a school teacher, so standing right here pointing is kind of difficult. But as you see here, goal number one with the critical analysis of evolution lesson, as well as my goal as an educator is to increase the students' knowledge of macroevolution. And you'll see here I have the word "students" in red, and the reason why I have it in red is because what-- as you're looking at that you're focusing on that red word. So that's one thing, hey, we need to focus on our students. What type of things are students going to gain most of all as a result of implementing this lesson, so throughout the power point presentation you will see the word "students" in red to-- more so to try and-- a kind of constant reminder in our mind, hey, we want to focus on the students. You know, how we can put our students in the best position to learn macroevolution. So how-- how-- how can we

actually increase students' knowledge of evolution.

All right. Go back. Go back. Okay. Find out what students are most interested in and teach towards their interests. Teach towards their interests. Yes.

I asked my students in my dissertation study here, question: Which of the following would be more interesting to you-- rather, for you to learn, number one, scientific interpretation supporting macroevolution only. Number two, scientific interpretation

supporting and challenging macroevolution. So I posed this question actually before I got to the evolution unit, just curious. Again, we wanted to teach towards their interests.

Next. Here are the results. Out of 350 students-- and this is a poll that I did for the past couple years for use here. Of 350 students who responded to the question, we talked to 350 total, 312, in other words, 89 percent of the students said that they would be more interested in learning the scientific information supporting and challenging macroevolution. So, again, this is just real

basic, clear data that shows the majority of the students are interested in learning both sides from a scientific perspective.

Heightened student interest equals higher test performances. Quote: "When reading in the area of individual interests students display heightened attention, concentration, positive effect, immediate comprehension of the material and subsequent test performances."

So what is my job as an educator? My job as an educator is actually trying to shape and mold and put my students in the best position to perform well on a test. Okay. You know, we have a set of assessments and various assessments there, so basically a-- I just want them basically to do well on the tests, as well as, of course, a number of other things, which I'll talk about a little later.

Next. Teaching contradicting evidence-- I'm sorry, information and multiple points of view suggests supporting and challenging, help students stimulate more complete understanding and critical thinking. In this particular book by Rophy (sp), it is talking about how you present students with information that

contradicts other information, discuss, present contradicting information forces students to recognize that the issue is more complex than they thought and stimulates students to develop more complete understanding. So, again, as educators, we want to teach towards the interests there, but also what kind of things can we do as an educator to actually help our students to develop a more complete understanding. Okay. In teaching the-- the scientific information both supporting and challenging macroevolution I believe should and will do just that.

This book entitled "Understanding By Design," this is actually by these two authors there that we use that textbook often, basically in our professional development as educators back in Ohio, or at least particularly in my school. And what we're actually-- next.

Okay. So there's six facets of understanding. Well, facet number four, perspective, critical and insightful points of

view. Students have the opportunity to take multiple points of view on the same issue.

They must develop and use critical thinking skills to determine on their own the strength and weaknesses of the theory. Explanations, proof and arguments that they confront, thus the students should regularly confront plausible but incorrect historical narratives, false mathematical proofs and plausible, but outdated scientific theories.

Next. Goal 2, increase students' confidence in their knowledge of macroevolution. I asked this question to my students, again, trying to get as much data as possible, and I'm just going to sum it, unless somebody here-- just real basic quantitative, as well as qualitative results are received.

Question: Do you think that you learned more about macroevolution as a result of being taught the supporting and challenging information as opposed to being taught only the supporting information? Briefly explain why. Out of 61 students responding to the question there I had a grand total of 93 of the students, again students-- students felt they had learned more about macroevolution. Student one, these are quotes that I have drawn from

the qualitative assessment, the dissertation analysis. Student number one: I feel much more knowledgeable knowing both sides. Student number two: I was given information twice on the subject concerning evolution instead of one. And this is actually a popular response, which-- so basically when-- I would teach the supporting information and then I would teach the challenging information that challenges that supporting claim. So basically, say, when I would teach, I don't know about, let's say endosymbiosis, okay, what this side says this about endosymbiosis, well the other side says this about it or challenges that or in terms of antiviral, bacteria, or what have you. And three, I learned a lot more by teaching only supporting information. It's like-- it's like teaching only half of the information out there. Okay. So by-- I'm saying by teaching only supporting information it's like teaching only half of the information out there.

Briefly explain your personal view of being taught both the scientific information supporting and challenging macroevolution. Out of 50 students responding to that question,

that statement there, 98 percent of the students claim to have a positive experience. Student four: I feel that it is good because you are covering both sides. Student five: It was a good experience. Student six: It's a way to stimulate minds. Student seven: You learn less if you hear only one side of the story. That's-- that's critical, because if

9 you're going to learn less, again as educators
10 we want to maximize learning in our high school
11 students. Student eight: If it's just
12 supporting it is dull.

13 Did you like this lesson? Out of 57
14 students who responded to that question, 96
15 percent of the students said that they liked
16 the lesson. Student 9: Yes, because being
17 taught only one would probably make me side
18 with the belief-- or rather, I'm sorry, with
19 that belief because I wouldn't know of any
20 other. Student 10: I felt I was given a
21 choice to choose my views rather than to have
22 it chosen for me. Student 11: I like it
23 because I was not forced to believe one certain
24 thing, but I could choose for myself. Student
25 12: Uh-oh, he didn't like it, but read on. He

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1 said: I didn't like it, but it still needs to
2 be done because we aren't really sure of the
3 truth.

4 So in my opinion the suggestion offered
5 in the Minority report will ultimately assist
6 in the following areas. Increase student
7 interest in mac-- increase students' interests
8 in macroevolution. Increase students' test
9 performance. Increase students' understanding
10 in macroevolution. Increase student critical
11 thinking skills. Increase the likelihood of
12 students having a more enjoyable experience
13 learning an emotionally charged subject by
14 generating a balanced and neutral environment.
15 And the last part due to interest, increase the
16 likelihood of students exploring more about
17 macroevolution outside the classroom. Maybe
18 this lesson will stimulate and create and cause
19 and generate students to look at in terms of
20 extension questions, which we use, you know, in
21 teaching or simply just to be potentially
22 lifelong learners in the topic.

23 So next. As far as the comparison
24 between the Minority report and critical
25 analysis of evolution lesson. There is some

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1 areas in which I pulled out and which to me I
2 was able to see a connection, so it does appear
3 that the Minority report has a wonderful
4 beginning, wonderful -- you know, so it's
5 definitely heading in the right direction. And
6 basically some of the things that are brought
7 up in the Minority report we actually have
8 embedded in the critical analysis of evolution
9 lesson in Ohio. So again, we used it in Ohio.
10 It works. Kids love it. Again, parents call
11 me and pull me to the side. They love it.
12 Kids-- I have not had any negative, you know,
13 report about it.

14 Actually, I think partly the only
15 challenging negative thing that I had from a
16 parent is when-- back in my first or second
17 year when I started teaching evolution, you
18 know, basic, you know, from the textbook, so on
19 and so forth, I still do that, but I didn't

offer like, you know, any challenging scientific evidence on that theory, but since I've been doing this, great.

This-- sometimes, you know, some people brought up that, hey, does this confuse students? There's absolutely no evidence that

a lesson like this confuses students. It actually, I think, pushes students there to actually think on a higher level and try to basically increase their knowledge.

So, again, indicator 1-C. Here I think I just added like-- it talks about the fossil records there. Aspect 2: Fossil record. They've implied the critical analysis of evolution on Page 326, Page 327. Here, again, brief supporting answer, talk about, hey, how the fossil records, that's information there that supports the fossil records there. That supports in terms of fossil record, pseudo example to support macroevolution. Okay. Brief challenge sample answer. So, again, showing both sides of the fence from a scientific perspective. So I believe that indicator 1-C basically is somewhat consistently lines up with Aspect 2 of the fossil records.

Indicators 1-F in terms of-- talks about fossil records. It gets into Cambrian explosion so and so forth. So again aspect one in terms of homology that is-- if I was able to actually look at it and see that there is some

connections there. So, again, looking at this indicator and looking at the aspects there there's some things, not the whole thing, but there's some things that, yes, definitely you can take from Aspect 1, from the aspects where critical analysis of evolution lesson there and bridge it with the indicators as proposed in the Minority report.

Again, Indicator 1-F just same indicator as above, but consistency-- some consistency as relates to Aspect 2.

In terms of micro and-- kind of go just a little bit. In terms of the micro and macroevolution as presented in indicator 3-A, 3-D, Minority report there, those are some things we dealt with in Ohio and we talked about it and we have it in the critical analysis of evolution lesson there. So that's something, of course, which we felt it is important to make sure to distinguish the two so that we have academic clarity. A lot of times people might say, hey, evolution, well, what to basically kind of clarify in terms of what we are talking about. I think that's it.

Q. Bryan, there is-- I don't believe that the Ohio

Lesson plan covers indicator seven in the Minority report, which suggests an addition of a new indicator, and as I'm fumbling here --

A. I know what the indicators are.

5 Q. Why don't you-- could you comment on the--
6 you're familiar with indicator seven in the
7 Minority report that calls for an analysis of
8 chemical evolution and the evidence for it and
9 evidence against it. Would you comment on what
10 would be involved in developing curricula for
11 that and do you believe that's an indicator
12 that should be covered by the Kansas standards?

13 A. I think that-- I don't think it would be
14 something tough, I mean, extremely difficult to
15 do at all. I think-- how many people are on
16 the-- on the science writing committee?

17 Q. Well, there are 25 on the writing committee.

18 A. On the writing committee. Okay. And 25-- so,
19 yeah, I think that that's-- I think that that's
20 something that would not be difficult to do. I
21 think it's something that would be time
22 consuming to do. Based just by looking at, at
23 least the pieces of the Minority report there,
24 anyway where I read, talked-- had some things
25 from the Majority report, the Minority report.

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1 I think that it's good writing there. And so I
2 think that it's-- it's definitely like a nice
3 piece, like I said, the Minority report, but--
4 adding an indicator like that, I don't think
5 that it would be really tough at all, and I
6 think that that, again, will go into showing
7 students, you know, scientific interpretation,
8 both supporting and challenging. And again
9 that would just be another caveat, another
10 component to stimulate students' minds and to
11 get them excited about learning.

12 Q. I take it that you've been teaching biology
13 and-- and all of high school biology textbooks
14 do cover that subject. Is that correct?

15 A. Yes.

16 Q. And in your experience, is the subject herein
17 covered comprehensively or is it just covered
18 from one perspective?

19 A. There's a lot of high school biology textbooks
20 out there. The one that I'm most familiar with
21 is-- it covers a little bit more on one side
22 of-- of, hey-- in terms of chemical evolution
23 and, hey, what happened. There-- there are,
24 I'm sure, yeah, I'm sure there are other
25 potential resources that are out there. Some

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1 things I find even in peer review journals and
2 it's covered in, critical analysis of
3 evolution. That would I'm sure be available
4 and help out to make that a nice fit to Kansas.

5 Q. Yes, but my-- my question is-- it's just
6 focused on the content of the typical textbook
7 for a high school biology class, how is that
8 textbook covering the subject of chemical
9 evolution? Does it cover it accurately or
10 generally inaccurately?

11 A. There's-- I'd say that, yeah, it's really not
12 as complete as I would like to see it. I think
13 that it does show, you know, from one side in
14 terms of the supporting science or the, hey,
15 this is what happened chemically speaking

there, at least the textbooks that I have seen.
I have not seen anything I guess that would
challenge it which I think would be a more
adequate approach.

UNIDENTIFIED MAN: You have two
minutes remaining.

Q. (By Mr. Calvert) And I guess the question
would be, in order to cover that side of the
issue, do you believe that will be technically
difficult to do or is that something that could

be done reasonably easy?

A. I think some day it could be done quite easily
there, sure.

Q. Do you have an assessment-- a journal
assessment of the Minority Report? I take it
you've read the Minority Report and all the
different proposals?

A. I read particularly focusing on Benchmark
three, standard three, and, 'um, I think it's a
good job. I was-- I was pleased with it.
Again, some of the things in the Minority
Report were pretty much like I said, similar to
the things that we've dealt with in Ohio,
things we brought up back in Ohio there, so I
think that that definitely is on the right
path.

MR. CALVERT: Thank you very much. I
have no further questions.

CHAIRMAN ABRAMS: Mr. Irigonegaray,
you have 15 minutes.

CROSS-EXAMINATION

BY MR. IRI GONEGARAY:

Q. Are you ready?

A. I'm sorry?

Q. Are you ready?

A. Yes.

Q. All right. I have a few questions that I want
to ask you for the record. First, what is your
opinion as to what the age of the world is?

A. I really don't have an opinion.

Q. You have no opinion as to what the age of the
world is?

A. Four to four point five billion years is what I
teach my students.

Q. I'm asking what is your opinion as to what the
age of the world is?

A. 'Um, I was asked to come out here to talk about
my experiences as a high school biology
teacher.

Q. I'm asking you, sir --

A. I was not under the impression that I was asked
to come out here --

Q. I'm asking you --

A. -- talking about --

Q. -- sir, what is your personal opinion as to
what the age of the world is?

A. Four-- four to four point five billion years is
what I teach my students, sir.

Q. That's not my question. My question is, what

1 is your personal opinion as to what the age of
2 the world is?
3 A. Again, I was under the impression to come out
4 here and talk about my professional
5 experience --
6 Q. Is there a difference?
7 A. -- more of --
8 Q. Is there a difference between your personal
9 opinion and what you teach students the age of
10 the world is?
11 A. Four to four point five billion years is what I
12 teach my students, sir.
13 Q. Is-- my question is, is there a difference
14 between your personal opinion and what you
15 teach your students?
16 A. Again, you're putting a spin on the question
17 is-- you know, now I'll spin any answer, sir,
18 to say that my opinion is irrelevant. Four to
19 four point five billion years is what I teach
20 my students.
21 Q. The record will reflect your answer. Do you--
22 do you accept the general principle of common
23 descent, that all of life was biologically
24 related to the beginning of life? Yes or no?
25 A. No.
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1 Q. Do you accept that human beings are related by
2 common descent to prehomimid ancestors? Yes or
3 no?
4 A. No.
5 Q. What is your alternative explanation as to how
6 human species came into existence?
7 A. During my power point presentation I discussed
8 nothing about offering an alternative, I just
9 simply stated that here's the supporting and
10 here is the information challenging --
11 Q. My question is, sir, if you do not accept, if
12 you don't-- do not accept that there is a
13 common descent to human existence, what is your
14 alternative? I'm not asking you about your
15 power point. I'm asking you what is your
16 hypothesis for how we came to be?
17 A. Again, as I stated, that professionally--
18 that's something that-- that is a different
19 question I guess in terms of my professional,
20 in terms of my personal opinion, that's
21 different. Again, I was asked to come out here
22 and give my professional assessment, sir.
23 Q. Do you teach your students your personal
24 opinion or do you attempt to teach your
25 students what is the best of science?
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1 A. As I said, I teach my students the four point--
2 four --
3 Q. That's not my question. Listen carefully.
4 A. All right.
5 Q. Do you teach your students your personal
6 opinion or do you teach them what you believe
7 is the best science?
8 A. I teach them actually what I believe is the
9 best science, hence the scientific
10 interpretation both supporting and scientific
11 interpretation both challenging macroevolution.

And that information has been generated by scientists, some of these scientists are here today.

Q. You mentioned scientific theory and I'd like to ask you a couple questions about that. Tell me if you agree with this statement, please: The notion that earth orbits around the sun rather than vice versa offered by Copernicus in 1543 is a theory. Continental drift is a theory. The existence, structure and dynamic of atoms, atomic theory, electricity is a theoretical construct involving electrons which are tiny units of charged mass that no one has ever seen. Each of these theories is an explanation

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that has either been confirmed to such a degree by observation and each of these theories is an explanation that has been confirmed to such a degree by observation and experiment that knowledgeable experts accept it as fact. That is what scientists mean when they talk about a theory. Not a dreamy and unreliable speculation, but an explanatory statement that fits the evidence. They embrace such an explanation confidently taking it at their best available view of reality, at least until some severely conflicting data or some better explanation might come along. Do you agree or disagree with that statement?

A. If you can repeat the main highlights of that theory. You know, you're-- after awhile just kind of lost you there.

Q. I lost you did I?

A. Well-- well, in terms of the actual theories.

Q. Let me repeat it --

A. Yes.

Q. -- and tell me if you agree or disagree. The notion that earth orbits around the sun rather than vice versa offered by Copernicus in 1543 is a theory. Continental drift is a theory.

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The existence, structure and dynamic of atoms atomic theory, even electricity is theoretical. Construct involving electrons which are tiny units of charged mass that no one has ever seen. Each of these theories is an explanation that has been confirmed to such a degree by observation and each of these theories is an explanation that has been confirmed to such a degree by observation and experiment that knowledgeable experts accept it as fact. That is what scientists mean when they talk about a theory, not a dreamy and unreliable speculation, but as explanatory statements that fits the evidence. They embrace such an explanation confidently taking it at their best available view of reality, at least until some severely conflicting data or some better explanation might come along. My question to you is, just yes or no, do you agree or disagree with that statement?

A. With those theories that you presented, I don't have a problem with that.

23 Q. You have no problem with that?
24 A. With those particular theories you presented.
25 Q. Do you teach your students in class the

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1 arguments against the theory of tectonic plate
2 movement. You don't teach that, do you?
3 A. We don't deal with that in biology.
4 Q. Would you agree --
5 A. Or at least not my class.
6 Q. Would you agree with me that the evidence for
7 evolution is overwhelming? Yes or no?
8 A. The evidence-- well, if you can define, sir, if
9 you can tell me what exactly you mean by
10 evolution, define it for me --
11 Q. Do you --
12 A. -- so we have clarity. Sorry.
13 Q. Do you-- do you believe, sir, that intelligent
14 design should be taught in science classes as
15 an alternative to evolution?
16 A. Can you define evolution?
17 Q. Do you believe intelligent design should be
18 taught in science class?
19 A. I don't teach intelligent design --
20 Q. And why don't you?
21 A. -- in science class. Because I just have
22 chosen not to.
23 Q. You've chosen what?
24 A. Well, in terms of teaching intelligent design,
25 so are you asking me or should teachers teach

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1 it?
2 Q. I'm asking you. Do you teach intelligent
3 design in the classroom?
4 A. I have not taught intelligent design in the
5 classroom.
6 Q. Do you think it should be?
7 A. In terms of other teachers or myself?
8 Q. I'm asking just you.
9 A. You know, I really haven't given it much
10 thought.
11 Q. Is the teaching of intelligent-- strike that.
12 Is intelligent design a hypothesis?
13 A. Is intelligent design a hypothesis, I really
14 haven't given it a whole lot of thought in
15 terms of if it's a hypothesis or if it's really
16 something else. I --
17 Q. Would you --
18 A. I don't teach it. I have not taught it.
19 Q. Would you agree with me that one of the basic
20 principles of science is that when a hypothesis
21 comes along in science one should be able to
22 challenge it?
23 A. Yes, if-- if a hypothesis comes along, and
24 then, of course, you have to test the
25 hypothesis, repeat the tests, so and so forth.

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1 Q. Falsification part of it?
2 A. Falsification would be part of it.
3 Q. Would you please explain to us how we could
4 falsify the existence of a designer?
5 A. How to falsify, I don't know.
6 Q. That's the crux of it, is it not, because it's
7 a philosophical argument and not a scientific

8 construct?
9 A. I'm-- I'm saying I don't know because I really
10 haven't thought about it like that.
11 Q. Have you read the Majority Opinion, draft two
12 of the standards?
13 A. The Majority, no, sir.
14 Q. You have been brought to Kansas to challenge
15 the Majority Opinion and you have not taken the
16 time to read it?
17 A. I read the part of the Minority Report that --
18 Q. I didn't ask you about the Minority. Listen
19 carefully to my question. Have you read the
20 Majority Opinion and the answer was no?
21 A. Yes.
22 Q. And the follow-up question is, you have been
23 brought to Kansas to tell us how educate-- how
24 we should educate our Kansas children and you
25 have not bothered to take the time to read the

0033

1 Majority Opinion. Correct?
2 A. Again, yes-- no, I have not read the Majority
3 Opinion.
4 MR. IRI GONEGARAY: No further
5 questions.
6

EXAMINATION

8 BY MS. MARTIN:
9 Q. Bryan, I have a couple questions for you.
10 First of all I would like to compliment you on
11 your being a high school biology teacher. My
12 high school biology teacher influenced my
13 interest in science, Mr. Tom Tally, many years
14 ago. So keep it up. You won't know for a long
15 time, you may never how much you influence your
16 students.
17 A. Thank you.
18 Q. The other thing is, would this lesson plan that
19 you developed be available for teachers in
20 Kansas to access?
21 A. Yes. That's part of-- well, it's on the Ohio
22 Department of Education web site.
23 Q. Say it again, the Ohio Department State-- State
24 Department of Education?
25 A. Ohio Department of Education.

0034

1 Q. Okay. Thank you very much. About how much
2 time do you spend in your classroom over
3 lessons like this? Is it more than one class
4 period so far?
5 A. Yes. The lesson is basically designed to go
6 anywhere from four to six weeks. That lesson
7 was actually designed to I guess be used
8 after-- kind of like midway or towards the end
9 of the evolution unit, so we had some other
10 lessons that teachers could use to teach the
11 students before.
12 Q. So what we're seeing here is parts of a bigger
13 lesson plan?
14 A. Well, that's the lesson in terms of that
15 particular lesson. There are other lessons
16 that can be used, you know, that could lead up
17 to that theory, but there are some teachers who
18 just, you know, maybe due to time.

19 Q. What about the page numbers here, what are they
20 referring to that are in the margin, pages like
21 326, 327? Is that in the lesson plan or in the
22 textbook?

23 A. Is that the comparison?

24 Q. Yes, comparison.

25 A. Yes. That is the part that actually

0035

1 corresponds to the critical analysis of
2 evolution lesson.

3 Q. And so the lesson plan is very long it looks
4 like?

5 A. Yes.

6 Q. Several hundred pages long?

7 A. Well-- well, this particular lesson is about 20
8 pages long, 20, 21 pages long.

9 Q. But the complete lesson plans would include all
10 of this?

11 A. Right. Well, yes, the-- all the-- the
12 curriculum, because we have a compunction
13 lessons there --

14 Q. I see. More than just one plan?

15 A. Yes.

16 Q. Thank you.

17

EXAMINATION

18

19 BY CHAIRMAN ABRAMS:

20

20 Q. Mr. Leonard, do you have information that
21 indicates that the students you taught actually
22 scored better when tested when they were taught
23 the strengths and weaknesses of new Darwinian
24 evolution?

25

25 A. Actually, yes. Basically when I taught-- gave

0036

1 evolution on the tests, basically that
2 evolution only tests. As time went on of
3 course their scores got different, or rather
4 increased. One set is known as between subject
5 design where you have subjects where that is
6 supporting information and subjects where you
7 teach the supportive and challenging
8 information and compare the two. Okay. I in
9 my dissertation, I did not do that. I did what
10 is known as repeated measures-- as repeated
11 measure design where I taught the students
12 basically all the same thing. The reason why
13 is because I felt that if I had-- if I utilized
14 the research and design between subjects--
15 design, those students if I would have taught
16 them just the supporting information alone I
17 think that they would-- I think that would be a
18 disservice to them.

19

19 And then kind of going on, and, again, in
20 Ohio standards that's something that is in the
21 Ohio standards, you know, suggesting to do for
22 academic achievement. And, again, also in the
23 Ohio standards, it's important for teachers
24 such as myself to see it in writing that
25 teachers are allowed to teach the supporting

0037

1 and the challenging information, in writing.
2 Not so much that, well, it doesn't say that you
3 can't. That's not good enough for teachers.

4 You know, we want to see it in writing. And if
5 there's-- I guess, you know, other people, you,
6 know, say, well, you know, it doesn't say that
7 you cannot, then if you're so comfortable with
8 it then put it in writing, because that's what
9 gives teachers security, number one, and,
10 number two, it says that, hey, you know, we as
11 the state or school board, or whoever, adopt
12 this, again, showing the research data that--
13 that's for the students.

14 Q. You are a high school biology teacher?

15 A. Yes, sir.

16 Q. Are you the only biology teacher in your high
17 school?

18 A. No, sir.

19 Q. Do the other teachers teach along the similar
20 lines in showing the supporting and the
21 challenging aspects?

22 A. In terms of biology teachers, some, to most of
23 them do. Sometimes, you know, every year as a
24 biology-- as a teacher, there are teachers in
25 the middle there. Some years you might be able

0038

1 to teach everything, you know, that's in the
2 curriculum and some things you might have to
3 kind of depend upon the homework factor. But,
4 yes, majority of the biology teachers in the
5 school, yes, we do show both sides.

6 Q. Is that just in your school district or is that
7 across the state?

8 A. Basically-- I don't know if it's so much just
9 in my school district, we have two high schools
10 and --

11 UNIDENTIFIED MAN: Two minutes

12 remaining.

13 A. We have two high schools in the school district
14 there. That's just something that's-- that
15 some of us do. There are some other people who
16 actually do it as well and I spoke with them
17 and they have just positive, positive results
18 with that.

19 The critical analysis of evolution is
20 something that teachers are not required to do.
21 It's an exemplar lesson saying, hey, here's an
22 exemplar lesson that teachers can actually use
23 there. Sometimes they use it, but they're not
24 actually required to use it.

25 Q. Concerning the Minority Report and the

0039

1 corresponding areas in the Majority, do you
2 have an opinion concerning which will allow a
3 curriculum that will help students understand
4 the full range of scientific views that exist?

5 MR. IRIGONEGARAY: I'm sorry, sir,
6 can you repeat the question, I did not hear
7 you?

8 Q. (By Chairman Abrams) Concerning the Minority
9 Report and the corresponding Majority Report,
10 do you have an opinion concerning which will
11 allow a curriculum which will help students
12 understand the full range of scientific views
13 that exist?

14 A. I think that's-- the Minority Report shows

15 that. Again, showing both sides of the fence.
16 That's something I've been doing. I'm
17 experienced in doing that and, again, the
18 research data strongly supports that this is
19 something that's going to benefit, again, the
20 students. That's basically our goal, trying to
21 increase the students' knowledge as it goes to
22 evolution.

23 MR. IRIGONEGARAY: Mr. Abrams, if I
24 may, just as point of order, I would ask that
25 that answer be stricken from the record. He

0040
1 did not compare the Majority or Minority
2 opinion if he has not read the Majority.

3 MR. CALVERT: I would disagree with
4 that, because the Minority Report contains
5 changes in context and so those changes reflect
6 what the Majority Report proposes with respect
7 to that issue and the precise suggested change.
8 And I think it's wholly disingenuous for this
9 counsel to be badgering these witnesses because
10 they have not read the four corners of the
11 document.

12 MR. IRIGONEGARAY: It's the least
13 they can do for Kansas children, counsel.
14 A. Again, my research has suggested that I don't
15 think there's much of big difference between
16 Ohio students and Kansas students. I haven't
17 lived out here, but, again, the research
18 basically says the students will benefit from
19 it, absolutely.

20 CHAIRMAN ABRAMS: Thank you,
21 Mr. Leonard.

22 THE WITNESS: Thank you.

23 CHAIRMAN ABRAMS: Mr. Irigonegaray,
24 that was the reason I stated the question, the
25 Minority Report and the corresponding, because

0041
1 I understood your question when he answered he
2 did not read the entire document.

3 MR. IRIGONEGARAY: He told me he did
4 not read it.

5 CHAIRMAN ABRAMS: Mr. Calvert.

6 MR. CALVERT: Dr. Abrams--

7 Mr. Leonard, I really appreciate your coming
8 all the way from Ohio to testify for us today.
9 I thank you so much for your testimony.

10 Dr. Abrams, committee, Mr. Irigonegaray
11 and public and so forth, I would like to
12 introduce you to Dr. Dan Ely. Dr. Ely is a
13 Professor of Biology at the University of
14 Akron, Ohio.

15
16 EXAMINATION

17 BY MR. CALVERT:

18 Q. And Dr. Ely, would you please tell me a bit
19 about your background and experience and how
20 your work you're doing may be related to the
21 proposed changes in the Minority Report,
22 specifically relating to the evolution
23 benchmark?

24 A. First, thank you for inviting me here. My
25 background is I'm trained as cardiovascular

0042

1 physiologist in medical school and my research
2 has been with high blood pressure for over 30
3 years. My experience recently in this field
4 has led me into the areas of gene therapy, gene
5 targeting, molecular biology, the genetics of
6 animal breeding. And so combined with the team
7 that I have at the University we've been
8 pursuing the question of what causes high blood
9 pressure, so we've developed an animal model
10 for that and we are the first research team
11 actually to identify a locus on the Y
12 chromosome which is responsible for high blood
13 pressure and we are currently funded by
14 national institutes of health to pursue that
15 question.

16 However, I have another arm that I'd like
17 to also bring out. Besides my research
18 endeavors that have led me into some of the
19 questions we're dealing with today, I was also
20 on the Ohio Science Writing Team with Bryan
21 Leonard, and in that process of two years
22 discussing the lessons and coming up with many
23 lessons, a lot of the questions that you're
24 dealing with today we dealt with in committee
25 and I want to tell you that they can be

0043

1 successful, but they're not easy. They take a
2 lot of work and what's amazing is that we have
3 a lesson plan on looking at nine different
4 evolution lessons and that hasn't been brought
5 out. We have nine lessons in the Ohio plan
6 dealing with straight evolution you can find in
7 any textbook. We have one, which is the tenth
8 lesson looking at the critical aspect. I think
9 that's an important aspect to look at.

10 Also something else that I wanted to
11 emphasize is the idea that balance is so
12 crucial and the balance that we had, as Bryan
13 had mentioned, ranged from high school teachers
14 to professional scientists, but also it went
15 out to professional scientists in the field,
16 and because of that, it's amazing that we have
17 a lesson at all, because as you can see from
18 the debate here and the debate we had, you trim
19 and you trim and you trim and you edit, and we
20 ended up with a lesson, which is I think a
21 real -- I think a feather in the cap of all the
22 people that participated in Ohio because it is
23 compromised but it's a good lesson and it is
24 being used.

25 That 300 some page document, just to

0044

1 clarify one aspect here, was not in -- wasn't in
2 all life science lessons. That -- those are the
3 lessons from K through 12 for Ohio. They're
4 all on the web site. Parents can bring them
5 up, help their kids with lessons, as well as
6 teachers, as well as anyone else. So you can
7 pull up those lessons. You have to go through
8 several menus, a little cumbersome to get into,
9 but they're all available and they're being
10 used right now in the Ohio classroom.

11 Getting back to the aspect of some of the
12 background with regards to my research, I hope
13 you can indulge me just a little bit as I go
14 through some of my research slides here showing
15 you how I got involved in this.

16 I was raised in biology and chemistry
17 with regards to evolution. I never questioned
18 evolution. It was in the textbook, I was
19 taught that, I went through biology, evolution
20 was it. I just never questioned it. It never
21 came up, until later in my life I started
22 getting questions about it and my research
23 started bringing up some red flags that I
24 personally was interested in. So if we could
25 have the first slide.

0045

1 Q. Before --

2 A. Okay.

3 Q. Before we get to that slide I want to show you
4 in particular an area of the Minority Report
5 that comments on an issue involving common
6 ancestry, I believe. There we go.

7 Okay. This is indicator 1-F and it deals
8 with the view that the living things in all the
9 major kingdoms are modified descendants of a
10 common ancestor has been challenged in recent
11 years by, and there are three different issues
12 there. And the first one relates to
13 discrepancies in molecular evidence previously
14 thought to support that view. And my
15 understanding is that your discussion here will
16 address that particular point. And while we're
17 at it, I might ask you, do you believe that to
18 be a valid indicator for students to look at?
19 Is there indeed, in your view, molecular
20 evidence that tends to not support the idea of
21 common ancestry?

22 A. Yes, this-- this indicator here, F-1 here,
23 discrepancies of molecular evidence was
24 something that you will see in textbooks,
25 again, looking at what they call phylogenies,

0046

1 looking at trees of life. The ones you usually
2 see in textbooks are based on morphology or
3 structure, fossil records of bones very often.
4 Some of the newer ones, because of our newer
5 molecular technology, follow the actual
6 molecules, the actual DNA sequences. And I
7 would fully agree with that that there are
8 discrepancies in that.

9 If you can imagine, I'm a biologist in a
10 university biology department and I am
11 questioning this, so what did I do, I go to our
12 molecular biologists that are following
13 molecular phylogenies and I say, is there any
14 discrepancy here? This is your area, it's not
15 my area specifically, are there discrepancies?
16 Are there controversies? Absolutely. And so
17 they would go on to explain to me either from
18 plants or from animals the different
19 discrepancies that there are.

20 And so I want to show you some-- some
21 data that comes from my lab that we didn't set

out to show this. This is totally a secondary effect. But if we could take a look at a little bit of the data here.

The-- a lot of the trees that we see are

based on-- as I said on animal fossils and morphology or structure and they make a good just so story, and you see those pictures in the books and they look quite nice as you develop from a longer limb or a-- something develops into a wing and so forth. But if we look at this we find that when you look at the molecules themselves they're very inconsistent. They don't match up exactly with the structural fossil phylogeny tree, and even using different molecules or different sets of DNA structures they don't always match up. So there's discrepancies there.

Often you can look at the different molecules, a molecule for what we're going to talk about is this specific gene that is the sex determining gene in males. We're going to look at that and see how it has changed and what kind of evidence is there and what arguments can you get for design or for microevolution or for macroevolution. And also you can have different laboratories analyzing the same molecule. There's a lot of assumptions that go on when you do the DNA sequencing and look at phylogenies. You don't

just usually look at the one gene, you're looking at a lot of data sets, and so you try to combine and use statistics to come up with what's the best predictor of where this came from. And so a lot of the clarification is-- is confusing. And as I went to further experts in our department that were geneticists and individuals in molecular phylogeny like this, I said, is there something that we're missing in evolutionary theory? I don't belong to any special groups. I've come to these conclusions on my own. And they said absolutely, absolutely there's discrepancies. There's discussions all the time.

And so one of the things that I want to show you is what we found then as we were doing our research on hypertension or high blood pressure. On the left-hand side is just a clan they call-- you can call this a tree of life, looking at different animals over here and how they branch off. At each one of these points where there's a branching it's called a node and that's the most recent common ancestor. So these animals here would branch off into different groups. And as you look at this

there's one set of animals by this phylogeny that all has this common ancestor.

If we go to the molecular tree we see that there are different common ancestors for a lot of these structures, a lot of these animals, and a lot of them don't even fall into

7 the same groups. We have some outliers here
8 fall into different animal groups. So what do
9 you want to use, the molecular data or a lot of
10 DNA sequences? Do you want to use genes or do
11 you want to use data that's in between the
12 genes, different signatures that are markings
13 that are often used?

14 And so depending on what you use, you
15 come up with different data for students to
16 look at this and say, hey, they can even have
17 fun playing with this. I can reclassify an
18 animal into something else based on some other
19 data. They're learning about different aspects
20 of biology and evolution.

21 So here's a quote from the U.S. National
22 Academy of Scientists teaching about evolution
23 here. "The greater the differences in DNA,
24 different"-- "different structures, different
25 signatures, the longer the time since two

0050 1 organisms shared a common ancestor. The DNA
2 evidence for evolution has confirmed
3 evolutionary relationships derived from other
4 observations." So they use this as a basis to
5 say where our common ancestor lies. Okay.

6 Next. If we take a look at some of the
7 work from Michael Denton in a book that's
8 called Evolution: A Theory-- a Theory in
9 Crisis. You can take a look at the divergence
10 here. What this is is molecular divergence
11 from a specific very basic type of an enzyme
12 called cytochrome C and it's often used for
13 comparison purposes. And what this shows is if
14 you look over here on the left-hand side you'll
15 see that the divergence here of 64 percent for
16 horse, pigeons, tuna, silk moth, wheat and
17 yeast. Organisms that aren't even closely
18 related, nobody would even think that they
19 were, and yet the divergence here should show a
20 much greater divergence than about 64 percent.

21 If we take a look at the right-hand side
22 among some of the data that we're starting to
23 fill in now, we're starting to look at the same
24 thing for a gene that we're looking at, SRY.

25 If you look at the next slide it shows us

0051 1 a little better what the differences are in our
2 gene. I'm sorry. Let's-- let's just look at
3 the Y chromosome. Go ahead to that slide. Go
4 ahead to that slide. But I want to give you a
5 basis on the Y chromosome.

6 One of the things that's very unique
7 about the Y chromosome is it does determine
8 male sex in mammals, but it doesn't have any
9 kind of a parrotting mechanism. In other words,
10 there's no mechanism that it lines up with.
11 All of the other chromosomes line up. Even the
12 X chromosomes line up with each other with an X
13 in the female.

14 In the male you've got this Y kind of by
15 itself in terms of being able to repair itself.
16 It doesn't correct itself nearly like the other
17 chromosomes do. And so if any of the

18 chromosomes that has the most mutations, has
19 additions, things that have been added to it,
20 it has deletions, things that have been taken
21 out of it. It has inversions. It has repeat
22 units. And so because it's so different it's
23 been used in-- to track male lineages. And so
24 they actually use the Y chromosome to go back
25 in time and look at Adam or look at whoever the

0052

1 first male human was in time. And it's a good
2 marker because it has lots of differences on
3 it.

4 The sex-determining gene is-- for the
5 male is also on this Y chromosome. The name of
6 it is SRY. It's in mouse, rat, man for
7 comparison purposes. It still functions the
8 same for determine-- for sex determination, but
9 through our manipulation of a rat model looking
10 at blood pressure we have found there's six
11 copies of this gene, which is kind of unusual,
12 six copies on this Y chromosome.

13 Next slide. Again, this-- this is just
14 to show you that there's some real science
15 behind this. I don't expect everybody here to
16 understand this. But over here on the top it's
17 SRY one, two, three and several variants on the
18 third one. And what this is is just looking at
19 specific DNA sequences and where they're
20 located. We put section numbers for these so
21 that anybody can go into the web site at the
22 gene bank and find these and look at what the
23 differences are.

24 So we have differences in six copies of a
25 sex-determining gene. Does this mean this rat

0053

1 is super rat? Is this rat really a super male
2 or what's happening here. So next slide will
3 show you something quite interesting. If we
4 look at SRY's protein, an actual product that
5 the DNA makes, it's more like human than the
6 mouse. And if we look at the normal ancestor
7 we find that the mouse and rat diverged. They
8 have common ancestor but they diverged. So a
9 mouse and rat are quite different. Physiology
10 is different. A lot of different things about
11 a mouse and a rat, not just size. But they
12 should be quite related. They should be
13 equally distant from human and they aren't.

14 If we look at the amino acids, for
15 instance, a mouse to human has four out of the
16 six amino acids in the gene we're looking at as
17 different. Rat to human has only one of six
18 amino acids different. It seems to be much,
19 much closer. Again, it doesn't make sense if
20 we're just following standard protocol on
21 evolution how this is going to happen. And, of
22 course, you can make-- you can make arguments
23 for this. You could make a hypotheses and
24 argue from an evolutionary standpoint
25 macroevolution. This could happen. You could

0054

1 make it just a story and it could happen. But
2 you could also say, no, it didn't happen. And

3 you can look at design and say that's a
4 hypothesis. You want to look at it. How is
5 this designed, why was it designed. Why if we
6 have millions and millions of years with the Y
7 chromosome that can't really repair itself very
8 well. You know what evolution predicts, that
9 the Y chromosome is going to disappear because
10 it doesn't repair itself like it should.

11 I'd call that deevolution. You know,
12 we're going to lose the Y chromosome. Lose the
13 Y chromosome, guess what happens, you know,
14 schools out.

15 So the implication is that the divergence
16 of the amino acids really don't follow the
17 morphological phylogeny.

18 This is an ancestral tree that my
19 colleague that I've worked with is a molecular
20 evolutionist and believes purely in textbook
21 evolution and we have discussions all the time
22 about this and I learn a lot, he learns a lot.
23 And I think there's good evidence right there
24 from a scientific viewpoint there's
25 controversy, you know, let alone at the student

0055
1 viewpoint to see what happens. And so this is
2 a slide that my colleagues put together, here
3 of the different genes that we found, the six
4 copies of the gene, and then we followed them
5 back to a common ancestor. And how is this
6 done, by DNA sequences. How common are these?
7 And so you come up with this common ancestor
8 there. That's the typical approach that's
9 taken.

10 Okay. Next slide. Okay. We'll go back
11 to that last one. So I'll stop there with my
12 research and where that's taken us. These last
13 two slides have to do with the Ohio lesson, so
14 if we want to get into that a little.

15 Q. Why don't we just go ahead and get into that.

16 A. Okay. What-- what you saw with regards to the
17 Ohio lesson, and specifically the evolutionary
18 theory of critical analysis lesson, this shows
19 you what Bryan does in his class. They form
20 groups of students, two to three students, but
21 not more than four, so small groups. They get
22 into this group and they actually pick some of
23 the evidences here. Here's five of them in
24 terms of an evidence, the theory of common
25 descents looking at homology and they can

0056
1 determine either by chance, flipping a coin,
2 what group they want to be in, or they can
3 decide they want to be in one group or the
4 other, looking at either the pros or cons of
5 that theory. And so we look at homology,
6 anatomy. They look at fossil records. They
7 look at the idea of antibiotic resistance,
8 pepper moths and whether there's environmental
9 changes and whether there's genetic selection
10 for that, and then the idea of where organelles
11 came from. So those are just five out of
12 actually ten that we had, had been trimmed down
13 to five specific controversies that are being

14 looked at.

15 Now, one of the things that I think is
16 important to note here is that students take
17 ownership of this. Bryan showed you some data
18 from his students. I've taken a little bit
19 different approach at the university level and
20 I don't teach a pure evolution course at the
21 university. I teach a course called
22 physiological genetics with a geneticist and
23 microbiologist and we get into these
24 controversies, students get into this and they
25 pick different areas, usually with molecular

0057
1 controversies that I showed you and they
2 present both sides of the question. They take
3 ownership of it and they argue and defend what
4 they have to say and other students will ask
5 them questions. The same type of thing here.

6 The feedback we've gotten has been very,
7 very good. I've actually been disappointed in
8 my own research because I usually go around the
9 university and teach my hypertension high blood
10 pressure research and they would ask me to come
11 over and give that talk. Well, two years ago I
12 gave a talk on intelligent design and
13 evolution, comparing and contrasting and now
14 they don't ask me for my hypertension research.
15 That hurts. They want me to go out and talk
16 about evolution and intelligent design. And I
17 just got a call the day before I came here,
18 totally unsolicited by one of the honors
19 instructors and she said, sir, can you do that
20 same lecture? I said the hypertension one?
21 No, we want you to give the intelligent design
22 evolution one. Why is that? She said because
23 the students write up a paper on what you
24 present and they get into discussing it and
25 they bring out the issues themselves and they

0058
1 have a good debate and discussion with it.
2 Yes, that's university students, but I'm not so
3 sure they're that much different from high
4 school students.

5 Next slide will show you a little bit
6 more detail about what Bryan showed you, too.
7 We give them some-- some supporting answer to
8 get started and then we give them a challenging
9 answer, so one group will take kind of the
10 supporting answer, the other would take the
11 challenging answer and then they go after it.

12 I can't emphasize enough, those of you
13 that are scientists and go through peer review
14 know what I'm talking about, but I'm the editor
15 of a journal, associate editor of a journal. I
16 review for all the big organizations for
17 grants, and the peer review process is
18 extremely thorough, and I must say that this
19 review process here that this lesson went
20 through was worse than any review any of my
21 papers in science has gone through, because it
22 goes through the opponents, the proponents, it
23 went through all of the teachers. It went
24 through all the individuals that are I think

25
0059

boycotting this meeting. We had them at our

1 meeting and they fired out opposition and we
2 had to modify our lesson. We-- we took the
3 feedback from those teachers out in the field.
4 We modified our lesson. It took two years to
5 get the whole process through, but now it's on
6 the board. And I think the key issue is
7 balance. We had-- we had checks and balances
8 all the way through the process. And I think
9 that would really, really have kept the lesson
10 so that it didn't go too far one way or the
11 other.

12 Q. Dan, I think we talked with Bryan a little bit
13 about indicator seven, which addresses the
14 issue of origin of life, would you comment on
15 that particular indicator and evolution
16 benchmark in the Minority Report, and is that
17 something that ought to be included in the
18 curriculum you believe, and if so, what would
19 be involved in accomplishing that?

20 A. Yeah. The origin of life question I think is--
21 is an important question. We heard this
22 morning Dr. Peltzer talk some about that. The
23 basic idea of chemistry and where it came from.
24 And I think, again, we actually have a lesson
25 in Ohio-- not a lesson, but we have one of our

0060

1 indicators as part of our evolution question
2 dealt with the origin and chemical origins
3 there. So a lot of that has been mapped out
4 and there's good critique on both sides of the
5 question, but it gets the students to learning
6 chemistry because they learn the right hand
7 from the left hand molecule. That's not very
8 interesting in pure chemistry. Go in and start
9 looking-- I can argue the origin of life in one
10 way or the other, but it gets them engaged. So
11 I think it is a good indicator. I would like
12 to see that, and I don't think it's that
13 difficult. There's-- there's definitely
14 scientific evidence out there to talk about
15 both sides.

16 Q. You were talking about intelligent design and
17 the Minority Report does not propose that it be
18 incorporated in the standards, however, it also
19 urges the State Board to take a position that
20 in its view it shouldn't be prohibited. Would
21 you comment on that?

22 A. Yes. We ran into the same argument when the
23 standards were being developed before I got
24 into the science writing team. I wasn't on the
25 standards committee, but the same arguments

0061

1 were developed there, and because of that, I
2 don't know if you've noticed on Bryan's top or
3 not, but on part of the lesson at the very top
4 it said the intent of this critical analysis of
5 evolution lesson is not to teach intelligent
6 design. It's to introduce the controversy, and
7 so as the controversy is introduced, we limited
8 it to specifically looking at the data itself
9 arguing for or against the evolution. So there

10 in that lesson it doesn't really get into
11 design. But also it's an optional lesson. If
12 teachers don't feel comfortable with it they
13 don't have to teach it. If they would like to
14 pursue that they can. And so I'm in contact
15 with a teacher close in Akron and he's been
16 teaching it and I've been getting feedback from
17 him. His data is pretty much the same Bryan
18 shows. The students, no matter which side they
19 take, really like the engagement and they learn
20 I think a lot more from it.

- 21 Q. One final question, turn your attention to
22 indicator 1-A and the first sentence,
23 biological evolution postulates an
24 unpredictable and unguided natural process that
25 has no discernable direction or goal.

0062

1 Given the mechanisms of biological
2 evolution do you believe that is a
3 scientifically valid statement?

- 4 A. Yes, I would agree with that statement that
5 it's-- that's what biological evolution
6 possibly is.

- 7 Q. Do the mechanisms of biological evolution
8 enable the system to be pointed towards a
9 particular goal?

- 10 A. That's a very testable hypothesis, and if you
11 look at some of the arguments for different
12 mechanisms there you can then go back and take
13 a look at this whole idea of how specific, how
14 complex the organization is, and as you go back
15 you can see, well, there's a good design.
16 There's a good design for a car. Basic design
17 is there. There's a good design for an arm, a
18 leg, whatever that may be. You can go back and
19 show does that-- does that show evolution in
20 design or is there some point where it breaks
21 off from that. So you can make a prediction
22 based on good design. You can't reduce that
23 any further than that element is or does it go
24 all the way back to some chemicals and gases
25 and so forth that could generate the first life

0063

1 form. So they are testable. The idea that
2 these things aren't testable either by design
3 or evolution, they can be tested, but as was
4 brought out, a lot of these things are
5 historical evidence and make a case or
6 hypothesis for that.

- 7 Q. So what you're saying is that the statement
8 biological evolution postulates unpredictable
9 and unguided natural process, you can actually
10 test that statement?

- 11 A. You can-- you can test that statement, that's
12 correct.

- 13 Q. Okay. Do you have any general final comments
14 on the Minority Report?

- 15 A. As previous speakers, I read the Minority
16 Report and the Majority Report that would be
17 changed because of it, so I didn't go through
18 the entire Majority Report, no. But I did read
19 the specifics, spent a lot of time with that,
20 and went through each of these and think

overall you're not quite as far along as Ohio, but I think it's-- I think you're right on track. And I wouldn't disagree with any of them. I fully endorse the Minority Report.

MR. CALVERT: Thank you very much.

CHAIRMAN ABRAMS: Mr. Irigonegaray, you have 12 and a half minutes.

MR. IRIGONEGARAY: 12 and a half minutes?

CHAIRMAN ABRAMS: Yes, sir.

EXAMINATION

BY MR. IRIGONEGARAY:

Q. Welcome to Kansas. I have a few questions for the record for you. First I have a group of yes or no questions that I would like for you to answer, please. What is your opinion as to the age of the earth?

A. In light of time I would say most of the evidence that I see, I read and I understand points to an old age of the earth.

Q. And how old is that age?

A. I don't know. I just know what I read with regards to data. It looks like it's four billion years.

Q. And is that your personal opinion?

A. No. My personal opinion is I really don't know. I'm struggling.

Q. You're struggling with what the age of the earth is?

A. Yeah. Yeah. I'm not sure. There's a lot of ways to measure the age. Meteorites is one way. There's a lot of elements used. There's a lot of assumptions can be used and those assumptions can be challenged so I don't really know.

Q. What is the range that you are instructing?

A. I think the range we heard today, somewhere between 5,000 and four billion.

Q. You-- you-- you believe the earth may be as young as 5,000 years old. Is that correct?

A. Well, we're learning that there's such a thing as junc --

Q. Sir, answer --

A. -- really has a function.

Q. Just please answer my question, sir.

A. We're learning a lot about micro --

Q. Sir?

MR. IRIGONEGARAY: Mr. Abrams, please instruct the witness to answer the question.

CHAIRMAN ABRAMS: I think --

Q. (By Mr. Irigonegaray) The question was-- and winking at him is not going to do you any good.

Answer my question. Do you believe the earth may be as young as 5,000 years old?

A. It could be.

Q. Do you accept the general principle of common descent, that all life is biologically related back to the beginning of life? Yes or no?

A. No.

- 6 Q. Do you accept that human beings are related by
7 common descent to predominant ancestors? Yes
8 or no?
9 A. No.
- 10 Q. What's your alternative explanation how the
11 human species came into existence if it is not
12 through common descent?
13 A. Design.
- 14 Q. And design would imply a designer?
15 A. Implies a designer, but we don't go there.
- 16 Q. Do you have any idea as to when the designer,
17 in your opinion, created man?
18 A. No.
- 19 Q. You would agree, would you not, that the Kansas
20 Standards do allow and encourage a broad range
21 of discussion on the subject of evolution in
22 Kansas?
23 A. To try to get a yes or no to that is a
24 difficult one, because I'm not sure you have
25 nine lessons on evolution like we do in Ohio
- 0067
- 1 Q. Did you read the Majority standard on that
2 issue?
3 A. Yes. When we take a look at the Minority
4 compared to the Majority I guess I would take
5 the view that it's better to have something in
6 writing that allows this to occur because
7 probably of what is happening is teachers are
8 afraid to teach something that they don't know
9 if it's even legal or not.
- 10 Q. Is it --
11 A. It makes a more positive statement in the
12 Minority Report.
- 13 Q. Tell me if you would agree or disagree with
14 this statement: There are many issues which
15 involve morals, ethics, values or spiritual
16 beliefs that go beyond what science can
17 explain, but for which solid scientific
18 literacy is used for. Do you agree with that
19 statement?
20 A. It's-- it's kind of a compound statement there.
21 Could you repeat just the second part of that?
22 Q. Let me repeat the whole thing. There are many
23 issues which involve morals, ethics, values or
24 spiritual beliefs that go beyond what science
25 can explain, for which solid scientific
- 0068
- 1 literacy is used for. Do you agree or disagree
2 with that?
3 A. Scientific literacy is useful, is that what the
4 last part said?
5 Q. Yes.
6 A. Yes.
- 7 Q. Does this sentence seem to reflect naturalism.
8 The philosophy that matter and energy are all
9 there is or does it seem to reflect the
10 philosophy that there's more to the world than
11 what science can investigate?
12 A. Well, it appears like naturalism.
- 13 Q. That appears to you to be naturalism?
14 A. The first part of that, yes.
- 15 Q. There are many issues which involve morals,
16 ethics, values or spiritual beliefs that go

17 beyond what science can explain. How is that
18 naturalism?
19 A. I miss-- I misunderstood the question.
20 Q. It doesn't imply anything about naturalism,
21 does it?
22 A. No, it doesn't.
23 Q. And are you aware that those are the Kansas
24 standards?
25 A. Well, yes, I'm aware of that, but just because
0069
1 of the way they're stated out of context I
2 think there's confusion with that. You know
3 information theory doesn't follow under matter
4 and energy.
5 Q. You cited earlier Mr. Denton in support of your
6 position. Do you recall that?
7 A. Yes.
8 Q. I want to have you please listen carefully to
9 this statement, and let me know if you agree or
10 disagree. In his advocacy of special
11 creationism I believe Johnson is merely the
12 latest in a succession of vigorous creationists
13 advocates who have been very influential within
14 conservative Christian circles, particularly in
15 the United States during the 20th century.
16 None of these advocates, however, has had any
17 lasting influence among academic biologists.
18 This is not because science is biased in favor
19 of philosophical naturalism, but because the
20 special creationist model is not supported by
21 the facts and is incapable of providing a more
22 plausible explanation for the pattern of life's
23 diversity in time and space than its
24 evolutionary competitor. The reason why no
25 current member of the United States National
0070
1 Academy of Science is a special creationist is
2 because of the facts, the same facts that in
3 the 19th century convinced Darwin and Wallace
4 and all leading Christian biologists, including
5 Joseph Hooker, Assa Gray and Charles Riley of
6 the reality of descent with modification.
7 Please tell me yes or no, do you agree or
8 disagree with that statement?
9 A. Thank you for the speech. I think --
10 Q. Do you disagree or agree to that?
11 A. It was so long I would have to disagree.
12 Q. You disagree?
13 A. Yeah.
14 Q. Are you aware of the fact that that statement
15 was written by Michael Denton --
16 A. I am.
17 Q. -- the same man that you used for supporting
18 your positions?
19 A. Hey, I agree a lot with Darwin, too, just not
20 everything.
21 Q. Do you agree that you said that information of
22 the Y chromosome could be used to track back to
23 Adam or whomever the first human was?
24 A. Yes.
25 Q. Do you believe that there was a first human,
0071
1 assuming that you don't accept common descent,

2 which is what you've said?
3 A. Common descent says there was a first human.
4 Q. You believe there was a first human?
5 A. Yes.
6 Q. Is it your belief that that first human was
7 Adam, as mentioned in the Bible?
8 A. I don't know. I don't know. The-- the
9 different theories now go into Asia and Africa
10 in regards to where we came from, so there's
11 confusion there.
12 Q. Do you agree further, sir, that it is essential
13 for scientists to remain neutral in their work
14 as far as bringing into their work a
15 supernatural process?
16 A. I think so. I think I would agree with that.
17 Q. And you would agree with me, would you not,
18 sir, that throughout human history we have
19 oftentimes simply not understood an observation
20 around the natural world. Correct?
21 A. Correct.
22 Q. That still happens today. Correct?
23 A. Yes.
24 Q. And you would agree with me that it is in the
25 best interest of science when that happens that
0072 we do the appropriate research, that we do the
1 appropriate studies, that we do the appropriate
2 investigations to try to find out within the
3 natural process what's going on. Correct?
4 A. Everything except just the natural process,
5 yes.
6 Q. Are you of the opinion, sir, that if we do not
7 understand something that we are observing that
8 it is appropriate to attach to it a super
9 natural quality such as intelligent design?
10 A. Not necessarily, you need to have the data and
11 then the data, you know, it gives you the
12 answers to the question. Junk DNA was thought
13 to have absolutely no function, now we realize
14 it has a lot of function.
15 Q. And that was something that when we looked at
16 junk DNA mainstream scientists didn't say that
17 must have been by design because they didn't
18 understand it. Correct? They simply put the
19 question aside, worked on it, and now we have
20 answers to what we used to think was junk DNA.
21 Correct?
22 A. Some of those support --
23 Q. Excuse me?
24 A. Some of these answers support design.
0073
1 Q. Isn't design a philosophical assumption?
2 A. No.
3 Q. How do we falsify the designer?
4 A. We don't go there. We're not going to talk
5 about the designer.
6 Q. Well, if you don't go there --
7 A. DNA --
8 Q. -- how can you name it a scientific process?
9 A. You have a blueprint that's wonderful for life.
10 You can argue evolution with DNA, you can argue
11 design with DNA.
12 Q. Well, you can argue it, but that's not the

13 scientific process, is it because --
14 A. Yes, it is.
15 Q. -- you agreed with me early on that science
16 should be neutral?
17 A. It doesn't mean you don't argue. Science is--
18 that's where we get the truth from is arguing.
19 Q. So philosophically discuss it, but it's not a
20 good idea to interpose the supernatural in what
21 should be a scientific process. Correct?
22 A. We're not doing that.
23 MR. IRIGONEGARAY: No further
24 questions.
25

0074

EXAMINATION

1 BY MS. MORRIS:
2
3 Q. When I leave here I might be asked what hard
4 evidence did you come up with then to refute
5 evolution, Darwinian evolution, and so I may
6 have the opportunity for one sentence, so help
7 me if I have this one sentence correct, and if
8 not, could you briefly correct me. The Y
9 chromosome doesn't repair or mutate which is
10 evidence?
11 A. No, it-- the Y chromosome mutates more than any
12 other chromosome because it doesn't have the
13 same kind of repair mechanisms. So I hate to
14 give arguments for females, but it's been said
15 that the Y chromosome is a junk chromosome and
16 it accumulates a tremendous number of mutations
17 because it doesn't have all the facilities to
18 repair itself.
19 Q. So it doesn't repair. It does mutate, but it
20 doesn't repair?
21 A. Yes. There's something called gene conversion
22 which can happen to repair it, but it's not
23 like the other-- you don't have recombination
24 which is really going to help, don't have all
25 the repair mechanisms, so it's really faulty on

0075

1 that.
2 Q. And would you say that's evidence refuting
3 Darwinian evolution?
4 A. No. It would predict that we're going to lose
5 the Y chromosome, therefore males.
6 Q. Thank you.
7

EXAMINATION

8 BY CHAIRMAN ABRAMS:
9
10 Q. Dr. Ely?
11 A. Ely.
12 Q. Ely. You have had-- I'm going back to your
13 discussion and your work with Ohio State
14 Science Writing Committee, excuse me, do you
15 have information-- you haven't had any
16 firsthand knowledge at the high school level?
17 A. Yes, I have.
18 Q. Oh, okay. Do you have information at the high
19 school level or the college level that the
20 students that you actually taught scored better
21 when they were taught the strengths and
22 weaknesses of Neo Darwinian evolution?
23 A. I don't have-- I'll have to just rephrase I

guess what you said when I agreed with you.
I've used different types of questionnaires. I

don't have data on because at the college level
we don't test on evolution versus say design.
I just have feedback from the students on how
they enjoyed the controversy.

With the high school, yes, we do have
feedback from one of our high schools in the
Akron area, very similar to what Bryan showed
that they've taught it both ways and the
students do score better when it's taught both
ways and also enjoy it better when it's taught
both ways. So we have data on that in Akron.
We'll have a lot more at the end of this school
year when the data is compiled.

Q. Would you say that it's-- that those students
would be more academically prepared, more
intellectually stimulated and better able to
progress with whatever jobs or education that
they're willing or wanting to pursue?

A. Yes. It's-- when I was a kid communism was
huge. We're talking duck and cover drills to
get underneath our desk when the alarms went
off. You know, we learned about communism. We
needed to know what it was all about. I am all
for learning both sides of the question and I
think, yes, critical analysis is much better

when students see both sides of the question.

Q. How would you describe the ability of the
Majority draft to teach the students to
distinguish the data and testable theories of
science as opposed to the religious and
philosophical claims that are made in the name
of science?

A. I'm not sure what you're getting at the last
part.

Q. Okay. How would you describe the ability of
the Majority draft and Minority draft,
comparing those two, to teach the students to
distinguish the data of science from the
religious and philosophical claims that are
made in the name of science?

A. You know, I'm not sure that it's going to--
either one, Majority or Minority is going to
differentiate some of the religious claims
there. One of the fears I had before I got
involved in this whatsoever was the idea that,
hey, we do not want to teach any kind of
religion or faith in the school. That's not
what it was about. I was concerned about that.
After we've gone through the process now and
I've interviewed teachers and done it at the

University level, not once have I had a
question about the designer, about religion
about faith. They-- we stopped at that point.
And so the critical analysis I think was very
valuable. The Minority Report, what I liked
about it was what other speakers said as well,
it gets more specific and allows more freedom
for the teacher to explore those areas. Right

9 now a lot of teachers are-- are threatened in
10 Akron. I got stories all the time. They're
11 threatened by the principal not to even touch
12 it and yet it's in the books. And so I think
13 we need more education of what is allowed and
14 what isn't allowed, and the Minority Report I
15 think gives you some of that freedom.

16 Q. Does empirical science, I have been defining it
17 as what is observable, measurable, testable,
18 repeatable or falsifiable, does empirical
19 science provide data of the type that would
20 support one hypothesis and refute another and
21 be able to assist you in-- or assist the
22 student in being able to distinguish the data
23 and testable theories?

24 A. Yes. Yes, it does. One of the things I do and
25 I didn't have time here, I show a slide. We go

0079

1 through all kinds of data. Here's what
2 evolution predicts, macroevolution, here's what
3 design will predict, and then the students come
4 up with predictions. You can make the
5 prediction, you can test them, you can see what
6 the data shows, and make a decision. And the
7 students come up with the decision. They're
8 not influenced by the teacher. The teacher
9 doesn't take a stand either way.

10 CHAIRMAN ABRAMS: I thank you, sir.

11 MS. MORRIS: I have a question.

12 CHAIRMAN ABRAMS: One more.

13 MS. MORRIS: How many years of data

14 do you have that supports better scores when
15 students are given the critical analysis
16 approach?

17 THE WITNESS: I think that the data
18 that's-- would be data you can put into a
19 science education journal would be data that
20 Bryan showed, and I think he said around four
21 years of data, something like that.

22 MS. MORRIS: Thank you.

23 CHAIRMAN ABRAMS: Thank you, Dr. Ely.

24 We're going to take a break now. We're going
25 to reconvene at 2:50, 15 minutes from now.

0080

1 (THEREUPON, a short recess was
2 had).

3 CHAIRMAN ABRAMS: Please take your
4 seats. I think we're ready. Mr. Calvert,
5 please proceed. Please hold it down,
6 conversation.

7 MR. CALVERT: Dr. Abrams, members of
8 the committee-- Dr. Abrams, members of the
9 committee, Mr. Irigonegaray, I would like to
10 introduce you to Roger DeHart. Roger has
11 taught biology high school level for 28 years
12 and he is going to talk a little bit about his
13 experience in that endeavor in a variety of
14 different schools.

15 EXAMINATION

16 BY MR. CALVERT:

17 Q. Roger, would you please introduce yourself and
18 give us a little bit more of your background?
19

20 A. My name is Roger DeHart and I am a high school
21 biology teacher. I have taught for 28 years.
22 In 20 of those years I was in the public school
23 system in a variety of schools. I graduated
24 from Seattle Pacific University with a BS in
25 biology. I then later went back and got my
0081
1 teaching credential from the Pacific Lutheran
2 University. That's my educational background.
3 Q. You taught in Burlington High School in
4 Washington. Is that correct?
5 A. That's correct.
6 Q. And how long did you teach there?
7 A. I taught there for 14 years.
8 Q. And how did you teach your biology class for
9 the bulk of those years?
10 A. Well, I started there in 1987 and for ten years
11 of the two week unit that we covered the topic
12 of origins and spent one day covering the topic
13 of intelligent design. I presented it as an
14 alternative for students to once again get a
15 different view from what the textbook--
16 traditional textbook taught.
17 I supplemented the text in 1992 with a
18 portion of Pandas and People. I would then
19 allow students to critically analyze. I would
20 always put this in the third person saying that
21 this was differing views from other scientists,
22 and then I would allow students to either write
23 position papers stating three best evidences
24 for or against Darwinian evolution and then
25 those students who would like to have the
0082
1 opportunity, to debate the topic in front of
2 the class. It's also an evenhanded way, the
3 same number of students for both sides, they
4 had the same amount of time and it was a good
5 experience.
6 Q. How did the students react to it?
7 A. Well, overwhelmingly these students saw that as
8 the favorite part of biology. Biology text
9 as-- as has been previously said, much of
10 biology is merely restating of facts, of rote
11 material that's in the textbook. This was an
12 opportunity for students to critically evaluate
13 and they had a say actually in the-- their
14 opinion of what they thought.
15 Q. What kind of-- and how long did you use that
16 methodology?
17 A. I did that for ten years.
18 Q. And during that ten year period of time what
19 kind of response did you get from parents?
20 A. Positive.
21 Q. Could you amplify a little bit on that?
22 A. I had positive up until 1997 and I had one
23 complaint. The complaint was not logged with
24 me or the school district it went straight to
25 the ACLU, the American Civil Liberties Union.
0083
1 The ACLU then contacted my superintendent. My
2 superintendent then went on a year long--
3 actually wasn't a school year, taking time to
4 do an investigation, seeing if I was

5 proselytizing my students. Seeing if there was
6 any impropriety that took place. There was
7 none that he found. And so he answered
8 mainly-- another group involved with that was
9 the National Center for Science Education. In
10 fact, at a time they-- they wanted the school
11 district to notify all of my former students
12 that in some way they had received
13 objectionable material and that they were
14 denied the proper science education that they
15 were entitled. 'Um, would you like me to
16 continue.

17 Q. Go ahead.

18 A. After that was found and my superintendent and
19 the school board, I had their hundred percent
20 backing. As the school year came to an end a
21 new superintendent came on board. He had an
22 ideological problem with what I was doing. He
23 stated in front of a-- at the beginning of 1998
24 school year that the school district would be
25 liable, each of the individual school board

0084

1 members would be specifically responsible for
2 my teaching if a lawsuit was lodged, as the
3 ACLU was threatening, and because of that they
4 were going to limit what I did in the
5 classroom.

6 It was at that time that I tried to
7 seek-- strike a compromise with the school
8 district and agreed only to present criticisms
9 of the textbook so I submitted materials to my
10 curriculum review committee. They were all
11 turned down in 1999 in the spring. They were
12 turned down because the-- some of them were
13 written by Jonathan Wells who was here
14 previously, even though they were published in
15 the American Biology Teacher, the most widely
16 reviewed journal for-- for biology teachers.
17 They were also turned down-- even things like a
18 diagram of Corvettes and things like that,
19 stating that they overshadowed the existing
20 curriculum.

21 So any ways, they did back off that and
22 they said, well, we'll allow you to offer one
23 article and so I did. I showed them to people.
24 A section that once again talked about the
25 analogy between DNA being information and that

0085

1 organisms such as giraffe seemed to be instead
2 of a collection of mutations seems to be more
3 of a complete unit of design.

4 It was after that that once again a group
5 had formed, of course, and it made a lot of
6 press in our town and outside groups threatened
7 much of our school district, and so it was
8 during that time that the board and the
9 superintendent felt a lot of pressure and so
10 they reversed and said now we're going to deny
11 those materials. So I had to once again think
12 what am I going to do now. So instead of
13 presenting materials that were written by ID
14 proponents I chose only mainstream scientific
15 journals like those articles that were written

16 by Steven J. Gould that appeared in Natural
17 History. Jerry Coyne that appeared in Nature.
18 Those-- Gould's article, Et Skewick (sp) dealt
19 with the Haeckel's embryos that have already
20 been mentioned.

21 The second, Jerry Coyne, dealt with the
22 peppered moth, black not white, that appeared
23 in Nature. Elizabeth Pennisi, her article that
24 once again revealed Michael Richardson's
25 research on Haeckel's embryos and then a Boston

0086
1 Globe article.

2 Those were also all turned down the next
3 year, even though they were written by
4 Darwinists and committed to Darwinists. Then
5 once again I was-- there's no other way to say
6 I was censored.

7 I was to teach only the textbook and I
8 could not submit any supplemental articles.
9 All of my articles that I submitted were sent
10 to the University of Washington and to Western
11 Washington University. I had to submit a
12 handwritten summary of all that I was to say in
13 the two week unit, and then finally I was
14 reassigned to Earth Science at the end of that
15 year, and so that was 2001.

16 At the end of 2001 school year-- in fact,
17 that was an indirect-- many interesting stories
18 that went on surrounding that, but the person
19 who took my job was a former student. He was a
20 PE major. He had zero years of teaching
21 experience. I left the school district, my
22 love of biology, I taught that for 28 years at
23 that time it was 23 years. That's what I was
24 trained to do.

25 Q. Mr. DeHart, the Kansas standards that are being

0087
1 proposed with respect to the evolution section
2 seek the goal of student understanding, student
3 understanding of biological evolution, and I
4 will hopefully get this up on the screen here
5 in a minute. Student understanding of
6 biological evolution. And the dictionary
7 defines understanding as comprehend, be able to
8 understand the subtleties of a particular
9 concept. And so this particular indicator
10 seeks students, quote, "to understand and
11 comprehend biological evolution."

12 When you were directed to remove-- well,
13 let me ask you this, the information that you
14 were teaching for 11 years to your students
15 that you could no longer teach, was that
16 information relevant to a comprehensive
17 understanding of biology of evolution?

18 A. I never shied from teaching the complete theory
19 of evolution --

20 Q. But --

21 A. -- to answer the question if I understand.

22 Q. The mix of information you were giving the
23 students one mix of information and then
24 afterwards some of that information was removed
25 from the table. Correct?

0088

- 1 A. Correct. My supplemental materials were, if
2 I'm understanding you right.
3 Q. Were the supplemental materials relevant to the
4 competence to the understanding of biological
5 evolution?
6 A. The supplemental materials that I presented
7 gave a different picture of the interpretation
8 of the evidence than what was in my text.
9 Q. Was that different interpretation relevant to
10 student understanding of biological evolution?
11 A. Certainly. And I think that's what has been
12 testified, some of those issues, the origin of
13 life, homology, and things like that have been
14 spoken to earlier in this.
15 Q. And you believe they're relevant?
16 A. Yes, I do.
17 Q. Can a student really have a-- can a student
18 really understand biological evolution without
19 having that additional information?
20 A. Well, I don't think they can accurately weigh
21 the evidence. I mean, that's not what current
22 science is showing so they're given a dated or
23 misrepresentation.
24 Q. The removal of biological evolution would you
25 agree has religious implications?
0089
1 A. Yes.
2 Q. So one side of that story supports one kind of
3 a religious belief and the other side supports
4 the different kind, is that-- is that a fair
5 statement?
6 A. The only concept-- in the words of Steven
7 Wineberg, the only concept of a designer that
8 makes sense is a designer who creates. And so
9 if you're saying that nature is capable of
10 creating that precludes the idea that there is
11 a designer and so that is what-- a construct of
12 ethological naturalism or philosophical
13 naturalism.
14 Q. You believe removing your supplemental
15 materials respectively caused you to promote if
16 you were just going to teach one side of the
17 story, a-- a naturalistic explanation. Is that
18 right?
19 A. Well, yes. It shows that the evidence,
20 empirical evidence is there to support a
21 Darwinian view, which is that natural selection
22 acting on random mutation is how man got there.
23 There's no theology. There's no purpose or
24 inordinate.
25 Q. But only one perspective is shown?
0090
1 A. That's correct.
2 Q. Now, when you left-- so you were assigned to
3 earth science, I believe that's where you
4 stopped in your dialogue?
5 A. Yes. Excuse me.
6 Q. And then you went from there to another school,
7 tell us about that?
8 A. Well, the other school was 40 miles south.
9 That school I was very up front. I didn't want
10 to be caught in the same situation again. I
11 went in, had an interview. I was selected for

the position. I told them right up front who I was. I told them of my controversy. I told them before I accepted the job that I still wanted permission to give the criticisms of the textbook and allow students an open education. I was notified by phone three days before I was to take the position that I had been reassigned again to earth science.

Nobody in the school district would talk to me and clarify why that was done, and later the superintendent did meet with me and she said we had so many e-mails from your previous school district from people who were in that district saying that I shouldn't be allowed to

teach biology because of my past and that was the reason given and stated in the paper of why I was reassigned.

Q. During this trying process, did you talk with other teachers in the school, in your high school, and could you comment on their feedback, before and after the controversy?

A. As far as do you mean in my first school, like inside and outside the science department or in general?

Q. Well, I'm looking for-- I mean, I think we discussed your conversations with teachers some of whom seem to favor what you were doing?

A. Oh, yes. At the second school that I was at I had three or four of the teachers, it's the larger high school in the State of Washington, three or four teachers came to me and knew of my situation and were glad to have me on board and they supported what I did, but they weren't sure that they would be able to do that.

There was another teacher who was a member of the National Center for Science of Education who approached me and said, Mr. DeHart, I've been notified, I know who you are and I'm going to keep an eye on you. I've

been asked to do that.

Q. So it's more than likely the security police in the biology classroom?

A. More or less.

Q. Is there-- so you left that school I guess relative-- how long did you teach at that school? Did you teach the earth science course?

A. Well, that was interesting. I was there for a year, the first semester-- they teach biology in a semester, so the first semester I did three biology classes and two physical science. The second semester I had all physical science. There was another teacher that had a background in physics, wanted to trade with me, principal was all in favor of it, and the teacher actually approached me and said that's great, and the superintendent downtown did not allow that to take place and so it was at the end of that year when I left and went to California.

Q. And where are you teaching now?

A. I teach at Oakes Christian High School, which

23 is college preparatory high school just outside
24 of L.A. in Westlake Village. I teach honors
25 biology and AP biology.

0093

1 Q. And how do you teach it there?

2 A. You know, I-- we teach just the textbook
3 version, and then once given a look at
4 criticism of the text and where they may have
5 misrepresented the evidence and then I present
6 the case for intelligent design.

7 Q. And how do the students --

8 A. They enjoy it. It's always-- once again, as I
9 stated before, I think it's one of the best
10 units that we have. And it just gets kids to
11 be able to be critically thinking. That's what
12 we as teachers want to do. And it's not
13 about-- with our age of computers you can look
14 anywhere and find knowledge, but what you try
15 to do as a teacher is the higher levels of
16 learning where you get kids to critically think
17 and be able to evaluate evidence.

18 Q. Do you think a public school system should
19 prohibit teachers like you from teaching
20 criticisms of evolution that would somehow
21 weaken the theory?

22 A. Well, supposedly a scientific theory is
23 supposed to withstand criticisms, that's why we
24 have them. We go through-- that's why they're
25 repeatable and that's the nature of science.

0094

1 It's supposed to be a self correcting mechanism
2 because of the challenges that other scientists
3 bring to it. So if it doesn't cut the mustard
4 it shouldn't be there.

5 Q. So in answering my question, should public
6 school systems suppress that criticism?

7 A. No.

8 Q. So they also-- do you view the argument for
9 design to essentially be a-- a test or
10 criticism of the evolutionary claim that the
11 process is unguided?

12 A. Yes.

13 Q. And so in a sense it is the criticism of the
14 theory itself?

15 A. Yes, it is.

16 Q. And do you believe both the theory itself and
17 the criticism has religious implication?

18 A. Yes, they do, both.

19 Q. So both-- both have religious implications?

20 A. The problem is here-- they do, but the problem
21 is here that students in high school have a
22 very hard time with sorting through philosophy
23 and sorting what's empirical evidence. That's
24 the job of a teacher. It's not that you go and
25 check with your parents or your church or some

0095

1 place like that. They're not trained in
2 science. It's the job of the teacher to be
3 able to sort through what is philosophical and
4 what is empirical evidence. That's why I'm a
5 professional educator. I'm trained to do that.

6 Now, in saying that, I think it's very
7 important that teachers present things in an

8 evenhanded manner and I think that takes a
9 conscious effort on the instructor to be able
10 to do that. And, you know, all I can say in my
11 case, and wherever there's controversy there's
12 two sides, but in my ten years of doing it I
13 never had a complaint until the one student
14 brought it up.

15 Q. The-- I think that you're describing has-- is
16 the job of the teacher, what is the job of the
17 teacher then in teaching a theory that has
18 religious implication one way or the other,
19 how's the best way to have the school, if it's
20 going to enter into that discussion, conduct it
21 in an objective way, is it showing both sides
22 or is it just showing one side?

23 A. Well, it's showing both sides, and I think
24 that's been spoken to earlier, that science
25 should not be limited. It should be-- if it is

0096

1 as we interpret it in society, a search for
2 truth, then it should be able to follow the
3 evidence where it leads, regardless of the
4 religious implications or the evidence of that.

5 Q. I want to show you a-- I'm going to hand you an
6 NSTA statement that has been I believe handed
7 to the committee and to counsel, and it
8 concerns teaching of evolution and it's a
9 position statement. And would you mind reading
10 the yellow-- you know, the sentences that
11 contain the yellow markings on them, proposed
12 on the advice of the National Science Teachers
13 Association?

14 A. Under the third bullet point, is that where
15 you're pointing, or do you want me to start up
16 here?

17 Q. Start in the second paragraph and then read the
18 third bullet point.

19 A. Okay. It says, "In addition teachers are being
20 pressured to introduce creationism, creation
21 science and other nonscientific views which are
22 intended to weaken or eliminate the teaching of
23 evolution." And the third bullet point says,
24 "Policy makers and administrators should not
25 mandate policies requiring the teaching of

0097

1 creation science or related concepts such as
2 so-called intelligent design, abrupt appearance
3 and arguments against evolution.
4 Administrators also should support teachers
5 against pressure to promote nonscientific views
6 or to diminish or eliminate the study of
7 evolution."

8 Q. Now, do you think that policy is one that
9 encourages or one that discourages teaching
10 both sides of the scientific controversy?

11 A. I think it clearly discourages.

12 Q. And is that discouragement in your experience
13 communicated to biology teachers throughout the
14 country?

15 A. I think it is.

16 Q. Is that healthy for the biology classroom
17 environment or unhealthy?

18 A. Well, it's unhealthy. I think there is a

tension, those of us who are in the trenches every day teaching. There is so much going on in the public school system I think most of us know about lawsuits and in our legal happy system that teachers have to be very cautious, what they say, how they react to students and everything else to show it exists. This just

typifies no teacher wants to be put in a position where they have a lawsuit. So if it's not clarified, you don't know.

Q. How-- would you comment on the Minority Report and comment on how it would aid and perhaps remove the tension from the biology classroom and the fear and the lack of academic freedom?

A. Well, I think specifically when you're not requiring natural causes, when you're opening up and just saying we're looking at all hypotheses that are testable, that are empirical and that you are allowing the evidence to go where it may. And you are not trampling on those who believe that man has a purpose and that there is-- that there is a design. And I think outside of that it fits more, whether it's implicit or explicit, if it's today, if it's more in line with those that have a naturalistic view that molecules and atoms are all that they have, they would have no problem with the standards that the Majority Report holds. Whereas that's different for those of us who believe there's a designer.

Q. So the-- so specifically, though, how does the

Minority Report cure the problem?

A. Well, I do believe that, as others have testified, it helps to clarify how evidence is used. And, you know, I can't emphasize enough, we open up and I've done a fair amount of checking on biology texts where you can have three different meanings of the word evolution in the same paragraph. How sophisticated are 9th grade students to discern that? They're not very discerning of that. They're just learning these skills. By clearly defining the word evolution as the Minority Report does, I think it's a great step forward.

Q. How do you think the Minority-- well, right now as I understand it the teachers in the classroom have-- are uncertain as to what they can and can't do. Is that correct?

A. I think that's very correct.

Q. And would you agree with me or not that the Minority Report provides greater freedom and provides some black lines for the teachers to stay within?

A. I think that's very true. And I can share with my-- with you my experiences that I didn't-- once again, I didn't set out to do anything.

This wasn't a conscious effort that I was breaking some law or that I was doing something that was inappropriate and there were no

4 guidelines or standards for me at that time as
5 far as my teaching, so I wasn't breaking any
6 rules or seeking to subvert anything. And it--
7 it's become now where it needs to be laid out
8 for teachers.

9 Q. The Minority Report does not seek to impose
10 intelligent design on the standards. On the
11 other hand, it provides that the state should
12 not prohibit a teacher like you from discussing
13 that with students if you feel quantified and
14 appropriate to do so, would you agree with that
15 position or is it too strong or too weak, this
16 is for a public school as opposed to a
17 Christian school?

18 A. I think that's exactly right. I mean, nobody
19 should be forced to teach. Science teachers
20 should teach the accurate evidence and should
21 be required to teach the accurate evidence and
22 sometimes there's different interpretations of
23 that evidence and teachers should have to teach
24 that. Should they have to teach intelligent
25 design, no, but I think they should be able to

0101
1 and should be mandated to teach, once again,
2 what is accurate science. And I think what is
3 put into many textbooks is a misrepresentation
4 of that evidence.

5 Q. Do you have any final comment on the Minority
6 Report in terms of whether it should or
7 shouldn't be adopted?

8 A. I think it should be adopted. I think it's
9 something that teachers would take great
10 confidence in, give them a sense of security
11 and I think do a better job of teaching.

12 MR. CALVERT: Thank you.

13 CHAIRMAN ABRAMS: Mr. Iri gonegaray,
14 15 minutes, please.

15 MR. IRI GONEGARAY: Thank you, sir.

16
17 EXAMINATION

18 BY MR. IRI GONEGARAY:

19 Q. Mr. DeHart, I have, excuse me, a few questions
20 for the record that I would like to ask you
21 first.

22 A. Yes, sir.

23 Q. And I'm going to ask you first how old, in your
24 opinion, is the world?

25 A. I'm going to answer like Dr. Sanford earlier, I

0102
1 would say between probably a lot younger than
2 most people think.

3 Q. That doesn't say anything to me. What is your
4 opinion in years the age of the earth?

5 A. I'm fine with 5,000 to 100,000.

6 Q. You're fine with 5,000 to 100,000?

7 A. Correct.

8 Q. Do you accept the principle-- the general
9 principle of common descent that all of life
10 was biologically related back to the beginning
11 of life?

12 A. Not if you interpret common descent, and
13 realize that I'm taking liberty here, not if
14 you interpret common descent as being that that

15 is natural selection acting on random mutations
16 I do not.
17 Q. Do you accept that human beings are related by
18 common descent to prehominiid ancestors? Yes or
19 no?
20 A. No.
21 Q. What is the alternative explanation for how the
22 human species came into existence if you do not
23 accept common descent?
24 A. Design.
25 Q. When did that design occur?
0103
1 A. I don't know.
2 Q. Who was the designer?
3 A. Science cannot answer that. When I'm teaching
4 my class I do not answer that.
5 Q. Have you read in total the Majority Report?
6 A. No, I have not.
7 Q. Have you read in total the Minority Report?
8 A. Yes, I have.
9 Q. It is true, is it not, that nowhere in the
10 standards applicable to Kansas children does it
11 say that matter and energy is all there is?
12 A. It's based that you will look only for natural
13 causes.
14 Q. And do you disagree with the proposition that
15 science should be involved with natural
16 explanations for the world around us?
17 A. Yes, I do. And I think if you point back to
18 many people who held the religious view they
19 were some of the first like William Harvey to
20 discover that circulation was a result of
21 design, but I don't think it's-- can find
22 everything, all answers.
23 Q. Do you believe that when we don't understand
24 the answer to something it is appropriate to
25 attach to it a supernatural explanation in
0104
1 science?
2 A. No, I do not, but if the evidence leads there
3 we should go there.
4 Q. How does one attempt to apply the empirical
5 process to a supernatural philosophy?
6 A. I think there is evidence for specified
7 complexity that you can use as a criteria for
8 scientific investigation.
9 Q. Are you aware of the fact that there is not a
10 single major national or international
11 scientific organization that agrees with you on
12 that?
13 A. I realize that if anybody held the views that I
14 did they would no longer be a member of that
15 group.
16 CHAIRMAN ABRAMS: Please, no sign.
17 Please, just confine your comments.
18 Q. (By Mr. Irigonegaray) And is it your opinion
19 that the reason that happens is because those
20 organizations are biased against views such as
21 yours?
22 A. A study put out in 1999 by Ed Larson held that
23 the National Academy of Life Sciences 95
24 percent of them held a naturalistic view of the
25 earth.

0105

- 1 Q. Would you re-- answer my question. Is it your
2 belief that the reason that is the case is
3 because those organizations are biased against
4 you?
5 A. Yes.
6 Q. Is it your belief that that is also true for
7 the National Science Teacher's Association?
8 A. Yes.
9 Q. Are you familiar with the notion that science
10 should remain neutral as far as supernatural
11 answers in their quest for knowledge?
12 A. Yes. And that also includes the world view of
13 naturalism.
14 Q. Do you find the word naturalism anywhere in
15 the Kansas standards?
16 A. I don't think that you'd find the word
17 discriminatory back in the 1950's in some
18 restaurants to claim that they were being
19 discriminated against.
20 Q. My question is is the word naturalism anywhere
21 in the Kansas standards? Yes or no?
22 A. No, but it's implicit in the way that you've
23 defined science.
24 Q. As a search for natural answers, is that the
25 implication you suggest?

0106

- 1 A. Only natural answers.
2 Q. And you suggest that a better alternative would
3 be to include supernatural answers?
4 A. Intelligent causes.
5 Q. Intelligent cause is a disguise for a
6 supernatural answer. Correct?
7 A. Darwinism masquerades as materialist--
8 materialism.
9 Q. That's not my question. Listen carefully. I
10 asked you whether or not the suggestion that
11 intelligent design is a masquerade for a
12 supernatural answer. Correct?
13 A. That's a leading question.
14 Q. Of course it is. Is it or not?
15 A. I think if the evidence shows that things have
16 intelligent causes we should be able to go
17 there in science, if it's about searching for
18 truth.
19 Q. But isn't the assumption or the hypothesis that
20 is intelligent design one based on opinion,
21 philosophy, faith, the supernatural?
22 A. No, it's not, because I can't find a single
23 piece of evidence where Darwinism would be
24 falsified. I mean, we've seen that in junk--
25 junk DNA. That was supposed to be the thing

0107

- 1 that pointed right to common ancestry and now
2 we're finding that there's purpose in it, yet
3 Darwinism is not falsified.
4 Q. Do you find the word Darwinism anywhere in the
5 Kansas standards?
6 A. I find evolution in the definition, once again,
7 it is not clear.
8 Q. That's not my question. Do you find the word
9 Darwinism anywhere in the Kansas standard?
10 A. It's implicit in the word evolution.

11 Q. Do you believe it is appropriate for students
12 to be exposed to a teacher's individual
13 religious views in public schools?
14 A. Neither those of atheism or theism, they should
15 stick to the job of science, yes.
16 Q. Is it your job that evolution as it is taught
17 in mainstream America today is atheistic?
18 A. Well --
19 Q. Yes or no?
20 A. Yes, by definition it is.
21 Q. And because by your definition the theory of
22 evolution is atheistic you believe you have a
23 right to bring your theistic opinions into the
24 classroom. Correct?
25 A. No. I have a responsibility to present correct
0108 science and not have, once again, a made-up
1 alternative of where the evidence should lead.
2 Q. The correct science you're referring to is a
3 theistic view. Correct?
4 A. We let science make-- there's room for
5 difference.
6 Q. Just listen to my question, sir.
7 A. I'm listening, yes.
8 Q. You've already told me that in your opinion
9 evolution as it is taught in the United States
10 today is atheistic philosophy, therefore, you
11 believe you should have the right to bring in
12 your theistic views. Correct? Yes or no?
13 A. Once again, it's a leading question.
14 Q. Of course it's a leading question. Just answer
15 the question.
16 A. You are-- you are conflicting two things. You
17 are conflicting my personal opinion between
18 what I do in the classroom and whether I can
19 separate those two things.
20 Q. Sir-- sir, you've told me that in your opinion
21 evolutionary science as is taught across the
22 United States is atheistic. Correct?
23 A. That is correct.
24 Q. And it is therefore your opinion that because
0109 science is atheistic you have a right to bring
1 in your theistic opinions. Correct?
2 A. Once again, I never said science was atheistic.
3 Q. Evolution, evolutionary science, you have
4 indicated as it's taught in the United States
5 today is atheistic. Correct?
6 A. The way evolution is taught, yes.
7 Q. And therefore it is your opinion that because
8 that constitutes an issue of philosophy and an
9 issue of faith, you should be permitted the
10 opportunity to bring your own opinions about
11 faith to the classroom. Correct?
12 A. No. I'm not bringing my opinions. And what
13 we're looking at here is are we discriminating
14 the students who are presently in their class
15 who have a belief that there is a designer,
16 that there is theology in the universe. Those
17 are the students I'm concerned about.
18 Q. Where in the science standards for children in
19 the State of Kansas do you find that students
20 who have a religious view about evolution are
21

22 being discriminated against?
23 A. When you only look for naturalistic answers
24 that means there is no designer, that you're
25 discriminating against a group of people where
0110
1 there is scientific evidence of design.
2 Q. Are you aware of the fact that the Kansas
3 standards encourage an open discussion by
4 students on issues of ethics, morals, all of
5 those issues are covered in the Kansas
6 standards?
7 A. I think that's bogus. If what you're --
8 Q. You think that's bogus?
9 A. Yes, I do, because I think the NSCS, the
10 National Center for Science Education and the
11 ACLU, if you present those other alternatives,
12 and it's my excuse-- excuse me, it's my
13 experience this is nothing-- this is what I
14 experienced, our school district had a policy
15 that they were not to discriminate because of
16 race, creed or religion, and yet the ACLU came
17 into my school district and dictated what was
18 to be taught.
19 Q. Are you familiar with the following few words?
20 Congress shall make no law respecting an
21 establishment of religion or prohibiting the
22 free exercise thereof. Are you familiar with
23 the establishment clause of the United States
24 Constitution?
25 A. I certainly am.
0111
1 Q. And are you aware that the Constitution of the
2 United States forbids, forbids someone like
3 you, no matter how legitimate your religious
4 views may be to you, and how well we may desire
5 to protect them, from teaching those views to
6 children in schools?
7 A. I object. He's saying what I do in the
8 classroom. Once again, I --
9 MR. SISSON: Excuse me, this question
10 is asking him for a legal opinion about the
11 United States Constitution. This witness is a
12 biology teacher and is not competent to answer
13 such a question and should not be asked to.
14 MR. IRIGONEGARAY: I'm not --
15 MR. SISSON: Ask for a ruling from
16 the Chair.
17 MR. IRIGONEGARAY: I'm not asking for
18 a legal opinion.
19 A. Does somebody who's a materialist have the
20 right to go into the classroom? I have
21 friends, who once again berate students and say
22 that they will not address any other opinions
23 than what's listed in the text, and yet I do
24 not know of any of them who have been
25 reassigned or threatened to be fired for taking
0112
1 that position.
2 MR. IRIGONEGARAY: Thank you, sir.
3 Nothing further.
4 MS. MORRIS: I appreciate your work
5 and I apologize for the ill mannered way you've
6 been addressed.

EXAMINATION

BY MS. MARTIN:

Q. You have looked at some textbooks evidently, do you find any that are available presently that do present the controversy or that gives support and criticism for this issue of evolution being used in origins at all equally or fairly?

A. No.

Q. Thank you. So it is difficult then to require on a test that is presented to you as a biology teacher to present without bringing out self-limiting materials?

A. I think it's really hard for the teacher. As we heard earlier on the origin of life you can look in the margins and the notes for the teacher will say here's what the early atmosphere was like and experiments simulate

earlier and then on the paragraph for the students-- excuse me, they'll say that the gases didn't, but then in the paragraph for the students it will say how did the Miller Urey experiments simulate early earth conditions.

Q. I found it also-- it's stated as a fact for the students to grasp and really is not a fact, it's what scientists are thinking?

A. And even conflicting to the teacher. It's hard to figure.

EXAMINATION

BY CHAIRMAN ABRAMS:

Q. Mr. DeHart, you had one complaint regarding your teaching strategy, how many compliments or encouragements did you receive, if any?

A. A lot. In fact, students issued around a petition. You know, just-- 176-- or I think they had 176 signatures, 173 of them after the controversy still supported the way that I taught the topic of origins.

Q. How did your teaching strategy regarding Neo Darwinian evolution benefit the students?

A. Well, once again, as I said earlier, there's very few chapters in the textbook where they

have the ability to critically analyze at the higher levels of learning. This is one topic where we can do that, and my students find regardless that it's the toughest chapter for them. I mean, they have to write essays and things and support their evidence. Most people don't do that today. And it really is one of the few pop topics in biology where we can do that.

Q. Therefore did you see the students understanding, their critical analysis ability, their problem solving skills improve?

A. I will put my students up against any other students in the nation in the school that I'm at right now. And on their AP tests or the SAT 2 tests and compare them with anybody else and they'll do just as well on the evolutionary

18 part.
19 Q. You said that at one point that there are
20 philosophical claims made in the name of
21 science and it is the responsibility of the
22 teacher to distinguish between those
23 philosophical claims and scientific claims.
24 Did I understand that correctly?
25 A. That's absolutely true.

0115
1 Q. How would you describe the ability of the
2 Majority draft and-- compared to the Minority
3 draft to teach the student to distinguish the
4 data and to differentiate between those
5 philosophical claims?
6 A. I think it's very good. It really-- once
7 again, whenever you get into these topics
8 definitions are so critical. The more that you
9 can do to define terms, basic philosophy
10 classes, you know, if you can define the terms
11 you can win the debate and that's-- naturalists
12 have defined the term of science, and so the
13 more clearly we can define terms is better.

14 Q. You also indicated that evolution-- the word
15 evolution is somewhat illusive, that isn't the
16 word you used, but it's-- you said change had
17 three different meanings in one paragraph or
18 something like that?
19 A. That's correct.

20 Q. Do most mainstream evolutionary biologists want
21 to differentiate between the various meanings
22 of evolution between macroevolution and
23 microevolution?
24 A. I can't comment on that. I mean, I don't know
25 the scientific community so that would be

0116
1 outside my realm. But I think they're often
2 conflicted. I mean, once again we-- as we
3 said, we extrapolate many times microevolution
4 and macroevolution. As the illustration
5 earlier with the pole vaulter training for a
6 mile, whatever those extrapolations are
7 merely-- they fit in the realm of historical
8 science. There's no testable way that
9 empirically you can-- you can say that we go
10 back in this period of years, this is the way
11 it was. We can't do that.

12 Q. You can't comment on that, but can you comment
13 on whether or not it would be of value for
14 students and value for teachers to have the
15 words instead of just used the word evolution
16 at least to try to differentiate between what--
17 when they are using the word evolution, in what
18 sense they are using it?
19 A. Yes. Yes, I-- that needs to be done. That's
20 all I can say. Yes, emphatically.

21 Q. Okay. Mr. DeHart I thank you for your time.
22 CHAIRMAN ABRAMS: Thank you very
23 much. We are going to pause one moment,
24 please.

25 (THEREUPON, an off-the-record
0117
1 discussion was had).

CHAIRMAN ABRAMS: If we can come back

3 to order, please. Take your seat. Our
4 reporter is ready to go. Mr. Calvert. If we
5 can have order, please. Take your seat,
6 please.

7 MR. CALVERT: Dr. Abrams--
8 Dr. Abrams, members of the committee,
9 Mr. Irigonegaray, both, I proudly present to
10 you Jill Gonzalez, a-- Jill Gonzalez-Bravo, a
11 Kansas science teacher. And I want to applaud
12 her and her courage for being here to testify
13 for a very important cause.

14
15 EXAMINATION

16 BY MR. CALVERT:

17 Q. Ms. Gonzalez, would you please further
18 introduce yourself?

19 A. My name is Jill Gonzalez-Bravo and I'm very
20 nervous, so I'm going to try to picture all of
21 you as 16 years or younger.

22 I went to Kansas State University and
23 received an education degree with an area of
24 emphasis in biology and certification at grade
25 nine. I have a Master's Degree in curriculum

0118
1 instruction from Wichita State University and
2 have been a teacher for the last ten years, and
3 though encouraged to boycott I felt that this
4 issue is not about me, it's about the students
5 and their rights. And so that is what I'll be
6 speaking to today.

7 Q. Where are you teaching now? You're teaching in
8 Rose Hill?

9 A. Rose Hill, Kansas, in a public school there.

10 Q. And you're teaching a science class?

11 A. Yes. I've been teaching a science class there
12 for the past four years.

13 Q. And that's an eighth grade class?

14 A. Yes.

15 Q. And in that class you deal directly with
16 evolutionary biology?

17 A. Yes, I deal with aspects of evolutionary
18 biology.

19 Q. Do you believe that evolution is scientifically
20 controversial?

21 A. Yes, I do, however, my opinion is not what I'm
22 here to address. Based on my classroom
23 observations is where I come to the conclusion
24 that my students believe this is a huge
25 controversy.

0119
1 Q. Well, give me some examples, you know, what
2 kind of feedback do you get from them?

3 A. Okay. During my four years of completing my
4 area of focus in biology at Kansas State I
5 became very versed in the theory of evolution.
6 I learned that it was an undebatable fact among
7 many of my professors. I also caught on very
8 quickly to the idea that-- and this was a
9 perceived idea, but that if anybody that
10 believed differently they were not considered a
11 true intellectual. I adopted the liberal
12 philosophy and embraced it and began to become
13 very interested in the environmental movement.

14 I decided to join the United States Peace Corp.
15 I taught science for two years at all grade
16 levels and I even developed a workshop at the
17 local university.

18 When I returned I accepted the Peace Corp
19 Fellows to Wichita State University. I took a
20 job teaching seventh and eighth grade science
21 at Alternative Middle School for students that
22 had not been successful in the mainstream.
23 Basically it was kind of their last stop and I
24 chose that for the challenge.

25 Many of my students were very difficult

0120 1 to motivate, so I was amazed the day the topics
2 of origins came up within the class. It turned
3 into a heated debate and-- a heated argument I
4 should say with-- with me as the target.

5 This is where the conflict came into
6 play. I have students who at first glance gave
7 the impression that they cared very little
8 about school and science, but somehow this
9 topic was important to them. However, my
10 previous education had taught me that there's
11 no controversy. There was no data that
12 supported evolution is factual -- or that said
13 that it was not factual. I had never read
14 anything to the contrary so I had no idea how
15 to lead or even whether I could allow the
16 discussion to continue. I just wasn't sure.

17 I was left with two questions to reflect
18 on. First one, this is the teacher in me, why
19 does this topic evoke strong opposition from
20 the majority of my students and then why was I
21 apprehensive about providing my students with
22 the academic freedom to investigate and
23 question what they perceived to be
24 controversial.

25 I felt as a professional that it was my

0121 1 duty to try to understand what about this topic
2 of evolution these students opposed so
3 strongly. I read articles, books, attended a
4 few workshops over the years and I began to see
5 some of the controversy surrounding the idea
6 and issues, and today was even more of a
7 learning experience for me. But I was still
8 unsure as how to address these issues within
9 the classroom.

10 Years passed and it did not matter who
11 came through my classroom, when any aspect of
12 evolution was taught the same level of
13 discussion-- intense discussion followed. I
14 would quickly present the information or
15 present it as the book taught it. I would
16 encourage them to make sure they understood it
17 so they could make informed decisions and
18 therefore then make-- determine their own
19 opinion on it.

20 I'm married and became pregnant - I'm
21 sorry, this is a little lengthy, but this is
22 all coming back - with our first child and I
23 was amazed at how quickly my world view began
24 to change. It's funny how children can do that

sometimes. I started research into the

development of my child in utero and of course took Lamaze, later on becoming an instructor for it. I had a shift in thinking. I saw how my body compensated during pregnancy. I was amazed how my child's nourishment was immediately provided by me and it clicked. I saw what the students conflicted with with this theory. I understood what they took issue with with the idea of macroevolution.

Students cannot comprehend how a process largely founded on chance could be so specialized. When I presented evolution to them the contents somehow impacted their conscience. It took from them-- and this was expressed to me by students, it took from them the idea that they were born for a purpose. This was a belief that I professed as an educator to be the basis of my philosophy of education. I was telling the students though when I taught this subject-- I was telling at least in their view their perception that this was something-- something completely counter to their mind-set and their beliefs and that-- that troubled me.

Soon after the birth of my son I took a

job in Rose Hill, Kansas, and once again observed the same level of enthusiasm among my students, but this time it was different because I had a parental-- parental input into my classroom. Many come to me with concerns about the textbook, with concerns about the-- what they believe to be a humanistic world view into the textbooks because it did not provide for any alternatives to evolution. I --

Q. Go ahead.

A. I can remember one parent in particular-- particular coming in and asking me, you know, what is your opinion on it, and I said, well, I don't feel at liberty to share my opinion. I'm a public school teacher and I try to present my class objectively, and so she did give me a pamphlet on my First Amendment Rights and I have that with me here today as well. Let's see. But I still struggle with not knowing how to present this information in a way that would not negatively impact any of my students' beliefs.

I continue to feel as though I do not teach this content as thoroughly as such a topic deserves. I struggle with knowing what

amount of classroom discussion I should allow or what direction I can allow the students to take. And this is my perception. With-- let's see. And the students also notice it. They notice that when this particular topic comes up in conversation or within the content they are-- they have expressed to me that they are surprised that I don't allow for such free exchanges of information, that I don't know how

to provide for that. I don't know how to counter their arguments against it. I'm just not sure on what can be covered.

It is my opinion that more specific standards may allow for more academic freedom within the science classroom. If teachers were provided with the information on students' prior knowledge, because many of them have understandings of some of the content that was covered here today, maybe not a firm grasp but they have some knowledge of some of the arguments. Teachers can then-- if they have this information they could explain to students why the current definition of science, maybe this information is not considered admissible. And students would benefit in understanding

also the dynamics of the science community. But they would be still provided with a variety of information that would allow them to make an informed decision to critically analyze this content.

Q. Do you believe the explanations about the origin of life and biological origins impact religion?

A. Yes. Explanations of origins impact the belief systems of students. And I base that on what they have shared with me. Every child comes into my classroom with prior knowledge. I was trained as a teacher to assess that prior knowledge when all new content was introduced. This would allow me to identify misconception or build on their knowledge. With evolution it was difficult for me to assess their prior knowledge because then I would have to identify many things they said as misconceptions.

Q. You say in your written remarks that with evolution why use naturalism to define science, I would identify children's belief systems as a possible misconception?

A. I believe in my mind that's what I would have to perceive them as.

Q. And so you believe this could have an impact on your students' beliefs?

A. Yes.

Q. So what are you saying here? Are you saying there that the evolutionary explanation is a naturalistic one and if that's the only explanation that's permitted then you're effectively skewing belief in that direction?

A. Yes.

Q. What-- would you say that the naturalistic explanation supports non theistic beliefs while the non naturalistic or the disagreement with that naturalistic belief supports theistic beliefs?

A. That seems to be the concern that has been expressed to me by many parents.

Q. And the parents' concern is that you aren't promoting a curriculum that supports only one kind of religious belief?

A. Right. At this point, though, I would not

21 advocate for intelligent design or creationism
22 to be brought into the science classroom.
23 However, I do believe that students are
24 entitled to hear the research, to analyze the
25 research that contradicts and to teach the

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1 controversy, whether believed by us as science
2 teachers or not, it is there and I believe they
3 should be able to research it and discern for
4 themselves.

5 Q. Do you think teachers are-- well, I would-- I
6 believe Roger DeHart read a reference from the
7 National Science Teacher's Association which
8 would encourage teachers to not do anything
9 that would diminish or weaken evolutionary
10 theory. Do you believe that policy is
11 implemented in Kansas public schools and what
12 do you think the effect of that policy is?

13 A. I have read that policy. I believe it does
14 impact the classroom. As a teacher I am--
15 don't want to be a rule breaker and that's why
16 coming here today was a very difficult
17 decision.

18 Q. Further, do you-- could you comment on whether
19 teachers are actually encouraged by that kind
20 of system to suppress evidence that might
21 weaken the theory of evolution?

22 A. I do not believe it is blatant among educators,
23 however, we are put in a situation where it is
24 oftentimes inevitable. I have had students
25 engage me in discussion over controversy

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1 surrounding evidence for evolution that is
2 presented in our textbooks. For instance, the
3 Peppered Moth photographs that have been found
4 to be inaccurate. I allow students to share
5 their thoughts, however, they will then
6 question why is it in the book when we just
7 adopted it three years ago. Or just last year
8 as we read under the bold face heading a new
9 species can form when a group of individuals
10 remain separated from the rest of its species
11 long enough to evolve different traits. The
12 evidence for this tells this world population
13 that became isolated in the small side of the
14 Grand Canyon in Arizona, they read that this
15 group evolved two types of squirrels. One with
16 the black belly, one with the white. I think
17 probably a lot of people are familiar with
18 this, but I'll tell the story anyway.

19 Then they-- just below that they read
20 this statement, "Scientists are not sure
21 whether the squirrels had become different
22 enough to be considered a separate species."
23 And immediately a student inquired,
24 Mrs. Gonzalez, doesn't the book also say that
25 if species are the same aren't they able to

0129
1 mate to produce fertile offspring? So why
2 don't those scientists just mate the two
3 squirrels and see what happens. Now, keep in
4 mind I do teach middle school so this was not
5 an uncommon theme. This was a well analyzed

statement, however, right up there on hierarchy. I was unsure how to field that question other than, well, yeah, maybe they should do that.

And let's say that a student does not bring up the controversy surrounding the Peppered Moths in England and therefore I don't because as a science teacher I have been encouraged not to do anything to weaken or diminish evolution by the National Science Teacher's Association. What do you suppose-- 'um, what do you suppose the child will think when he later finds out this discrepancy surrounding this evidence? To me it would do more harm to teaching of evolution as a unifying theory of science than to the teaching of science. The student will begin to question why they were lied to about this issue or at least they will perceive deception. Whether it's there or not that is their perception.

And they will wonder what else is untrue.

There may be scientists that could explain this away, but as an educator how are we to deal with these controversies being brought up in our classrooms? We rely on scientists to provide us with unbiased content for our classrooms. That's what we rely on from our textbooks. This is our source of information and knowledge that we-- we give to our students.

Q. Would you comment on how your Christian faith played a role on your views of evolutionary theory and has it dictated your conclusions or caused you to critically analyze it from a different-- from a scientific standpoint?

A. I believe the change in my faith from secular humanism to Christianity and that's my understanding of science in regards to my ability to respect information presented to me by people that hold similar as well as different world views. I think in many ways it has opened my mind to the vast amount of knowledge and information that I have yet to learn.

My faith has played an integral part of

who and how I view my students and the respect I give them, but as a professional in the public school my job is not to present content from only my world view. This would hamper academic freedom and not foster my role as an objective educator. My job is not to change their thinking it is to encourage them to think and seek out knowledge from a variety of resources and to make informed decisions.

Q. How do you think the Minority Report proposing changes would impact the typical high school, middle school science classroom?

A. I think as a teacher the more information I am provided with on the prior knowledge that students may have as well as the contents in the scientific community would help me to

develop lessons, would help me address issues that will be brought up within my class and will not leave me with my mouth open when a student comes up with something that they have read in a journal that I was not familiar with.

Q. Do you-- could you go on to a bit more detail, Jill, about how the Minority Report and standards would impact the classroom?

A. It is my opinion that the standards would lead

to an environment that would allow for greater academic freedom. Though I have received e-mails by science teachers in my own school and within the state in support of the proposed changes. I also have been encouraged by others to make sure I will not regret anything I say. So I have read some of the opposition's opinions and found two common themes that I would like to address.

One, we should only teach what scientists think about scientific topics. The argument is that no scientists support anything counter to evolution. I would say that by today's testimony this just is not the case. I am more concerned that perhaps censorship has been applied to these scientists because they hold views that are counter to the secular humanist world view.

And second-- I'm sorry, but I'm just imagining my cross here. All right. Two. A second thing is is that if we allow discussion into the criticisms of evolution or if we changed the definition of science to not allow only natural causes that this could somehow lead to the educator being forced to

acknowledge an array of other viewpoints within the classroom. Okay.

I believe one example was what if a student was interested in the occult. Okay. The teacher would be forced to acknowledge it as somehow valid. My opinion is that I already allow for free exchange of ideas and respect the views of my students when I cover a wide variety of topics. I allow for academic freedom on a variety of subjects so why not evolution? So if a student showed interest into some aspect of the occult that was dealing with an area of what they perceived science to be, I would encourage them to apply the steps of scientific method and research this interest. It is at that point looking at the data, whether they could gather data or not, that the students-- they would have to gather data, but that the students would need to draw their own conclusions. I take issue with invalidating anyone's thoughts because they may derive from a world view counter to mine. This concerns me and that is why with much contemplation I chose to speak today.

This has not been exactly a career move

to speak up when so many have chosen to

2 boycott. I am not here to advance my own
3 agenda, but to promote greater academic freedom
4 for our children.

5 Q. Jill, during your testimony you're reading from
6 a document, and I believe this is correct, this
7 is a document-- I think I sent you a list of
8 questions that I wanted you to address, which
9 was a much longer list than what you addressed,
10 and we talked about it and decided that what
11 you should do is just put together your own
12 list of questions, answer those questions and
13 that would be your talk. Is that
14 essentially --

15 A. That's correct. So am I done?

16 Q. So the reason why we have this-- everything,
17 questions and answers, are purely out of your
18 pen. Is that correct?

19 A. That's correct.

20 Q. So you would agree with me that I didn't
21 provide any of the questions or the answers
22 here?

23 A. No.

24 Q. Okay.

25 A. You gave me some ideas on the questions, but

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1 not the answers. You made me toil over those.

2 Q. Okay. Let me-- one thing, if you could, you've
3 read the Minority Report?

4 A. Yes, I have. And the Majority Report.

5 Q. And as we-- and have administrators at your
6 school read the-- or you discussed this with
7 the administrators of your school before you
8 came. Correct?

9 A. Yes. I followed protocol and spoke with my
10 principal and I spoke with my superintendent.
11 They were-- they were in support of me being
12 here today.

13 Q. And did you discuss this with other teachers?

14 A. I did.

15 Q. And what kind of feedback did you get?

16 A. Mostly positive among the area and field which
17 I teach. I would say out of the six teachers
18 within my school five agreed with me that I
19 spoke with. And of course when I tried to tell
20 them, well, then you come up here and do this
21 they-- they declined. And then I also have
22 gotten e-mails from teachers around the Kansas
23 and different communities as well.

24 Q. And those e-mails how-- have they been
25 supportive?

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1 A. Some have been supportive and some not. This
2 is my opinion and it's not based-- actually
3 it's based on my observation of my students and
4 what their parents have expressed to me as
5 concerns, and as a public educator my duty is
6 not to serve the science community other than
7 to provide them with good students that are
8 able to critically analyze. My job is to serve
9 students and their parents. I also believe
10 that's the job of our school board as well.

11 Q. Would you --

12 A. I'm sorry?

13 Q. Is it fair to say that the current science
14 teacher in the biology classroom does not
15 really know where the boundaries are in terms
16 of criticizing evolution. Is that a fair
17 statement?
18 A. I can speak to myself. I do not.
19 Q. You don't know where your boundaries are, other
20 than you can't go too far in terms of weakening
21 the theory?
22 A. Right.
23 Q. Right. So-- and that-- is there a tension
24 there between your conscience on the one hand,
25 information in your head, and-- and these
0137 undefinable boundaries and does that affect
1 your students in the way you deal with your
2 students and-- and will the Minority Report in
3 anyway leave-- alleviate that, would it provide
4 maybe more --
5
6 A. Yes.
7 Q. -- comfortable boundaries?
8 A. Right. I believe it will provide teachers,
9 whether they agree or disagree, but with the
10 information and content that students may be
11 coming into their classrooms with, some of the
12 arguments that the students know. I mean, if I
13 have an eighth grade student that can voice to
14 me five things that she has found wrong with
15 some of the information here in the book and I
16 don't know how to respond other than to do my
17 own research, I think it would-- I think it
18 would be beneficial to provide this resource,
19 which the standards are a resource for our
20 educators.
21 MR. CALVERT: Thank you so much for
22 coming.
23 MR. SISSON: May I speak to you
24 briefly?
25 MR. IRI GONEGARAY: Excuse me?
0138
1 MR. SISSON: May I talk to you
2 briefly?
3 MR. IRI GONEGARAY: Sure. Excuse us.
4 (THEREUPON, an
5 off-the-record discussion was had).
6 CHAIRMAN ABRAMS: Mr. Iri gonegaray.
7 MR. IRI GONEGARAY: I have no
8 questions.
9 MS. GONZALEZ-BRAVO: Oh, you're
10 kidding me.
11 MR. IRI GONEGARAY: I have no
12 questions.
13 MS. GONZALEZ-BRAVO: Okay. You are
14 merci ful .
15 CHAIRMAN ABRAMS: That's not
16 appropriate. Do either one of you have
17 questions?
18 MS. MARTIN: Just again want to say
19 thank you so much for coming. As a teacher for
20 many years I do understand exactly where you're
21 coming from. We need to look at our students
22 and look at what their needs are, what their
23 parents expect of us. As a professional

educator we need to do our job and I applaud
that you're trying to meet their needs. It is

difficult to understand what a teacher's
limitations will be in addressing this issue.
E-mails and things I've gotten, probably very
similar to the ones you have saying are you
going to teach this and I say, well, no, you
don't teach it exactly. And so I don't think
people that are not in the education teaching
field in a public classroom understand how you
don't actually teach controversial subjects.
You allow for the discussion and I think that's
where you're coming from. I heard some very
excellent public school teachers here today try
to address that. That we want to address the
controversy, not teach one or the other as
facts. It's never good science to teach
anything as a fact, but as an improvement.

MS. MORRIS: I think you did a great
job and someone used the phrase critical mass
of data coming forth that refutes Darwinian
evolution and eventually that will catch up
with the evolutionists, and you, you dear
wonderful teacher, will be on the leading edge.
You'll be great. You'll do fine.

CHAIRMAN ABRAMS: I'm sorry, I do
have some questions.

MS. GONZALEZ-BRAVO: Okay.

EXAMINATION

BY CHAIRMAN ABRAMS:

- Q. Where were you teaching prior to being employed
at Rose Hill?
- A. I was teaching at Alcott-- Alcott Academy,
which is in Wichita public schools.
- Q. How many years have you been teaching the
controversy in your classroom now?
- A. I'd say seven.
- Q. Any complaints?
- A. Oh, I'm sorry, I don't teach the controversy.
No. I --
- Q. Okay. How would you describe it?
- A. Can you tell me-- ask me that again? I-- am I
teaching evolution in the classroom? Seven
years. But I don't teach the controversy
currently because the standards don't allow for
the controversy, so I would not do that. I
teach to the standards.
- Q. Okay. Did I misunderstand when-- you said you
were an alternative school?
- A. Yes.
- Q. And you-- it wasn't that you were teaching the

controversy it was that they were bringing up
the controversy, is that a correct statement
then?

- A. Right right.
- Q. Okay. And you were trying to answer some of
their concerns as they were presenting them as
questions?
- A. At that point I did not-- I was not familiar

9 with the controversy.
10 Q. You were --
11 A. I did not see any-- I did not believe there
12 was --
13 Q. I see.
14 A. -- any controversy. I drew the conclusion that
15 whether I believe there's a controversy or not
16 my students believe there's a controversy.
17 They bring the controversy up. It's-- and I
18 believe the standards should address their
19 needs. And these are questions that they have
20 that they feel and they ask me, and I'm unsure
21 as to the controversy as to how to address
22 them, because they are not within the
23 standards.
24 Q. Okay.
25 A. Okay.

0142
1 Q. If some form of the Minority Report were
2 incorporated into the science curriculum
3 standards how would it be of value-- would it
4 be of value to you as a teacher and to the
5 students? And you spoke briefly about that,
6 but more in detail, how would it be a value to
7 teachers and students?
8 A. The changes in the Minority Report, I believe
9 it would provide us with more information on
10 the controversies that students are aware and
11 that parents are aware of two aspects of
12 evolution.
13 Q. Would you-- how would you categorize, are there
14 a number of teachers like you around the state
15 that-- I guess the best way is to describe it
16 might be unsure, is that a fair description of
17 what you're telling us? Unsure how to proceed,
18 what your limitations are, would you say there
19 are a fair number of teachers. Is that-- is
20 that an accurate description of what you're
21 telling us?
22 A. I can speak for myself and it seems with-- when
23 I discuss it with other educators-- well, yes,
24 I would say educators that I have spoke to they
25 see the debate among our students. Do you

0143
1 understand what I'm saying? They may not see
2 the controversies but they see that there is
3 debate within the classroom when this topic
4 occurs, whether they agree with the issues or
5 not that are coming up, the students do come in
6 with a certain amount of-- of knowledge on
7 this.
8 Q. Is there a number of teachers that would like
9 assistance to more accurately-- that they would
10 be more accurately-- accurately able to know
11 where they are-- their limitations are and how
12 they could proceed and what to do?
13 A. I believe if there were more teachers that
14 agreed with it they'd be here speaking with me
15 today. But I do believe there are quite a few
16 that-- and-- well, actually I believe that
17 maybe people just aren't aware. The way that
18 this has been presented is that we are trying--
19 or the Minority Report is trying to incorporate

intelligent design and I don't see that in these standard changes. If I did, I don't know if I could support creation being brought in.

CHAIRMAN ABRAMS: Thank you very much for your time, Ms. Gonzalez-Bravo.

MS. GONZALEZ-BRAVO: Thank you.

CHAIRMAN ABRAMS: Mr. Calvert.

MR. CALVERT: I would like to present as our last witness for the day John Millam. John is a theoretical physicist.

MR. MILLAM: Theoretical chemist.

MR. CALVERT: Theoretical chemist. Okay.

EXAMINATION

BY MR. CALVERT:

Q. And I'm not really sure I can explain what he's doing now so I'll let him tell you about that.

A. All right. My background is in chemistry and physics. I have a double degree there from the University of Arizona. I have a Ph.D. in Computational Chemistry or Quantum Chemistry, depending on how you want to call it. Basically that's a borderline between chemistry and physics. Involves less of mathematics and quantum mechanics. And I'm currently employed developing computational chemistry software for use in science.

Anyway, I have-- I'm not a biologist but I think my different background will bring some insight into what other speakers may not have

presented. I'm also interested in looking at the historical origins of science. That's been a hobby of mine. I'm also a scientist layman trying to help ordinary people understand what's happening in science. Charles Boyle (sp) said chemistry was a scientist's layman and I kind of take him as a role model.

Anyway, so why am I here to testify? Do you have my power point?

Q. Yeah. To lead into that, I asked Dr. Millam with respect to two issues. The first is-- and they're both related. The first is with respect to the proposed change in the definition of science, which we've all heard and it's on the screen.

The second change, and you're familiar with this change, and I would assume everybody in the audience is familiar with it by now. The second change is with respect to the description of scientific knowledge on Page 22. Somebody has been wanting me to give page descriptions. And the proposed change here is that the Majority Report would define scientific knowledge as knowledge describing and explaining-- knowledge that describes and

explains the physical world in terms of matter, energy and forces. Whereas the Minority Report would revise that to say scientific knowledge describes and explains the natural world. So I

would appreciate your commenting on those two important changes. And I believe you have a power point to go into that? Do you want to run this?

A. All right. I'm going to show my primary topic is what is science and particularly science versus methodological naturalism. You know, here is from the draft two of the science standard which you just saw which talks about seeking natural explanations of the universe or seeking natural explanations for what we observe in the world around us. Stick to one.

Anyway, so what I mean here to discuss is that a methodological naturalism is not science and therefore that should not be included in our def-- in our-- in the Kansas State science standards. So the question is what is science? We need to have an understanding of that.

Science in the broadest sense is simply investigation of the natural world. But when we talk about science today we're really

0147
1 talking not about science generically, but
2 modern science, modern science which developed
3 in 16th and 17th century Europe, and in
4 particular modern science is distinguished from
5 ancient and medieval science by emphasis on
6 testing, experiment, falsification, use of
7 scientific method, uses Occam's razor. That is
8 the principle simplicity is important to other
9 things such as-- this is a few key elements
10 here. So again, that-- that philosophy of
11 science developed in the 16th and 17th century
12 Europe. Methodological naturalism is a
13 philosophy that arose in the mid 18th century.
14 So it is something distinct from science
15 developing after science was well established.

You know, I want to take a little time to
16 explain the birth of modern science, because
17 what's astonishing is that scientists are not
18 taught about science. Scientists are taught
19 about what scientists do, how to run
20 experiments, but scientists traditionally are
21 not told about what science is. We're taught
22 about the discoveries of science, but little
23 about the philosophy or origins of science.
24 And the way I discovered this was after, you

0148
1 know, five years of undergraduate-- five years
2 of graduate school and three and a half years
3 of postdoctoral work, I didn't know about how
4 science began until a philosopher actually
5 questioned me about that subject and so I've
6 had to learn it on my own. I did not learn any
7 of this, even at the highest level of academia.

So anyway, modern science really
8 developed in 16th and 17th century, but it has
9 roots in the scholastic period. That's the
10 11th to 15th century. For example, Roger Bacon
11 and Albert Magnus in the 13th century, they're
12 the ones that first emphasized the experimental
13 method. Durandus and William Bochan are the
14 ones that popularized Occam's razor. Again,
15

16 this is in the context of Christian philosophy
17 at the time. We have Francis Bacon and
18 Galileo, the 17th century. They're the ones
19 that really pioneered the scientific method.
20 Then finally of course we have the big names,
21 Johannes Kepler, Isaac Newton, Charles Boyle,
22 et cetera, et cetera, et cetera. These are the
23 people that took this newly developed
24 scientific method and applied it and actually
25 demonstrated its effectiveness.

0149

1 So a couple conclusory statements. One
2 in almost every branch of modern science can be
3 traced back to this time period. But I think
4 there's another point relevant to tier is that
5 there's nothing inherent in the scientific
6 enterprise that requires restricting it to
7 natural causes or natural explanations only.

8 Science is about what is testable not
9 necessarily what is naturalistic. And kind of
10 a supporting evidence for that, all of the
11 figures who founded and developed modern
12 science such as the people I just mentioned,
13 none of them held to this idea of
14 methodological naturalism.

15 MR. IRIGONEGARAY: Excuse me, sir?
16 Sir? Sir, sir, can you hang on just a second?
17 There's an issue that needs to be addressed,
18 because I believe there's been a
19 misrepresentation.

20 MR. MILLAM: Okay.

21 CHAIRMAN ABRAMS: Draft 2 does not
22 deal with-- does not mention methodological
23 naturalism.

24 MR. CALVERT: Could you back up to
25 the quote.

0150

1 MR. IRIGONEGARAY: I would like that
2 backed up.

3 MR. SISSON: Back in the beginning.
4 One more. There is nothing in our draft that
5 says this --

6 MR. CALVERT: I object to this.

7 CHAIRMAN ABRAMS: Just a second.
8 Just is second.

9 MR. IRIGONEGARAY: Hey. Hey.

10 MR. CALVERT: I completely and
11 totally object to this. The rules
12 provide there is no interruption during
13 presentation.

14 MR. ABRAMS: Mr. Calvert?

15 MR. CALVERT: This could be handled
16 on cross-examination.

17 MR. IRIGONEGARAY: No, we can't.
18 This is a fraud.

19 MR. MILLAM: Let me-- let me-- I
20 downloaded this off the official Kansas web
21 site two days ago. I'm sorry. Maybe I grabbed
22 the wrong file.

23 MR. IRIGONEGARAY: Excuse me, sir.
24 That is incorrect and should not be made out to
25 the public as a standard.

0151

1 CHAIRMAN ABRAMS: Mr. Irigonegaray,
2 Mr. Calvert, we're trying to get this settled
3 here. At this point in time I don't see any
4 reference to methodological naturalism in the
5 actual draft.

6 MR. MILLAM: I may have downloaded
7 the wrong file. But I did go to the official
8 Kansas web site and downloaded this page.
9 Maybe this is contrary in there. I'm willing
10 to retract everything after that first
11 statement. The part about seeking natural
12 explanation I believe everyone agrees is in?

13 CHAIRMAN ABRAMS: That is-- that is a
14 correct statement, yes. I just wanted to
15 comment about the methodological naturalism
16 because it is not found in draft 2.

17 MR. MILLAM: Right.

18 CHAIRMAN ABRAMS: The specific words.

19 MR. IRIGONEGARAY: And any reference
20 to it being in the standards should be struck
21 from the record as being an inaccurate
22 statement.

23 CHAIRMAN ABRAMS: I'm sorry. Please
24 continue.

25 A. All right. Again, methodological --

0152 1 methodological naturalism came about in the
2 18th century. Immanuel Kant was one of the
3 major developers of this idea.

4 This is for history, he came up with what
5 is called nebula hypothesis, where galaxies
6 formed and developed from a collapsing nebula.
7 And the basis-- on the basis of his science he
8 then proposed a set of philosophical axioms
9 such as knowledge is limited to five senses,
10 cause not to be proof and affects, miracles are
11 illusory and several others. And he had an
12 unstated premise that-- that at no point could
13 God or any other supernatural force ever be
14 objectively detectable, hence that was the
15 basis of that philosophy. So we do see a-- a
16 religious, not a purely secular idea coming out
17 of Kant's philosophy.

18 Based on-- he made a scientific theory,
19 he made some philosophy, now he came back and
20 proposed three scientific claims. One is that
21 the universe is infinite static-- an infinite
22 static universe, the universe had no beginning,
23 no ending, and it has no edge or limit.

24 He had the Copernican principles, that is
25 there's no design in the universe and that

0153 1 natural process alone explains life. So that
2 he was seen as a prototype of evolution of
3 Darwin. Obviously I would come in on that
4 issue later. And these three scientific claims
5 buttressed his philosophy and have undergirded
6 science for the last 200 years.

7 So, again, methodological naturalism as
8 I'm presenting here is not a strictly
9 scientific belief, but is undergirded on-- on
10 agnostic or deistic belief system.

11 Now, let's also look at some history.

12 The question why-- why are these three pillars
13 important for us to understand, because in a
14 constant infinite static universe, universe is
15 uncreated, there is no beginning, no ending.
16 There's infinite time for natural processes and
17 infinite extent. So habitat of life sustaining
18 plants are guaranteed. In an infinite universe
19 there's infinite chance of guarantees
20 naturalistic solution to life origins. And
21 hence, as long as the scientific claim is true
22 we can always exclude anything other than
23 naturalism at the outset and scientific
24 investigation.

25 Now, of course, we no longer believe in

0154
1 an infinite static universe. Einstein
2 developed the general relativity that shows the
3 universe is expanding. But it's very
4 interesting that Einstein undercut his own work
5 by introducing a fudge factor to bring back
6 infinite static universe. In other words, he--
7 rather than embracing his own discovery he
8 tried to get around it. The term Big Bang was
9 actually created from a derision because-- and
10 the reason I'm pointing all of this out is that
11 many scientists actually initially opposed Big
12 Bang cosmology because it undercut an infinite
13 static universe. It undercut a purely
14 methodological naturalist universe.

15 Let's see. So again we see
16 methodological, this idea of under-- hindering
17 science. As an example, Albert Einstein was
18 also discouraging looking for problems with
19 that prevailing idea of the infinite static
20 universe. There's a number of arguments
21 against that-- that model, but largely they
22 were dismissed.

23 This last one in thermodynamics is one
24 that is particularly interesting because a
25 simple college level proof in thermodynamics

0155
1 that showed infinite static universe--
2 (reporter interruption). A simple college
3 level proof using thermodynamics should have
4 demonstrated infinite static universe was
5 impossible, however, curiously, that was not
6 discovered until long after the infinite static
7 universe model was gone. And-- in other words,
8 no one was encouraged to challenge that view of
9 the universe.

10 I'm just using that as an example of how,
11 you know, this idea of naturalism and, you
12 know, that science can get caught into ideas
13 that no longer allows-- no longer encourages
14 challenging or testing.

15 This is an interesting quote. This is
16 from Robert Jasper (sp). He's actually an
17 agnostic, but he makes an interesting point
18 about all the things I've just been saying
19 that-- that as an agnostic he's noting a very
20 peculiar reaction among his astronomical
21 colleagues and the question is why. Responses
22 of scientific minds, supposedly a very

objective mind when evidence uncovered by
science leads to conflict with the articles of
faith in our profession. In other words, that

science-- the scientists had so accepted a
certain view of the universe that they no
longer challenged it and became literally
emotionally upset when that was challenged by
natural evidence.

This is a similar one for scientists who
live by faith and the power of reason alone,
the story ends like a bad dream. Again
noting-- again, he's noting an emotional
reaction against, you know, this particular
idea that the universe has a beginning, hence
the universe is not infinite.

Okay. So, again, methodological
naturalism in part is based on a pillar, which
is now known to be false. The Big Bang
cosmology has implications for biology because
it takes away the infinite chance argument used
by strict natural evolution. Note I'm saying
strict natural evolution as opposed to
evolution in the generic sense.

Again, methodological naturalism opposed
and hindered the development of Big Bang
cosmology.

Pillar number two, undesigned universe.
Copernican principle, the principle of

mediocrity says that we cannot be special in
any way. There's no question about our sun,
our planet or anything. If there's life here
there must be life elsewhere in the universe.
This was popularized in the 1960's by people
like Frank Drake and Carl Sagan. Of course,
the popular search for extraterrestrial focus.
So initially they assumed that only two things
had to be right for there to be habitability,
had to have the right star-- the right-- the
planet the right distance from the star. Today
there's a growing body of evidence that we need
hundreds of things to be right for a planet to
be able to sustain advanced life.

There's a growing movement towards--
today towards what's called the rare earth
hypothesis, arguing that habitable planets are
rare at best. And, again, part of the reason
for emphasizing astronomy, even though, you
know, on the issue of biology is that a lot of
the early ideas were as long as you have so
many places where life could start then we can
explain life here, just one of those random
acts, but the problem is we're now taking away
both in the time and in large number of places

where life could potentially start.

Let's see. In terms of naturalistic
evolution, I'm not going to deal with evolution
itself. Other people will be dealing with
that. Since I'm not a biologist I'm going to
stick with just the Urey Miller experiment,
since that's chemistry.

8 The Urey Miller experiment was to
9 demonstrate the formation of key biological
10 molecules in support for the Oparin Haldane
11 naturalistic origin of life or non life, or
12 anodic evolution. The Urey Miller experiment
13 is great chemistry, but we now realize that it
14 really does not have a whole lot to do with,
15 you know, modern theory for a number of
16 reasons. One is the original experiments used
17 the wrong atmosphere. They used a heavier
18 reducing atmosphere, which would be very
19 energetic and give him lots of products. A
20 neutral atmosphere inhibits biological
21 molecules. Oxygen, of course, stops pretty
22 much all together.

23 Their experimental apparatus only allowed
24 the creation of molecules and protected them
25 from destruction. That would not be true in

0159 1 nature. And geology has not found any evidence
2 of a primordial soup. That is, there are no
3 common deposits that, you know, ancient paths
4 do not have biological markers associated with
5 them.

6 But amazing-- the thing that was amazing
7 to me as a graduate level chemist, the Urey
8 Miller experiment was discussed very briefly,
9 but never once did they talk about some of
10 these newer aspects or that-- you know, that
11 it-- it no longer really reflects that-- the
12 atmosphere we use no longer reflects what we
13 understand about the early atmosphere. And so,
14 you know, I think I agree with Jonathan Wells
15 who's calling this an icon of evolution. And
16 it's distressing. If this is happening at the
17 highest level of academia among professional
18 chemists, you know, it's not surprising this is
19 happening elsewhere as well.

20 Again, you know, part of my note here is
21 certain ideas are hindering discovery,
22 discouraging-- discouraging investigation, and
23 this problem is not restricted to just, you
24 know, young college-- young high school
25 students or grade students.

0160 1 I want to define two key terms before I
2 close-up here. One is what I've been referring
3 to as methodological naturalism or strong
4 methodological naturalism where the scientists
5 are restricted to natural causes or natural
6 explanations only. Weak methodological
7 naturalism by contrast you start by looking for
8 natural explanations, but you follow the
9 evidence wherever it leads. Only weak
10 methodological naturalism evolution is
11 consistent with modern science.

12 Q. John, would you agree that the definition of
13 science that's in the current standards that's
14 proposed by the Majority effectively implements
15 your strong methodological naturalism
16 definition?

17 A. Yes, that is one.

18 Q. And then also the definition of scientific

19 knowledge, would you also agree that limiting
20 scientific knowledge to simply describing the
21 physical world in terms of matter and energy
22 and forces, essentially is the other buttress
23 to the methodological naturalism in the
24 standards?

25 A. Right, I agree. In both cases there are

0161 1 effectively limiting science to only dealing
2 with natural explanation. Again, we look at
3 the history and origin of science, that is not
4 how science has developed. That is something
5 that developed later and it effectively
6 extremes or limits the practice of science.

7 MR. CALVERT: Thank you very much.

8 CHAIRMAN ABRAMS: Mr. Iri gonegaray,
9 I'm sorry, you have ten minutes.

10 MR. IRI GONEGARAY: Ten minutes.

11 EXAMINATION

12 BY MR. IRI GONEGARAY:

13 Q. Because my time is limited I'm going to ask you
14 first a few questions and I would like you to
15 answer. In your opinion how old is the earth?

16 A. The earth I believe is 4 point 6 billion years
17 old. The universe is 13 point 7, plus or
18 minus.

19 Q. I didn't ask you about the universe --

20 A. Okay.

21 Q. -- I asked you about the earth. Do you accept
22 the principle of common descent that all life
23 is biologically related back to the beginning
24 of life? Yes or no?

0162 1 A. I will say no, because --

2 Q. I didn't ask you for an explanation. Yes or
3 no?

4 A. Okay. No.

5 Q. Okay. Do you accept that human beings are
6 related by common descent to prehomini d
7 ancestors? Yes or no?

8 A. No.

9 Q. What is the alternative explanation that you
10 propose then for human species?

11 A. Again, I'm a chemist, not a biologist.

12 Q. I didn't ask you that. I asked you what is
13 your explanation if you do not believe in
14 common descent from prehomini d ancestors?

15 A. I do not think the scientific evidence is
16 sufficient to give an answer to that question.

17 Q. You have no personal view about that?

18 A. I have a personal view, but the question is
19 what does science say.

20 Q. What is your personal view about that?

21 A. I-- again, I do not believe that the scientific
22 evidence is sufficient to rule out --

23 Q. I didn't ask you scientifically. I'm asking
24 you what is your personal opinion about that
25 issue?

0163 1 A. Again, I-- at this point I do not believe in a
2 natural explanation for the origin of humanity.
3 I'm willing to change my mind if I find that

4 evidence.
5 Q. Did I hear you say that since Einstein that
6 science has in essence been restricted from
7 progressing?
8 A. Not necessarily restricted, but it discouraged
9 people from challenging the range paradigm.
10 Q. Is it your understanding that there has been a
11 conflict between special relativity and quantum
12 mechanics?
13 A. There is.
14 Q. And did you find any evidence to suppress the
15 problems of special relativity and quantum
16 mechanics for science or have you found a
17 strong and active debate in trying to find out
18 how those two conflicting issues may be
19 resolved?
20 A. In that particular issue I do see a lot of, you
21 know, working together. I don't see any --
22 Q. And did you see how in attempting to resolve
23 those theories, such as string theory and super
24 string theories and all of the issues
25 surrounding those particular theories have come
0164
1 about as a result of the vigorous and rigorous
2 scientific process that occurs in this country
3 and around the world on a daily basis?
4 A. And I support that, yes.
5 Q. Do you further understand that issues such as
6 dark energy and dark matter have come about
7 since Einstein's early predictions?
8 A. Uh-huh. I am excited about that, yes.
9 Q. And are you familiar with the issue of-- with
10 the-- with the hypothesis of dark energy?
11 A. Right.
12 Q. Are you familiar with dark matter?
13 A. Again, I'm not an expert, but I am familiar
14 with it, yes.
15 Q. You are familiar. And you would agree with me
16 that all of those scientific advances would not
17 have occurred if what you say is true, that
18 science today denies further knowledge?
19 A. I think you're misrepresenting my --
20 MR. IRIGONEGARAY: Excuse me. Did
21 you make a comment?
22 MS. MORRIS: Me? No, I'm sorry.
23 Q. (By Mr. Irigonegaray) You may answer.
24 A. All I'm saying is not in every case, but in
25 some cases scientists will hold to
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1 philosophical applications and sometimes
2 hinder-- hinder research in those areas,
3 because either they're encouraged not to
4 investigate certain things or they simply are
5 not interested in finding things that
6 contradicts their paradigm. That's not true in
7 every single issue of science, but there are
8 cases.
9 Q. Your testimony is that scientists are
10 purposefully withholding the ability of other
11 scientists to come up with answers to questions
12 facing humanity today?
13 A. I have not claimed that. I gave --
14 Q. In your --

15 A. Okay.
16 Q. In your opinion is evolution as it is being
17 taught in mainstream science courses across
18 this country today an atheistic philosophy?
19 A. Evolution is a very broad term, you know --
20 Q. Just answer my question yes or no. Is science,
21 in your opinion, as far as the teaching of
22 evolution in mainstream America today being
23 taught in an atheistic fashion?
24 A. I think some people do teach it in that
25 fashion. Not all of them.

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1 Q. So you don't believe it is?
2 A. Again, there's different aspects to evolution.
3 For example, I don't have trouble with the
4 earth being old. You know, I don't have
5 trouble with A appearing at a certain time and
6 B and C, but I do have trouble when people
7 assume that everything happens purely by--
8 strictly by natural processes even though they
9 cannot verify the claim.
10 Q. Do you believe the National Academy of Science
11 stands for the proposition that we should make
12 assumptions when it relates to, for example,
13 the origins of species?
14 A. Again, I have no trouble with making
15 assumptions as long as they stay assumptions.
16 That's part of science, you make hypotheses and
17 you test them. I have trouble when --
18 Q. And do you-- do you believe it is
19 appropriate --
20 MR. CALVERT: Will you allow the
21 witness to finish his answer? You're
22 interrupting the witness.
23 A. Right. Again, you know, I believe in the
24 scientific investigation everything should be
25 on-- should be put on the table, you know, and

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1 that's what I was trying to say.
2 Q. (By Mr. Irigonegaray) Do you believe it is
3 appropriate to bring into the scientific model
4 supernatural opinions? Yes or no?
5 A. We should work from the evidence so we should
6 not work from either supernaturalistic or
7 strictly naturalistic.
8 Q. My question is, do you believe that it is
9 appropriate in the scientific process to bring
10 supernatural opinions?
11 A. Defin --
12 Q. Yes or no?
13 A. Opinions, no.
14 Q. Do you believe --
15 A. Go ahead.
16 Q. Do you believe science should be neutral as far
17 as theistic issues?
18 A. I believe it should be neutral in all respects,
19 neither favoring or disfavoring theism or
20 atheism.
21 Q. And you do not believe, correct, that
22 mainstream science today as it relates to the
23 teaching of evolution discriminates against any
24 faith, do you?
25 A. 'Um, it-- it depends on how it's taught. You

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1 know, it doesn't-- you know, again, there are
2 issues like something appearing at a certain
3 time, fossil record, that's experimental
4 evidence and I have no trouble with that. But
5 it can be taught in a way that those
6 discriminate. Again, I'm not a teacher. I'm
7 really not interested in getting into that
8 issue.

9 Q. Did you take the time to read the Majority
10 Report?

11 A. I did not read it entire. I did read part of
12 it.

13 Q. Are you aware that in Kansas teachers are
14 encouraged to discuss a broad area of issues in
15 evolution?

16 A. I'm not into teaching so I'll take-- I'll
17 accept that.

18 Q. Do you believe that our students in Kansas
19 should be taught in science the best science
20 available?

21 A. Right. It should be taught the best science
22 available, sure.

23 Q. And do you further agree with me it would be
24 inappropriate to teach students as science mere
25 opinions, suggestions or assumptions?

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1 A. Right.

2 MR. IRIGONEGARAY: No further
3 questions.

4 UNIDENTIFIED MAN: Mr. Irigonegaray,
5 you had two more minutes.

6 MR. IRIGONEGARAY: I'm-- I'm wanting
7 to save every penny I can for Kansas children.
8 And she's being paid by the word. I have
9 nothing further.

10 MR. SISSON: We'll remember that one
11 for the next long question.

12
13 EXAMINATION

14 BY CHAIRMAN ABRAMS:

15 Q. Sir, you initially started talking about
16 methodological naturalism and the second draft
17 does not mention methodological naturalism. It
18 does talk-- when it talks I'm going to read
19 part of it right here, it says in the nature of
20 science as it is practiced in the late 20th and
21 early 21st century science is restricted to
22 explaining only the natural world using only
23 natural cause.

24 A. Right.

25 Q. That's one sentence out of that paragraph.

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1 A. Correct.

2 Q. Is that-- how does that-- is there any
3 application, is there-- please comment?

4 A. You know, again, the-- that first sentence
5 which restricts science to natural explanations
6 and the section pointed out by John Calvert
7 limit the expression of science and I believe
8 that that limitation is equivalent to
9 methodological naturalism. That's my comment.

10 Q. You're saying you believe that that is imbued

11 in this definition?

12 A. Yes.

13 Q. And that went on with the rest of what you were
14 discussing about the pillars of Kant and so
15 forth?

16 A. Right.

17 Q. Does methodological naturalism have any basis
18 in inhibiting the-- either the research
19 scientists or the scientists in the classroom,
20 the teaching scientists?

21 A. I believe so. For example, I gave Uri Miller
22 experiment where we were not-- we were told
23 just one side, and I only learned the other
24 side through other sources and through personal
25 investigation, but if we were taught the full

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1 story, that there are problems, that it doesn't
2 answer many things, I think more scientists
3 would be encouraged to investigate what is the
4 answer. I don't know what the answer is, but I
5 think people would be encouraged if they were
6 allowed and even challenged to, you know,
7 challenge some of the ideas that were
8 presented.

9 Q. If we had a-- more emphasis on empirical
10 science as defined by what is observable,
11 measurable, testable, refutable and
12 falsifiable, if that were done empirical --

13 A. Could you repeat the question?

14 Q. I haven't done it, yet.

15 A. Okay.

16 Q. If-- I'm setting it up. If that-- empirical
17 science were employed would that alleviate a
18 lot of the philosophical claims that are made
19 in the name of science?

20 A. I believe so.

21 Q. Would that also allow-- be of value for
22 teachers to be able to move forward with the
23 emphasis on empirical science?

24 A. Right. I believe that's correct.

25 CHAIRMAN ABRAMS: I don't have any

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1 more questions and I do thank you very much.

2 That's it for today. Mr. Irigonegaray,
3 Mr. Calvert, I thank you and that's it for
4 today.

5 MR. IRIGONEGARAY: Thank you, sir.

6 MR. CALVERT: Thank you.

7 CHAIRMAN ABRAMS: Audience, I thank
8 you and we'll proceed starting at 8:30 tomorrow
9 morning.

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C E R T I F I C A T E

STATE OF KANSAS)
) ss:
COUNTY OF SHAWNEE)

I, Robin J. Schuyler, a Certified
Shorthand Reporter in and for the State of
Kansas, duly commissioned as such by the
Supreme Court of the State of Kansas, do hereby
certify that I was present at and reported in
shorthand the foregoing proceedings had at the
aforementioned time and place; further that the
foregoing 173 pages is a true and correct
transcript of my notes requested transcribed.

IN WITNESS WHEREOF, I have hereunto
affixed my Official Seal this _____ day of
_____, 2005.

Robin J. Schuyler
CERTIFIED SHORTHAND REPORTER