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

TRANSCRIPT
OF
PROCEEDINGS

Held on the 7th 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, Irigonegaray & Associates, 1535
Southwest 29th Street, Topeka, Kansas 66611,
by Mr. Pedro L. Irigonegaray.

I N D E X

Certificate ----- page

W I T N E S S

ON BEHALF OF THE MINORITY: PAGE

WARREN NORD, PH. D.

Direct Examination by Mr. Calvert
Cross-Examination by Mr. Irigonegaray
Examination by Dr. Abrams

MUSTAFA AKYOL, M. S.

Direct Examination by Mr. Calvert
Cross-Examination by Mr. Irigonegaray
Examination by Dr. Abrams

MICHAEL BEHE, PH. D.

Direct Examination by Mr. Calvert
Cross-Examination by Mr. Irigonegaray
Examination by Dr. Abrams

JOHN CALVERT

Direct Testimony by Mr. Calvert
Cross-Examination by Mr. Irigonegaray
Examination by Dr. Abrams

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1 DR. ABRAMS: If you could take a
2 seat, please. Also, I would like to remind you
3 to shut off your cell phones again. I suspect
4 most everybody turned them on over the noon
5 hour. Shut them off. Mr. Calvert, please
6 proceed.

7 MR. CALVERT: Thank you. Thank you.
8 Chairman Abrams, members of the Committee, Mr.
9 Irigonegaray, members of the media and the
10 public, I would like to introduce to you Dr.
11 Warren Nord, who is a professor of theology and
12 religion at the University of North Carolina,
13 Chapel Hill. Dr. Nord, welcome, and I
14 appreciate your coming across the country to
15 testify today.

16 DR. NORD: I'm happy to be here.
17 WARREN NORD, PH.D.,
18 called as a witness on behalf of the Minority,
19 testified as follows:

20 DIRECT EXAMINATION

21 BY MR. CALVERT:

22 Q. I wonder if you could elaborate a bit upon your
23 background to sort of get your testimony
24 started.

25 A. I would be happy to. I received my bachelor's

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1 degree in philosophy from the University of
2 Minnesota, and then my Ph.D. in philosophy from
3 the University of North Carolina, Chapel Hill.
4 I liked Chapel Hill so much, I decided that I
5 was going to stay there if there was some way
6 that I could, and so far I've managed to stay
7 there.

8 For 25 years, I directed the inter-
9 disciplinary program called the Program in
10 Humanities and Human Values, which was an
11 effort to bring people together from various
12 humanity disciplines and, in fact, people in
13 the humanities, together with people outside of
14 the humanities in the professions and sciences
15 and particularly in education to talk about
16 human values and those fundamental concerns
17 that we have that are part of being human. And
18 certainly, that experience has shaped my world
19 a great deal. I place a tremendous amount of
20 emphasis on interdisciplinary discussion, and
21 that will shape my response to the concerns we
22 have here this weekend.

23 Q. Dr. Nord, could you give us a little bit better
24 description of perhaps the associations you are
25 connected with, affiliations, education with

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1 regard to the issue of education? If I
2 understand, your degree is in philosophy, but
3 you also have an emphasis on education.

4 A. Yeah. I teach philosophy of religion and
5 philosophy of education, and some time ago I
6 developed interest in the relationship of
7 religion and education. And that, in fact, has
8 become my specialty.

9 I started to write a book back in the mid
10 '80's on the humanities and the importance of
11 the humanities in education, and the book was
12 to have one chapter in it on religion, or more
13 specifically, on religious science as one of
14 the disciplines of religion. When I started
15 writing that chapter, it got longer and longer,
16 and before long, it took over the whole book,
17 and that became my first book called "Religion
18 in American Education: Rethinking a National
19 Dilemma." The book has the merit-- I'm not
20 sure that everyone would consider it a merit--
21 regardless of its merits in terms of quality,
22 it does have the questionable merit, I suppose,
23 of being the most comprehensive study ever
24 done, I think, of religion and education,
25 particularly secondary and higher education.

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1 I then followed that with a book called
2 "Taking Religion Seriously Across the
3 Curriculum," which I co-wrote with Charles
4 Haynes of Freedom Forum First Amendment, in
5 which we try and explain why religion should be
6 taken seriously across the curriculum of public
7 schools and how to do that properly.

8 And since I think understanding that
9 provides a good deal of perspective on how I
10 come at this issue, it's worth my saying just a
11 little bit about those kind of arguments that
12 I've made in those two books and in 30 or so
13 articles and book chapters. I was surprised.
14 I hadn't thought much about this issue in
15 relationship with religion and education at all
16 until I started working on this book on the
17 humanities. And as I started to do my
18 research, I was surprised because a whole new
19 way of looking at education emerged.

20 One of the things that I've done is read
21 over 80 high school textbooks in the sciences
22 and history, in economics, in health, in home
23 economics, and virtually all the National
24 Content Standards that were issued primarily in
25 the 1990's, and what I discovered was that

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1 neither in textbooks nor in the National
2 Standards was religion taken very seriously at
3 all. Certainly, history textbooks and history
4 standards include a fair amount of religion in
5 the context of the fairly distant past, not in
6 the context of the 19th and 20th Centuries, and
7 textbooks and standards in all other
8 disciplines really ignore religion.

9 To give you just one example that I'm
10 going to draw on later in my remarks,
11 economics. I think we have something to learn
12 from instructive example. I reviewed the
13 National Economics Standards, which only make
14 one reference-- let me say this. I think any
15 religious person knows that religion has a
16 great deal to do with economics and how we
17 understand human nature, how we understand
18 society, how we understand the economic domains
19 of life, how we understand morality and our

obligations.

One might expect that within an economics text or Economic Standard there would be some reference to religious foundation of thinking for economics. Of course, that's not the case. In 4,000 pages of ten economics texts which I

reviewed, if you add up all the references to religion, they total two pages, and none of the references are pertaining to any period later in time than the Protestant Reformation. So religion has no role to play at all in economics texts, nor does it in the Economics Standards, which only made one reference to religion in 45 pages, and that was an example of a nonprofit institution.

Well, what does that mean? The problem is compounded, I think, by the fact that the National Economic Standards say that students should only be taught neoclassical economic theory. Some of you will know what that is. Neoclassical economic theory is the view that human nature-- human beings are essentially self-interested utility maximizers, that the economic domain of life is a realm of competition between animistic individuals, that moral judgments have to reduce across cost benefit equations in which there's some effort to maximize preference satisfaction.

Well, none of that's compatible with any religious tradition in the history of the world, and yet the National Economics Standards

say that's the only view of economics that students should be taught in American public schools, for if they introduce any other view, it would only be to confuse students and teachers. There may be an analogy between that-- and I think there is-- and the problem that we're talking about this weekend. Part of my concern is to put this issue that we're discussing this weekend in a much larger perspective.

In effect, what we do in public schools is conduct a kind of serial socialization, that is, within each discipline-- we don't teach subjects. Subjects are open to various interpretations. We teach disciplines. Disciplines provide a single way of understanding the world, and science is shaped by methodological naturalism, and economics by neoclassical economic theory. You can make the same kinds of arguments on how we teach literature, how we teach the arts, how we teach history, how we teach health. Students are not exposed to the wide range of issues that would be required if they were to be-- to have a truly liberal education. And in fact, there

are three reasons why this is deeply wrong.

The first is a liberal education should introduce students to the major ways humankind has developed of making sense to the world.

5 Some of those ways are conservative, some
6 liberal, some secular, some religious. Right
7 now, public education is incredibly parochial.
8 It basically only introduces students to
9 secular ways of making sense of the world,
10 leaving religious ways out of the discussion.

11 A typical way of thinking about liberal
12 education is in terms of introducing students
13 to various disciplines. We have distribution
14 requirements in college and in public schools
15 that require students take history and
16 literature, history and English-- now we call
17 them social studies, communication, arts,
18 communication skills-- and science and math.
19 But there isn't any requirement that within
20 each of those areas of study students be
21 required to understand different ways of
22 interpreting the subject matter. We simply
23 introduce them, initiate them, into a series of
24 disciplines, what I call serial socialization.

25 A liberal education would require

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1 interdisciplinary discussion. What is the
2 relationship between what students learn in a
3 science course and in an economics course, what
4 they might learn about religion, what they
5 might learn about morality in a philosophical
6 ethics course, what they learn about human
7 nature in a literature course? We never ask
8 those questions. The whole structure of
9 education is set up to keep students from being
10 reasonable. Being reasonable requires us to
11 make judgments about the relationships of what
12 we learn within various disciplines.

13 Think if we only taught students how
14 Democrats think about the world and never
15 mentioned how Republicans think about the
16 world. We all agree that would be-- well,
17 maybe we don't-- most of us, a bad education.
18 To be educated about politics, you have to
19 understand how Democrats and how Republicans
20 think about the world. To be educated about
21 economics requires understanding not just how
22 neoclassic theorists understand the world, but
23 how economics is understood in various
24 political, ideological, and religious
25 traditions as well. We don't do that.

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1 Education isn't truly liberal. We make a
2 feeble effort toward it.

3 There's also a civic justice argument,
4 and that is that in public schools in
5 particular, there's an obligation to take the
6 public seriously and not to disenfranchise
7 people because of their views. I think there's
8 a justice argument to be made for including the
9 voice of all major groups within our culture,
10 including religious groups. We don't do that.
11 A few years ago we thought that it was all
12 right to leave blacks and women out of the
13 cultural conversation. I think we now all
14 realize that's wrong, but what we still haven't
15 come to realize is it's wrong to leave

16 religious voices out of the discussion. The
17 problem is the same. It's disenfranchising
18 people. It's saying, "We're not going to take
19 your values and your views seriously."

20 There's also a constitutional problem
21 here, and that is the Constitution requires,
22 ever since 1947 in *Everson* versus Board of
23 Education when Justice Black said, and the
24 Court has agreed with him ever since, that
25 education-- that the state must be neutral

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1 between religion and non religion, not just
2 neutral among religions, but neutral between
3 religion and non religion. The Court has
4 applied that idea to public education any
5 number of times. There's never been any
6 serious dissent with that idea within the
7 Court.

8 Now, does it mean being neutral with
9 regard to religion and non religion? Well, the
10 only way I can make sense of that is in terms
11 of being theoretically alternative. There
12 isn't any such thing as a neutral point of
13 view. Rather, neutrality must mean fairness,
14 taking different people, different cultures,
15 different traditions seriously.

16 Now, to wrap up this part, where this
17 leads is to the idea that public education must
18 take religion seriously, must include religious
19 voices in the conversation, not just in the
20 context of the distant past, but now as live
21 alternatives, as a matter of liberal education,
22 as a matter of civic justice, as a matter of
23 constitutional neutrality.

24 These notions are all secular arguments,
25 are not arguments as an issue taken seriously

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1 for any religious reason whatsoever. This is
2 all from the middle way in our culture wars,
3 that is, I'm supposed in most areas to leave
4 religion out of the discussion and that the
5 idea that religion should be promoted.
6 Religion should be taken seriously among the
7 various alternative ways of making sense of the
8 world.

9 I tell you this because I want you to
10 know where I'm coming from. And now I'll be
11 addressing more particularly the problem before
12 us at these hearings. I made these comments
13 not because I have any particular vested
14 interest in Intelligent Design theory. I have
15 my views, and they will become clear. But I
16 come at this problem really out of my
17 background concern to further an idea of
18 liberal education, civil justice, and
19 constitutional neutrality in the public
20 schools.

21 Perhaps the most important implication of
22 my view is that we completely misunderstand
23 what science education should be. The purpose
24 of science education should not be to train
25 scientists. That's proper in upper level

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1 undergraduate courses and in graduate school,
2 but it's not proper in introductory courses in
3 high school or, indeed, in undergraduate
4 school. The purpose of science education
5 should be to further the liberal education of
6 students. This has a number of significant
7 implications.

8 Think again about neoclassical economic
9 theory. Is it proper to teach students just
10 one way of thinking about the economic world,
11 particularly when that way of thinking about it
12 diverges so deeply and profoundly from other
13 ways people think about the economic world,
14 obvious or not. Similarly, it seems to me a
15 part of science education in a liberal
16 education should be to locate science within a
17 larger interdisciplinary discussion that has to
18 do with the major human problems that we all
19 confront as we think about the meanings of our
20 lives and the nature of reality. That is,
21 science education as part of a liberal
22 education should have a much broader purpose
23 than what is ordinarily recognized.

24 The Majority Report, which I have read in
25 totality, says that it does encourage critical

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1 thinking, but certainly, within the context of
2 the report, the idea is critical thinking
3 within the domain of establishment science.
4 There's nothing at least explicit about the
5 idea of critical thinking about science and its
6 relationship to other aspects of life and other
7 disciplines within our intellectual life.

8 The philosopher of science, Thomas Kuhn,
9 I think, would be by clear consensus viewed as
10 the greatest philosopher of science, the most
11 enjoyable philosopher of science of the 20th
12 Century, said in his most important book,
13 "Structure of Scientific Evolutions," that
14 scientists are educated the most dogmatically
15 of any group in our society with the exception
16 of theologians. He's wrong, of course.
17 They're educated much more dogmatically than
18 our theologians. No theologian can get through
19 college or seminary without encountering a lot
20 of science. Most scientists get to their
21 Ph.D.'s without ever encountering any kind of
22 religious studies like theology or philosophy.
23 Science education is typically highly
24 illiberal, and that is a huge problem.

25 A number of speakers before have

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1 mentioned the fact that nowhere in their
2 educations were they ever encouraged to think
3 critically about science. Rather, they were
4 simply encouraged, initiated in the scientific
5 ways of thinking rather uncritically.

6 Okay. Now to dig on just a little bit
7 deeper. Methodological naturalism. And let me
8 say right here I think Professor Menuge did a
9 marvelous job. I agree entirely with him about
10 methodological naturalism. It short circuits
11 critical thinking within science. So it's not

only the problem of thinking about science from outside, but then there's the question of how we think critically about science from within the inside. What, in fact, should students cover in science? And we, in fact, in effect, on critical issues accept a kind of methodological naturalism.

By holding out for a naturalistic explanation, as the Majority's Standards suggest that we ought to do or presuppose that we ought to do, design explanations and ideological explanations of nature are ruled out of bounds a priori. Let me put it this way. If there is a God, and God created

nature, there must be design somehow or another in the world. That is, given most conceptions of God, God is good, and God would create, God did create, God would create nature to fulfill God's purposes. There must be design inherent in nature.

Methodological naturalism does not, as Professor Menuge said, allow us to find any of that evidence for design. It rules design out a priori. It perverts science from being an empirical discipline to a dogmatic discipline, one which is passed on to other scientists and other students really as a matter of faith.

Now, this isn't totally unreasonable. Naturalistic science has worked quite well in a lot of regards. It's not surprising that scientists have a fair amount of faith that it will continue to work well in the future. But by excluding design explanations and ideological explanations, it asserts a priori that it will continue to work well, and that really is a matter of a kind of faith. That is a trust that what has worked well in the past will continue to work well. Now, of course, some people would say it hasn't worked all that

well in the past.

We can distinguish between methodological naturalism and a philosophical naturalism and overt atheism. The problem is that that distinction, in effect, collapses, given the way that we teach science. It's true that the Majority Report makes no reference to methodological naturalism, but I don't think that makes any difference to the points that I'm making and Professor Menuge made this morning. First of all, the response that Mr. DeHart made yesterday. The-- well, let me back up just a moment.

The counsel for the Majority has pointed out to a number of witnesses that the Majority Report has a statement in it that science students will understand that there are many issues which involve morals, ethics, values, or spiritual beliefs that go beyond what science can explain but for which solid, scientific literacy is useful. Presumably, the argument is that because the Majority Report makes that

statement, it doesn't advocate methodological naturalism. I don't find that a convincing argument.

First of all, as Mr. DeHart said yesterday, the fact that discrimination was viewed as wrong as the result of the Civil Rights Act of 1964 doesn't mean that discrimination doesn't go on. The fact that the Declaration of Independence says all men were created equal doesn't mean that we treat all people equally. The fact that there's a single statement like that in the Majority Report doesn't mean that everything else in the report doesn't undercut that particular statement. So that's one problem with it.

The second problem with it is that many intellectuals in the 20th Century-- and I suspect a whole lot of other folk-- have accepted that view, said yes, science can't tell us anything about morals, ethics, values, or spiritual beliefs, but what science can do is tell us everything about the world, about nature, and about reality. And what was the response to that? The response to that is therefore, morality and values and ethics don't have anything to do with the world. They're things that we make up.

So one way of reading the statement is to suggest that, yes, it's true, science can't account for morality and ethics, but since science can account for everything in the world presumably-- there's no critical suggestion that it can't-- in nature, that means that morality and values can't be grounded in nature or grounded in reality. So it can lead to a view which is very deceptive of most moral and religious beliefs.

And then finally, as I said, unless students-- unless a lot is done to make students aware of the difference between methodological and philosophical naturalism or atheism, a single statement like that just isn't going to make much difference. And again, Professor Menuge talked about that a great deal this morning. The inevitable idea that they will acquire from their studies is that science can explain everything about the natural world. And as he also pointed out, it's somewhat more dangerous and pernicious when that assumption is not made explicit but simply becomes part of the background understanding that people acquire unconsciously without being able to think critically about

it.

And then maybe one other argument, too, is that even if that statement is in the Majority Report, still, teachers use the standard textbooks and curricula, where that distinction is completely lost sight of, and that has to be assumed, that the context within

8 which biology or the life sciences will be
9 taught is one in which a kind of purposeless
10 Neo-Darwinism is the assumed way of thinking
11 about the world.

12 One other comment about the Majority
13 Report. I must say that John Calvert misled me
14 about one thing, and that is when I did read
15 the Majority Report, I discovered that it was
16 rather worse than he had led me to believe.
17 It's worth noting that the Majority Report
18 leaves out mention of all those aspects of
19 scientific understanding of nature which are
20 deeply problematic and which are incredibility
21 important to our understanding of the
22 significance of science.

23 So for example, even though the Big Bang
24 isn't mentioned by name, there's certainly
25 reference to the Big Bang, but there's no

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1 mention to the problem of the origins of the
2 Big Bang. There is a fierce debate raging
3 about whether or not there's fine tuning in the
4 aftermath of the Big Bang, and many
5 cosmologists, philosophers, and some
6 theologians have come to believe there is fine
7 tuning, that the Big Bang was set up in a
8 certain way in order to lead to life. This is
9 an incredibly important argument. There's no
10 mention of that.

11 There's no mention of the origins of life
12 or the ability of science to currently account
13 for them. There's no mention of possible
14 alternatives-- granted, when you think
15 critically, but-- to Design theory or any
16 alternative explanation for evolution, there's
17 no mention of the huge problems of how
18 consciousness comes to be. This is a problem
19 which has concerned many philosophers, which is
20 completely unresolved, and all the many
21 philosophers have come to believe that science
22 simply can't account for consciousness or
23 rationality, which Professor Menuge touched
24 upon this morning.

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1 Moreover, even though there's a standard
2 devoted to, could be, the personal
3 perspectives, certainly the most important
4 personal perspective for most people with
5 regard to science is its implication regarding
6 religious beliefs. There's no mention of that.
7 Certainly, the most important, culturally,
8 implication of science is its relationship to
9 religion and morality. This is a debate that's
10 been going on ever since the origins of modern
11 science in the 16th and 17th Centuries. That's
12 the most important thing to understand about
13 the history of science. There's no mention of
14 that.

15 There is one reference to the idea that
16 technology poses risks instead of benefits, but
17 it doesn't raise the huge problem that we have
18 in our culture and our society today of
technological thinking. Part of what gets us

19 in so many problems today is we inevitably
20 think technologically about the world rather
21 than morally or spiritually. No reference to
22 that.

23 Oh, gosh. I've got a few more things I
24 could say, but maybe, John, this is a place to
25 stop and let you ask me any questions you want

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1 to. I do want to say something about
2 Intelligent Design theory, but you might want
3 to ask me about that.

4 Q. Well, one thing. Would you just again express
5 your view as to the extent to which, in
6 practice and effect, methodological naturalism
7 crashes into a philosophical naturalistic view?

8 A. Well, I think Professor Menuge stated it
9 beautifully this morning. It limits a priori,
10 it limits as a matter of definition the kind of
11 evidence that's available to students or indeed
12 to other scientists that kind of get trapped
13 into the Darwinian paradigm. And when that's
14 the case, they aren't in a position in which
15 they can critically assess the accepted theory.
16 It's no different from saying if we only taught
17 students what Republicans believe about the
18 world, how in the world could they think
19 seriously about Democrats or whether or not
20 Democrats should be taken seriously?

21 On ideological economic theory or
22 anything else, if you only have one view
23 available to you, that view then becomes passed
24 on more or less as a matter of uncritical faith
25 and trust that at some point in the past, it

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1 was able to handle these kinds of problems, but
2 who knows, because we aren't introduced to the
3 problems. And so by failing to take seriously
4 the idea that there are alternatives, the
5 conventional wisdom becomes maintained as a
6 matter of authority and faith rather than
7 critical reason from a liberal education.

8 Q. Would you comment a bit about your views on the
9 Standard on page 4-- well, first of all, I
10 assume, based on what you say-- well, first I
11 want to move to this provision that according
12 to many scientists, core claims that
13 evolutionary theory is apparent is not a
14 brilliant system to believe, and other
15 scientists disagree. These standards neither
16 mandate nor prohibit teaching of this
17 scientific disagreement. Do you agree-- what
18 are your comments about that statement?

19 A. I believe, actually, that something stronger is
20 required ideally. That is to say, I think as a
21 part of a liberal education and, indeed, a part
22 of sorting out what is reasonable to believe
23 within science, students need to be introduced
24 to these kind of boundary questions about
25 what's really science, the controversy about

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1 whether it's really science, and then given
2 whatever significant alternative theories there
3 are for making sense of whatever evidence is

4 available.

5 Leaving it-- making it a matter of
6 permission is probably all right now, in part
7 because many teachers aren't prepared to do
8 this. But the ideal towards which we should be
9 working is a more liberal conception of making
10 sense of science, one that fits better within
11 the liberal education model that I suggested,
12 and so that I think in the long run, if we take
13 this ideal seriously at some point, given--
14 when resources become available and teachers
15 are properly educated to deal with these kinds
16 of questions, it should be required that
17 students learn something about Intelligent
18 Design theory, which is, after all-- I mean,
19 this is not-- sometimes this is portrayed as
20 just a minor skirmish on the borders of
21 science, but it isn't. Again, that's because
22 we're thinking basically in terms of
23 traditional science education rather than in
24 terms of liberal education.

25 This is simply the latest variation on a

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1 huge intellectual battle that has gone on, goes
2 all the way back to Greek philosophy and to the
3 Bible, about how we make sense of nature.
4 Students need to be initiated into that
5 discussion. That's a somewhat broader
6 discussion, but that's the proper context for
7 understanding why Intelligent Design theory is
8 important now, not just as an alternative to
9 Neo-Darwinian evolution, but as part of a
10 longer and tremendously important story,
11 narrative, in western civilization about how we
12 make sense of nature.

13 Q. Do you believe that discussion of Intelligent
14 Design should be accomplished within the
15 context of the biology science classroom?

16 A. Yes. Where one handles other kinds of
17 religious claims is tricky business. Simply
18 the title of my second book, "Taking Religion
19 Seriously Across the Curriculum," suggests that
20 religion should be taken seriously in most all
21 disciplines. I used to say except mathematics
22 and driver's education, but the Amish let me
23 know that driver's education is religiously
24 very important. And, actually, a case can be
25 made for mathematics because the philosophy--

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1 well, I'm not going to get into that.

2 Sure, it should be done in science
3 courses because that's where-- I mean, you
4 can't relegate it to a history teacher. What
5 in the world does a history teacher know about
6 the relationship of Intelligent Design theory
7 to Neo-Darwinian biology? So it's got to be in
8 science courses. It doesn't have to be
9 approached as an equal competitor, but it has
10 to be included in the discussion. Students
11 need to be made aware of the fact that there
12 are alternative conceptions, alternative
13 theories for making sense of the evidence that
14 are out there and available.

15 Q. Would you agree with me that in order to
16 discuss Design theory, and upon any scientific
17 basis, that would require the disciplines of
18 science, biology, paleontology, geology, even
19 to some extent statistics and mathematics? And
20 the question that's always troubled me about
21 the idea of putting Intelligent Design in a
22 different forum such as a class in religion and
23 philosophy, there are two concerns. One is
24 that you bifurcate the discussion, and there's
25 no guarantee that the audience that hears one

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1 will be the audience that hears the other. And
2 the second problem is that, you know, how can a
3 theologian or a philosopher or a sociologist
4 have the expertise necessary to, in any
5 rational way, explain the criticism for and
6 against that?

7 A. I agree with you entirely. There is one fairly
8 easy way of doing it, and that is textbooks.
9 Most science textbooks include a perfunctory
10 chapter on scientific method but hardly ever
11 deal with the relationship of science and
12 religion unless it does in the crassest and
13 most simple minded ways. Those chapters could
14 be well written to raise all kinds of-- well,
15 not all kinds of-- but several important
16 philosophical questions about-- demarkation
17 questions about the relationship of science to
18 other disciplines and controversies that are
19 going on. That could be done easily, but it
20 isn't because, of course, the scientific
21 establishment won't allow it. The science
22 establishment insists on humanism religion.
23 Oh, that reminds me. Can I say something about
24 liberals?

25 Q. Sure.

0031

1 A. Liberals and this whole question. All right.
2 Let me tell you off the bat I'm a liberal.
3 Politically I'm a liberal, theologically I'm a
4 liberal, I'm a liberal in every sense. Some
5 people would say worse than that.
6 One of the things that really disappoints
7 me is how this issue has gotten framed in terms
8 of conservatives and liberals. The position
9 I'm arguing for, interestingly, is the more
10 liberal position. Science is notably
11 illiberal, the scientific establishment and
12 science courses. The idea of liberalism is
13 including everybody in the discussion. And
14 that's what we went to with women and blacks
15 and various ethnic groups. You include them in
16 the discussion. We left them out, we've been
17 illiberal, and now we've come to see through
18 multiculturalism and all other kinds of
19 movements within education over the last
20 several decades that that was wrong. It was
21 wrong. It's tremendously important to include
22 them in the curricular discussion. That's the
23 liberal position, not the conservative
24 position.

The liberal position with regard to

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1 science education should be inclusivity,
2 including more people into the argument. Why
3 aren't they? Why aren't good liberals saying
4 yes, let's take Intelligent Design seriously?
5 Part of it is naivete. Part of it is a kind of
6 principle commitment. So it's naivete about
7 education. I mean, most scientists just don't
8 think about these questions, I think. Instead,
9 they have a kind of principle adherence to a
10 philosophical naturalism and not thinking
11 really about the differences between
12 methodological and philosophical.

13 Part of it is simply fear. It's the fear
14 that the religious right is going to get its
15 big foot in that door and all kinds of trouble
16 is going to come. That's not a very principled
17 argument. The principled position is making--
18 drawing the circle more widely, including more
19 people in. This is finding common ground, and
20 this is what we have to do if we're actually
21 going to save public education. It's giving
22 everybody a place at the table, giving
23 everybody a voice in the discussion.

24 One of the things that's amazing to me is
25 how the scientific establishment hasn't

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1 realized yet that its policy doesn't work.
2 That is to say, you know, the Gallup polls show
3 that only nine percent in the last one I saw
4 believed in what comes closest to being
5 Neo-Darwinian evolution. Science education
6 isn't working to make the point of view of the
7 scientific establishment. People are deeply
8 suspicious of science, people are deeply
9 resentful of science because they feel their
10 points of view aren't taken seriously. I
11 actually think that if the conversation were
12 broadened to be a reasonable discussion, people
13 might actually take the idea of Darwinian
14 evolution a little bit more seriously, although
15 since I myself do believe more for
16 philosophical reasons, I guess I would say,
17 than because of the Intelligent Design
18 movement, I think that Neo-Darwinian
19 explanations of the world are inadequate.

20 Oh, and maybe-- since I suspect my time
21 is almost up-- let me say one other thing.
22 That is I know that the counsel for the
23 Majority Report is going to ask me several
24 questions in a few moments, and since he will
25 not give me the opportunity to explain myself,

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1 I will do that right now. For the record, I
2 believe the world is 4.5 billion years old,
3 give or take a few hundred million.

4 Secondly, descent from a common ancestor,
5 the question here is: What does descent from
6 mean? If that means that neo-- if
7 Neo-Darwinian mechanisms are adequate, fully
8 adequate for the explanation, I don't believe
9 that. But if design or theological
10 explanations are allowed to account for

11 explaining at least part of what happens in
12 evolution, then I accept that. And the same
13 regarding our descent from prehomid
14 ancestors. Yes, of course, I think that's
15 true, but I think it's true only in the sense
16 that I think we need to appeal to ideological
17 explanations because Neo-Darwinian explanations
18 aren't adequate to account for all of that
19 evolutionary development. All right. Well--
20 Q. I have one other thing that we wanted to get
21 into, and that is the definition of science and
22 what is your comment on-- I don't have much
23 left.

24 A. I was wary of doing this. One of the things
25 that convinced me to do it was that Mr. Calvert

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1 told me I didn't have to agree with him about
2 everything, I could simply say what I thought,
3 which is what I have done. And one of the
4 places I disagree-- I suppose not greatly, but
5 some-- is with regard to the definition of
6 science. That is to say, my view is that
7 rather than have any definition of science, it
8 would be better for the Standards to say the
9 definition of science is controversial. I
10 would be inclined to say let's let scientists
11 decide how to define science, but part of the
12 problem is scientists disagree. There's
13 certainly a majority group and a minority
14 group, but there's a significant disagreement
15 about how to define science.

16 So it seems to me what's important is to
17 at least initiate the controversy, and this is
18 what a liberal education requires. Let's let
19 students know that the definition of science is
20 controversial for the following reasons, here
21 are the different positions people take, rather
22 than insisting on a particular correct
23 definition of science.

24 MS. POSNY: Two minutes.

25 A. (Continued) If one has to pick between the

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1 Majority report view and the Minority Report
2 view, I certainly favor the Minority Report
3 view.

4 MR. CALVERT: Thank you very much,
5 Dr. Nord. Mr. Irigonegaray, your witness.

6 DR. ABRAMS: Mr. Irigonegaray, it's
7 19 minutes.

8 CROSS-EXAMINATION

9 BY MR. IRIGONEGARAY:

10 Q. I want to make sure, sir, that I understood
11 your suggestions for a liberal education. Do I
12 understand you to suggest that in order for
13 science to truly be taught liberally, that it
14 must include religion in its teaching?

15 A. The question is what you mean by "include." On
16 one meaning yes, on another meaning no.
17 Science texts, like texts in economics or
18 history or any other discipline, should locate
19 students within an ongoing interdisciplinary
20 discussion about how we make sense of the
21 world. There should be an introductory text--

chapter in textbooks which locates modern science within this kind of broad cultural conversation that's historical, that should introduce them to something of the history of

science.

The National Science Standards and Kansas Standards all have a history standard in it, but that history is not really taken, I think, very seriously, certainly not taken seriously in any kind of organized or systematic way. So that should be part of it. What is the history of science? How did science come to be what it is, and how does it relate to other ways of making sense of the world, and what other contributions--

Q. Excuse me, sir. I was just asking for a yes-or-no answer, since I only have 19 minutes, and all I wanted to know was a yes-or-no answer.

A. I think that's impossible because it depends on what you mean by "include."

Q. Then just tell me that. I understand you to say that you believe Intelligent Design is a-- or will be a valid hypothesis some day to be taught in colleges and university science curriculums.

A. No. I will explain.

Q. Would you be so kind, sir, as to tell me whether or not it is your opinion that the

Standards in Kansas, particularly as they're reflected in draft two, include the following: There are many issues which involve morals, ethics, values, or spiritual beliefs that go beyond what science can explain, but for which solid scientific literacy is useful. That is included in the Standards, is it not?

A. Yes.

Q. And it is your opinion that that does not go far enough.

A. Yes.

Q. Do the terms "Neo-Darwinism" or "Darwinism" appear in the Standards?

A. I don't believe so.

Q. Does the term "methodological naturalism" appear in the Standards?

A. I don't believe so.

Q. Draft two also does not mention either "guided" or "unguided." Correct?

A. Correct.

Q. Do you believe it is appropriate-- strike that, please. Are you familiar with Mr. Paul Nelson?

A. I have a vague understanding of who he is, yes.

Q. Would you tell me if you would agree or disagree with this statement? "Intelligent

Design proponents offer nothing to the scientific community upon which a scientific program can be developed. They don't even have clearly defined definitions of critical terms that can be understood and applied by others. For example, they have provided no objective

7 basis upon which others can apply concepts such
8 as irreducible complexity or specific
9 complexity. They focus on critiques of
10 evolutionary theory that either attack straw
11 man views of evolution, misrepresent current
12 science, or are simply based on flawed
13 reasoning. They also point to areas of
14 frontier science in which the scientific
15 community is yet to reach a consensus. None of
16 this constitutes any challenge to the
17 predictive and explanatory power of
18 evolutionary theory. With regard to
19 Intelligent Design, there is simply no theory
20 or anything approaching it. It is not used in
21 scientific research, even by its primary
22 proponents. All Intelligent Design is, is a
23 series of failed and rejected criticisms of
24 evolutionary theory. Easily the biggest
25 challenge facing the Intelligent Design

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1 community is to develop a full-fledged theory
2 of biological design. We don't have such a
3 theory right now, and that's the real problem.
4 Without a theory, it is very hard to know where
5 to direct your research focus. Right now,
6 we've got a big, powerful -- we have a big bag
7 of powerful intuitions and a handful of notions
8 such as irreducible complexity and specified
9 complexity, but as yet no general theory of
10 biological design." Do you agree or disagree
11 with that statement?

12 A. No. If someone had read that statement to
13 Copernicus, we never would have gotten to
14 geocentric-- or to etiocentric view of the
15 world.

16 Q. And if Copernicus would have been held back by
17 the then dogmatic view of those that controlled
18 the faith, we would still believe the earth was
19 the center of the universe, wouldn't we, sir?

20 A. My point was that even the kind of science that
21 Copernicus used had to start somewhere, and one
22 could have very well said, using the
23 conventional wisdom of Copernicus' day, "Hey,
24 there's no research program here. This isn't
25 anything worth taking seriously." Every effort

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1 to develop some kind of science has to start
2 somewhere.

3 Q. Is it also your opinion, sir, that
4 intelligent-- strike that. Is it also your
5 opinion, sir, that it is important to have
6 religion taught in economics?

7 A. Oh, for sure.

8 Q. Mathematics?

9 A. That's a harder case, but you can actually make
10 a case for that. I'll be happy to do it if you
11 like.

12 Q. Are you familiar with the Clergy Letter
13 Project?

14 A. No.

15 Q. I have in my hand an open letter concerning
16 religion and science which, as of May 3rd,
17 2005, had 3,352 signatures collected to date,

and it reads as follows: "Within the community of Christian believers, there are areas of dispute and disagreement, including the proper way to interpret Holy Scripture. While virtually all Christians take the Bible seriously and hold it to be authoritative in matters of faith and practice, the overwhelming majority do not read the Bible literally as

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they would a science textbook. Many of the beloved stories found in the Bible, the creation, Adam and Eve, Noah and the ark, convey timeless truths about God, human beings, and the proper relationship between Creator and creation, expressed in the only capable truth of transmitting these truths from generation to generation. Religious truth is of a different order from scientific truth. Its purpose is not to convey information, but to transform hearts. We, the undersigned Christian clergy from many different traditions, believe that the timeless truths of the Bible and the discoveries of modern science may comfortably coexist. We believe that the theory of evolution is a fundamental scientific truth, one that has stood up to rigorous scrutiny, and upon which much of human knowledge and achievement rests. To reject this truth is to treat it as one theory among others. It's to deliberately embrace scientific ignorance and transmit such ignorance to our children. We believe that among God's good gifts are human minds capable of critical thought and that the failure to fully employ this gift is a

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rejection of the will of our Creator. To argue that God's loving plan of salvation for humanity precludes the full employment of the God given faculty of reason is to attempt to limit God, an act of hubris. We urge school board members to preserve the integrity of science curriculum by affirming the teaching of the theory of evolution as a core component of human knowledge. We ask that science remain science and that religion remain religion, two very different but complementary forms of truth." Do you disagree with that?

A. I agree with some of it and disagree with some of it. I would be happy to comment on it.

Q. In human history, can you think of any particular aspect where the combining of-- or excuse me-- the combination of faith with science has created detrimental problems for humanity?

A. Innumerable times.

Q. And do you think that perhaps the one lesson that history has taught us is that it is important to keep science neutral so that no individual faith in any particular nation determines what is or is not appropriate

0044

science?

A. Absolutely not.

3 Q. Do you believe, therefore, that it is the
4 Christian faith that should determine what
5 specific Intelligent Design might have been
6 involved in the universe?

7 A. Absolutely not.

8 Q. So you would not limit it just to the Christian
9 faith?

10 A. Of course not. Of course not. My whole
11 comments were that education has to be neutral
12 among the religions as well as between religion
13 and non religion, that it should be liberal,
14 including all the major ways in which humankind
15 has developed to understand the world, and that
16 it should politically just in the sense of not
17 disenfranchising huge numbers of American
18 citizens. And that is not exclusive, that is
19 inclusive. And, of course, evolution should be
20 taught. Of course, it should be taught.
21 Neo-Darwinian evolution should be taught as the
22 dominant view of scientists, but it shouldn't
23 be the only view. That leads to all kinds of
24 problems simply with regard to whether or not
25 students are in a position to assess whether

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1 Neo-Darwinism is a reasonable position.

2 Q. Are you familiar with the National Science
3 Teachers Association?

4 A. I know what they are.

5 Q. What they are?

6 A. Yes. I know what it is. I don't know what
7 you're asking what I should be familiar with.

8 Q. Do you disagree with their concept of keeping
9 science neutral, or is it your opinion that
10 because science involves itself with the study
11 of natural phenomena, that that in essence
12 makes science a religion?

13 A. No. Science-- again, Professor Menuge did a
14 marvelous job of explaining that Neo-Darwinism
15 isn't the same thing as atheism. Of course, it
16 isn't, because one can believe that there are
17 other things going on in the world. But when
18 you teach only Neo-Darwinism, the inevitable
19 conclusion to draw is that doesn't explain
20 everything. Design theory does not require
21 God-- or a Christian God--

22 Q. Kansas doesn't teach Neo-Darwinism. What are
23 you talking about?

24 A. Certainly--

25 Q. Kansas does not teach it.

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1 A. Of course, the Majority Report-- unless the
2 Majority Report specifically says, "We don't
3 mean to teach Neo-Darwinism," the inevitable
4 conclusion of any reasonable human being is
5 that you teach the dominant view of scientists,
6 the one written into all the textbooks, the
7 National Science Standards, and all the other
8 documents, and that's Neo-Darwinism.

9 Q. And could it be perhaps that the reason that
10 all major national and international science
11 organizations believe in the theory of
12 evolution is because the overwhelming majority
13 of all scientific research suggests that it is

14 the truth?

15 A. No.

16 MR. IRI GONEGARAY: No further
17 questions.

18 EXAMINATION

19 BY DR. ABRAMS:

20 Q. Dr. Nord.

21 A. Yes.

22 Q. When you talk about religious groups, I would
23 like to go back and explore that just a little
24 bit more. There's obviously all forms of
25 religion, there's theistic religion, Christian,

0047

1 Jewish, and Muslim, as well as non theistic
2 religions. How would you-- what are you saying
3 when you say, "incorporate religious groups
4 into," how you were defining that?

5 A. There are problems. The problems stem from the
6 fact that there are many, many different
7 religious groups and religious traditions. So
8 the question is: What in the world can it mean
9 to be constitutionally neutral among them, or
10 if liberal education requires kind of
11 inclusivity of points of view, how many points
12 of view do you have to include?

13 That's, of course, the problem that
14 educators face all the time. Which points of
15 view get into the textbook? Which historical
16 events and movements? Generally, it's done in
17 terms of influence. What are the influential
18 views? So there has to be a kind of winnowing
19 process whereby we decide how many points of
20 view can we take seriously, and the more points
21 of view we take seriously, the less time we
22 have devoted to them, so the more superficial
23 the understanding of the students will be, and
24 we try and find some kind of a happy medium.
25 So that we say in the study of economics, or in

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1 the study of history, or in the study of
2 whatever field, we certainly need to introduce
3 students to the ways in which various, several
4 important religious traditions have understood
5 what's at issue.

6 I'm not saying that every course--
7 economics, science, history, whatever-- should
8 become a course in theology or moral theology
9 and philosophy. All I'm saying is that within
10 each of those courses there must be a kind of
11 introduction in which that-- the discipline,
12 the conventional wisdom of that field, is put
13 into a larger context and related to the
14 various philosophical and religious concerns
15 and questions. And maybe at certain key points
16 of deep controversy, such as evolution, or the
17 Big Bang, or relationships of the First World
18 to the Third World, or poverty, then these
19 kinds of moral and religious questions and
20 concerns should resurface in the text, and it
21 should be pointed out to students that what
22 they're learning is deeply controversial.

23 Q. I'm just trying to clarify this. I don't mean
24 to belabor the point.

25 A. Yeah.

0049

1 Q. But are you suggesting that, for instance, with
2 the concept of origins--

3 A. Mm-hmm.

4 Q. -- that the idea of the Christian origins and
5 Jewish origins and Muslim and Wiccan and Native
6 American and so forth would be briefly
7 described?

8 A. Yes.

9 Q. Is that what you're suggesting?

10 A. Yes. I think an introductory textbook that
11 deals with the Big Bang, for example,
12 cosmological evolution, or biological
13 evolution, there should be an introductory
14 chapter in which modern scientific views are
15 put into the context of this old historical and
16 ongoing historical discussion about Design in
17 nature and about the relationship of God in
18 nature so that students see that what they're
19 learning is part of this larger, ongoing
20 historical and philosophical conversation that
21 has been so tremendously important in western
22 civilization-- in eastern civilization, too, in
23 somewhat different ways.

24 It's not to convert the science course or
25 the economics course into a course in moral

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1 theology, but to show them that there are
2 alternative ways of making sense of the subject
3 matter and locate them in that discussion so
4 that bridges are built, so that education
5 becomes a conversation rather than, as I said,
6 a serial socialization being more or less
7 indoctrinated into one view in economics
8 courses, one view in science courses, another
9 view in history courses, and so on.

10 Q. Would that make it exceptionally difficult for
11 the teacher?

12 A. It would make it-- definitely, it would make it
13 very difficult for the teacher, and there needs
14 to be much consciousness, there needs to be
15 much better resources. Teacher education is
16 utterly tone deaf to this problem, and so there
17 needs to be much improvement in teacher
18 education. A tremendous amount needs to be
19 done, but let's be clear about what the ideal
20 is and what we should be looking for.

21 Q. To switch topics just momentarily. Excuse me.
22 You defined a liberal education as something
23 that is exploring all viewpoints of a
24 particular topic. Is that how--

25 A. Well, let's say all major viewpoints on the

0051

1 most important issues, because there's only so
2 much you can do.

3 Q. Okay. How?

4 A. A liberal education--

5 Q. Explain that.

6 A. -- is usually viewed as the opposite of a
7 narrow or a parochial education. That's an
8 education you simply get kids to think in one
9 way about the world. A liberal education--

"liberal" comes from "liberty"-- is a long tradition of the idea that students should be introduced to various ways of thinking about the world. We take that so far as to say they should be introduced to various disciplines, but we don't include religious or philosophical education among those disciplines in public schools, and we make no effort to relate the disciplines to each other to see where they complement each other, where they conflict with each other, what the tensions are. That leaves them uneducated.

Q. I have been-- my impression, my understanding of what a liberal education was, was something that had a broad range of topics, the arts as well as the academic reading, writing, so

forth, as well as physical education, mental education, fine arts. Is that just the tip of it, as I understand you're saying?

A. Yes. I think that's the most common view. Let's introduce students to a number of subjects. The problem is subjects can be interpreted in various ways. We don't introduce them to subjects nearly so much as we introduce them to disciplines, particular ways of making sense of the world. The National Counsel for Economic Education, which wrote the National Economic Standards, said students should only learn to think of economics in terms of neoclassical economic theory, even though hardly anybody except economists think that way. That's a deeply illiberal kind of education. So saying students need to study economics to be liberally educated, but then saying all they need to understand is neoclassical economic theory, is to undercut the whole idea that liberal education should be introducing the various ways of interpreting each of the subjects that we deal with.

Q. You said earlier that it should be free of constraints in a specific discipline. Would

you talk about that?

A. I don't know what I might have meant if I said that, free of constraints.

Q. That's what I was trying to-- I didn't fully understand when you were talking--

A. No. I think the curricular conversation should to some considerable extent mirror the larger cultural conversation. That is to say, the purpose of a liberal education isn't simply to initiate students into the way Ph.D. economists understand the world or Ph.D. scientists understand the world. It should be to initiate them into a larger cultural conversation. A lot of the voices in our cultural conversation are left out of the curricular conversation. That leaves students unable to understand the culture they graduate into. So to a considerably greater extent than we now do, the curricular--

MS. POSNY: Two minutes.

- 21 A. (Continued) -- conversation should make
22 students aware of and understand the larger
23 cultural conversation and not be so narrowly
24 disciplinarily focused.

25 DR. ABRAMS: Thank you, Dr. Nord.

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1 DR. NORD: Thank you.

2 DR. ABRAMS: Mr. Calvert.

3 MR. CALVERT: I'd like to introduce
4 to the Committee my next witness, Mustafa
5 Akyol. Mr. Akyol is a columnist in a Turkish
6 daily newspaper, freelance writer in the U.S.
7 media, and Director of International Relations
8 at the Intercultural Dialog Platform,
9 headquartered in Istanbul, Turkey. Mr. Akyol,
10 thank you very much for coming so far to
11 testify today.

12 MUSTAFA AKYOL,
13 called as a witness on behalf of the Minority,
14 testified as follows:

15 DIRECT EXAMINATION

16 BY MR. CALVERT:

- 17 Q. And I would-- could you give us a little bit on
18 your background?

- 19 A. Thanks for having me here in Kansas, and I will
20 deeply appreciate the State of Kansas for
21 inviting me to give this testimony, which I
22 hope will be a contribution to this very
23 important debate here.

24 As you said, I'm a writer. I'm a
25 political science graduate from the Bosphorus

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1 University, which is an American University in
2 Istanbul. I had my master's in the history
3 department there, but since 1997 I have been
4 working as an independent writer or columnist
5 in the press.

6 I have been also working with some Muslim
7 organizations who are interested in the debate
8 between Intelligent Design and Darwinism, and
9 that's why I had-- I read the literature-- the
10 literature of the debates totally, and I have a
11 great understanding of this, so I'm here. In
12 all the years I attended debates on national
13 TV, I have given seminars in many universities
14 in the United Kingdom, in Turkey, about these
15 issues, and I believe Intelligent Design theory
16 is a scientifically valid understanding of
17 origins.

18 When I was informed about the debate, I
19 just read the Minority Report, and I also took
20 a look at the Majority Report which was
21 available on the web site, and I think I
22 completely agree with the Minority Report that
23 you have presented.

- 24 Q. Could you talk a little bit about your
25 involvement in the Intelligent Design issue?

0056

1 Go into that a little bit more in depth.

- 2 A. Okay. Well, actually, to go into it, maybe I
3 could give a few more personal background too.
4 When I was a child, I loved watching
5 documentaries in Turkish TV about nature, about

6 animals, about plants. And actually, these
7 were American or European made films which
8 involved education, and I loved watching them.
9 And I had a great grandfather that I loved, and
10 he was a pious Muslim, and he said to me one
11 day, "Well, watch these films. They're good,
12 they're beautiful, but be careful. These films
13 always talk about the wonders of nature. They
14 never talk about who made those wonders. They
15 never talk about the Creator of nature." So
16 that was a message that I found important.

17 And my grandfather-- they don't like--
18 and I asked my grandfather, "Why don't they
19 talk about the Creator of those wonders in
20 nature?" And he said, "Well, the westerners
21 are people who are blind to the reality that
22 there is a God. They are completely
23 materialistic related to issues like that. Be
24 careful about it." And I was-- I said, "Here's
25 a point that I should be careful about."

0057

1 But later on in the 1970's, I just, you
2 know, by reading and writing and searching the
3 Internet, I discovered that there are some
4 people in the west, especially in the United
5 States, some scientists who don't have that
6 approach, who don't have that materialist bias
7 my grandfather told me about, but who are
8 objectively looking into nature, and they are
9 tracing the evidence of Design, which you
10 cannot see if you have a materialist bias.

11 So then I just-- at the same time I met
12 some-- an organization in Turkey, the Science
13 Research Foundation. They were interested in
14 these issues, and I joined them. And I never
15 became an executive or an official part of an
16 organization, but I just-- I gave-- I started
17 to-- at first I'd learned and written about
18 this, and I engaged in debates, and in 1990 we
19 started to give seminars in Turkey.

20 In one instance I remember that in a
21 Turkish university I was quoting Michael Beaky
22 (spelled phonetically) in one of these
23 speeches, and there were some very conservative
24 Muslims there. I was a Muslim, but they were
25 ultra conservative, I could say. One of them

0058

1 again asked, "Well, you quoted American
2 scientists. Why?" Well, I said-- and I said,
3 "Well, what is strange for you when you find it
4 here?" He said, "Well, aren't all of them
5 materialistic?" I said, "No. As you well see,
6 some of them are not." And I just sensed that
7 that started a change in his perception about
8 America. And actually, this is one of the
9 reasons I find very important to me why I'm
10 here.

11 Maybe I should explain that. I'm coming
12 from 6,000 miles away, and I live in Istanbul,
13 and why a debate on the science standards in
14 the state of Kansas is interesting for me.
15 Well, it's very interesting. It's very
16 important for me because I think this is an

17 issue which will have implications beyond
18 Kansas, beyond even the United States. It is--
19 it will have an impact in the minds of the
20 people, and it will create a sense of what
21 America is in the minds of people.

22 And I could say in recent years, I can
23 claim to be an expert on Islamic radicalism.
24 That's what I write especially in the United
25 States in the media, in Turkey. We know that

0059

1 view that we have is a problem, Islamic
2 radicalism. Why is there hatred of America and
3 the west in general in the Islamic world? And
4 it's because of many reasons, sociological
5 reasons it has about Muslim failure of Muslim
6 world in the 20th Century.

7 But one reason of the widespread
8 resentment is that Muslims think the west and,
9 of course, the United States is completely a
10 materialistic civilization. They think that
11 when they watch western films, when they read
12 western media, and when the kids take western
13 education, they think that they will be
14 poisoned by an ideology, materialism. That's
15 why they just don't like it. They just want to
16 get away from it. And at the very extreme, it
17 creates what we have, anti-American sentiment
18 among those populations. And I remember that,
19 for example.

20 But when people get a sense of the U.S.,
21 and where they see that it is not like that, it
22 is not completely materialistic, they might
23 think differently. And again, in my childhood,
24 I remember that one of the most popular TV
25 series in the 1980's was The Little House on

0060

1 the Prairie. Muslim culture with families all
2 loved it, and they said, "Oh, look at these
3 American values, and they're so noble values,"
4 and they just admired it. And now times have
5 changed. Now they see MTV, they see Hollywood,
6 and I mean that's, of course, materialism in a
7 cultural sense, in terms of hedonism and just
8 caring about profit and don't have any ethical
9 values.

10 But it also has a philosophical side, and
11 that philosophy, as we all know, is also called
12 naturalism, the idea that nature is all there
13 is. And when that idea, when that philosophy,
14 which has no scientific justification at all,
15 becomes the dominant force in science education
16 in the United States, what you have is that you
17 will have alienated people. You will-- for
18 example, Muslims. They will feel alienated.
19 They will think that there's a school system
20 which imposes on them, on their kids, a
21 philosophy which they don't believe, and which
22 they find to be poisonous, and which doesn't
23 have any scientific evidence at all. That's
24 the important point.

25 I mean, materialism could be very bad,

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1 but it could be scientifically true. Then you

2 should have to come through with it. You could
3 say, "Well, if it is a fact, maybe we can adopt
4 several of our beliefs." Well, that's not the
5 case. It doesn't have any scientific evidence.
6 I mean, you have listened to experts here in
7 the last few days. I mean, look at the old
8 fossil record, the Cambrian explosion, the
9 irreducible complexity in the cell. It is
10 clear that blind chance and natural law cannot
11 create complexity of life. It's very evident.
12 And this-- while it's evident, if you insist
13 that, no, we will never, ever allow anything
14 besides this in our textbooks, in our culture,
15 in our country, then people will think that,
16 oh, this is a nation under materialism.

17 Now, what I-- I mean, and I also-- I
18 should say that it's not-- I'm not just the
19 only Muslim here thinking like this. We have
20 two guests. I have my two friends. Can you
21 please show your hands? These, my friends, are
22 living in Kansas state, in Kansas area.
23 They're here to support the Minority Report
24 today. And there are many Muslims out there
25 who think like them. And as I said, this is

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1 not just about Kansas. This is about the
2 whole-- this is about the whole civilization
3 issue. And I think-- I don't mean that science
4 education should be changed in order to change
5 the hearts of-- in order to win the hearts and
6 minds of Muslims. No. It should be saved from
7 bias. It should be saved from dogmatic
8 materialism. It should be just objective.

9 I mean, there were Muslim theocracies in
10 the world which wouldn't let any materialistic
11 theory. For example, in Iran, in Tel Aviv, you
12 can't probably learn about Darwinian evolution,
13 and I find that terribly wrong. What is true,
14 what is needed is just a science education
15 which doesn't try to indoctrinate kids,
16 children, with any philosophy. That's good,
17 that's necessary for science education, and
18 it's also necessary for just getting rid of
19 some stereotypes, getting-- some misconceptions
20 about the United States.

21 Q. Mr. Akyol, are you familiar with the way
22 evolution is taught in Turkey? And as I
23 understand it, Turkey is a secular Islamic
24 country. Is that correct?

25 A. Yeah. It's a secular republic. I mean, most

0063

1 of the people in Turkey are Muslims, but the
2 state has no-- doesn't have any Islamic
3 identity. It's completely secular.

4 Q. And how does the Turkish school -- public
5 schools teach origin science?

6 A. They don't have as much focus as you would have
7 here, as you could find in the Kansas summits,
8 but there is a fair approach. The school
9 curriculum talks about the theory of evolution,
10 Darwinism, methodological materialism, and it
11 says it will present other views of life
12 scientists that life is designed. So there's,

you could say, a fair approach.

Q. Do they teach criticisms of evolution and essentially teach both sides of the evolution controversy?

A. You can say that. I mean, since they acknowledge that there's another theory held by some scientists and according to some scientific evidence, and there's also mentioning of the abrupt appearance of some species and lack of transition forms between different taxa, they mention that. I mean, there's a more-- I could say that there's more emphasis on Darwinism, but it's also saying

that there's an alternative understanding and it has scientific evidence, and they also mention that scientific evidence as well.

Q. Do you think the Minority Report would-- how do you characterize the Minority Report in the context that you're seeking an objective approach?

A. I would describe the Minority Report as a very sophisticated, intelligent attempt to save the education standards from materialist indoctrination and to give a fair and objective understanding of science.

Q. Thank you. Is there anything else you would like to mention?

A. Well, yeah, a few points. Maybe a few preemptive answers to the enemy counsel. While the belief in the scientific establishment, I mean, counsel just-- Mr. Counsel just said that major scientific organizations in the United States accept the Neo-Darwinian theory and just the emphasize is that. That's a fact. But what we should care about is not the opinions of scientists, but the scientific evidence on the ground, because scientists, yes, sometimes become misled.

If you were just a century ago-- living a century ago, you would find that most of the major established scientific institutions, most prestigious scientists, would be believing that some races are inferior. Racism was very much popular at the turn of the century. And also you can find eugenics was preached among scientists. So scientific opinion might be shifted because scientists are people, scientists are humans, and they're affected by the cultural trends in society, so they might go along. And what we have had to do is just to follow the evidence, not what necessarily a group of scientists claim.

And also there's the fact that we have scientists who criticize Darwinian evolution too. I mean, do we have to just close our eyes to their arguments, to their books, to their sophisticated arguments, their compelling evidence? It's true that there's scientific controversy, and the controversy should be taught, otherwise, I would say it would be bad for the education standards of Kansas.

But besides that, it could bad for-- it
could be bad for the understanding between

people, especially of the Islamic world and the
United States. I assure you, your debate here
will be on the news in Turkey in a few days
when you have a decision. It will be all in
the news in Turkey, in the Arab world, in many
countries. People are following this, watching
this very closely, and they know that the
people who argue for the Minority Report here
are not saying, "Well, we are against evolution
because it is our-- it is against our beliefs."
No. They know that there's scientific evidence
for it. It is clear. I told that scientific
evidence to thousands of Muslims in Turkey.
They know it well on TV.

And so if the outcome is not-- if the
outcome is biased in terms of biased for
materialism, that will-- I think that will feed
the misconception about the United States that
it is a completely materialistic nation.

MR. CALVERT: Thank you very much.
Mr. Irigonegaray, your witness.

DR. ABRAMS: Mr. Irigonegaray, you
have eight minutes.

CROSS-EXAMINATION

BY MR. IRIGONEGARAY:

Q. Sir, I have a few questions for the record that
I need to ask you.

A. Sure.

Q. What is your personal opinion as to what the
age of the earth is?

A. Four-point-six billion years.

Q. Do you have a belief in the general principle
of common descent, which is that all life is
biologically related back to the beginning of
life? Do you agree with that statement?

A. I agree with limited common descent, but I
don't believe in universal common descent
because I don't see any scientific evidence for
it, compelling evidence.

Q. Do you accept that human beings are related by
common descent to prehomind ancestors, yes or
no?

A. I'm skeptical about it because I don't see any
compelling evidence that there's a lineage
between prehominiids and humans.

Q. You've mentioned ID theory. Would you please
tell us precisely what ID theory is?

A. Intelligent Design theory is a scientific
theory which argues that life on earth can be
explained as a result of natural laws, chance,

and intelligence. So it's a theory which
argues that intelligence can be detected in
nature and, yes, it is being detected. So--
and it's also a theory which disagrees with
Neo-Darwinian theory, which argues that life on
earth is the product of chance and laws.

Q. Would you please point to the Standard in
Kansas that expresses the philosophy of

9 naturalism?
10 A. The term "naturalism" doesn't appear in the
11 Standards, as you mentioned many times, but it
12 is implicit there, and especially in the phrase
13 which defines science as the way to explore--
14 the way to explain nature as just by natural
15 forces. I think it's very obvious there.
16 Q. So by attempting to understand the world in
17 which we live through a better understanding of
18 nature, it is your opinion that that represents
19 naturalism, which is an atheistic practice?
20 A. Can you repeat the question?
21 Q. Absolutely. Is it your position that by
22 studying science, looking for natural answers
23 to the processes around us, that those who
24 follow that path are atheistic?
25 A. Definitely no. I think that science should
0069
1 look for natural causes, but if there is
2 compelling evidence that something in nature is
3 not the product of natural causes, if there's
4 an evidence that an intelligent cause was at
5 work, science should not be blind to that, and
6 it should be able to infer Design there.
7 Q. You said, "compelling evidence." Correct?
8 A. Yes.
9 Q. I'm somewhat concerned about some of the
10 comments you made about how we are perceived in
11 the Muslim world. America has historically
12 taken the path that religion and government
13 should be separated. Are you familiar with--
14 A. The First Amendment?
15 Q. No. I appreciate you advancing my question
16 but, no, that's not where I was going. Are you
17 familiar, sir-- and let me find my note.
18 (Pause.) I had made some notes that I'm having
19 a bit of a hard time finding. Give me just one
20 second. (Pause.) Well, I'm going to have to
21 go off the cuff, as we say here. I read with
22 great interest a book not long ago by Professor
23 Bernard Lewis. Are you familiar with Professor
24 Louis?
25 A. Yes, I own one.
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1 Q. And the book that I read was "What Went Wrong."
2 Are you familiar with that book?
3 A. Yeah, I've got the book, and I've read it.
4 Q. You've read the book. Well, then, perhaps this
5 will be an easier conversation. You will
6 recall that Professor Bernard Lewis had a
7 conclusion to what he perceives to be the
8 present problem that is creating difficulties
9 in the Muslim world. Do you recall that?
10 A. He points to several problems, but--
11 Q. And do you remember what he concluded as the
12 solution to the problem in the Muslim world as
13 far as his understanding?
14 A. Modernization is generally what he argues for.
15 Q. No, no. I think you're wrong, sir. My
16 recollection of Dr. Louis' conclusion was that,
17 unfortunately, the Muslim world somewhere in
18 the mid point of the last millennium decided
19 that it was going to abandon its quest for

broader knowledge and to become involved more with the concept of the inclusion of religion in every aspect of the Muslim world.

MS. POSNY: Two minutes.

Q. (By Mr. Irigonegaray) And it was Dr. Louis' proposition, was it not, that the cure to the

problem was to follow the American model, that is, the separation of church and state?

A. Yes.

Q. You do recall that?

A. I do recall that, and I agree with that.

Q. And you agree with that?

A. Yes. But the problem I see here is that the American principle of separation of church and state is being violated by materialistic indoctrination. When you define religion as just Buddhists, you just miss the picture. Religion includes materialistic, atheistic philosophies. And I just want a fair separation of church and state.

Q. So your suggestion is that when scientists attempt, to the best of their ability, to find answers within nature, without a supernatural position, that that is, in fact, a religious practice?

A. No. That's a very rational and good practice that I acknowledge.

Q. And--

A. The problem, I think, starts when despite that effort, they see the evidence for intelligent cause and when they deny it-- start to deny it.

The problem starts there. Otherwise, you can explain nature in terms of natural causes. But what if there's an intelligent cause that you are blind to?

Q. Do you believe that just because somebody suggests a hypothesis, that it deserves serious attention, or would you rather suggest that for us to teach a hypothesis in science, it should be based on solid research, the scientific process, and a clear understanding of what we're going to be presenting to our children?

A. You're very right. It should. That's why the Minority Report doesn't ask for the inclusion of ID theory in the curriculum, but it just asks for the evidence against Darwinism to be mentioned, which is out there, which the curriculum doesn't want to see currently.

MR. IRIGONEGARAY: Thank you.

THE WITNESS: I thank you.

EXAMINATION

BY DR. ABRAMS:

Q. Mr. Akyol, am I saying that correctly?

A. Akyol.

Q. Akyol, thank you. You're saying-- did I understand you to say that the public

perception in Turkey is that they have an understanding and that they know that these hearings are going on about the discussion of science standards in Kansas? Is that what I

5 understand you to say?

6 A. Definitely.

7 Q. Do I further understand you to say that they
8 are aware that this is about trying to achieve
9 the best science standards, free of religious
10 and philosophical problems, that-- the best we
11 can achieve? Is that--

12 A. Yes. That's a good description of the
13 perception in Turkey. I would say, of course,
14 not every person on the street knows about it,
15 but it's been in the newspapers, and it will be
16 more in the newspapers when there's a decision
17 about this.

18 Q. In Kansas, if the perception generally is that
19 we're trying to insert religion into the
20 science standards-- and that is categorically
21 not what I'm trying to do, and I just find that
22 I'm a little bit amazed that the media in
23 Kansas doesn't seem to be able to portray that
24 and yet the media in Turkey is able to get that
25 perception across. I just wanted to make sure

0074 1 that I understood what you were saying.

2 A. Well, there's a phrase I like a Chinese
3 professor said. In China you can't criticize
4 the government, but you can criticize Darwin.
5 In USA, you can criticize the government, but
6 you cannot criticize Darwin. So the same thing
7 might be appropriate too, although America's
8 liberty and, of course, diversity is
9 appreciated. But I think there's a problem in
10 the main-- some of the mainstream media in the
11 United States. They're extremely biased about
12 this subject.

13 MS. POSNY: Two minutes.

14 A. (Continued) So I think Turkey's media is
15 really diverse, too, but there's a general
16 sense that what is being done here is-- I mean,
17 the Minority Report, they don't know the term
18 "Minority Report," but the attempt here is to
19 save the textbooks from a religion, which is
20 materialism.

21 DR. ABRAMS: Thank you, Mr. Akyol.

22 THE WITNESS: I thank you.

23 DR. ABRAMS: We're going to break
24 now, and we will reconvene at 2:45.
25 (THEREUPON, an intermission was had.)

0075 1 DR. ABRAMS: Will you take your
2 seats, please? Please take your seat.

3 (Pause.) Mr. Calvert, are you ready?

4 MR. CALVERT: Yes.

5 DR. ABRAMS: Mr. Calvert, please
6 proceed.

7 MR. CALVERT: Okay. I would like to
8 present my next witness, Dr. Michael Behe, who
9 is, I believe, a professor of biochemistry at
10 Lehigh University, Pennsylvania.

11 DIRECT EXAMINATION

12 BY MR. CALVERT:

13 Q. Dr. Behe, would you please give us a bit on
14 your background?

15 A. Yes. I received bachelor's of science degree

16 in chemistry from Drexel University in 1974. I
17 then went on to the University of Pennsylvania,
18 where I reserved a Natural Research Service
19 Award predoctoral fellowship. I received my
20 Ph.D. in 1978 with a dissertation on
21 sickle-cell hemoglobin. I then did post
22 doctoral work at the National Institutes of
23 Health, where I was a Jane Kauffman fellow
24 there. My research concerned nucleic acid
25 structure. My first position was at Queens

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1 College in New York City, where I was an
2 Assistant Professor in the Chemistry Department
3 and continued my work on nucleic acid structure
4 and nucleic acid protein interactions. In 1985
5 I moved to Lehigh University, where I'm
6 currently a Professor in the Biology
7 Department.

8 Q. I believe you're also the author of a book that
9 was published in 1996 called "Darwin's Black
10 Box," and my understanding is that that book
11 posed a question or a challenge to natural
12 selection to explain what you referred to as
13 irreducibly complex systems. Is that correct?

14 A. Yes, that's correct. The argument of the book
15 is that what science has discovered in the cell
16 in the past 50 years is poorly explained by a
17 gradual theory such as Darwin's. And if you
18 look at it, the evidence suggests that, in
19 fact, many systems in the cell show signs of
20 purposeful Intelligent Design.

21 Q. The-- your claim of irreducible complexity or
22 your argument of irreducible complexity-- and
23 again, I guess the argument is that there is
24 yet to be shown to you, or to science, a
25 detailed explanation of how natural selection

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1 can assemble such a system. And in your book,
2 I believe you make very specific arguments
3 against it. Since it was published in 1996,
4 there have been a number of scientists that
5 have criticized the theory. Can you comment
6 briefly on the criticism and the current status
7 of the debate about that in the scientific
8 community?

9 A. Yes. The book from the beginning was very
10 controversial, and from its inception, some
11 scientists, particularly Darwinian biologists,
12 offered arguments against it. And I have
13 responded to their arguments in a number of
14 book chapters, a number of articles in
15 "Philosophy of Science" journals. And briefly,
16 I argue that their counter arguments are
17 themselves mistaken, and I think they don't
18 really get to the heart of the argument, and so
19 I think my theory has stood up.

20 Q. And so is it fair to say that the scientific
21 community is still wrestling with that claim,
22 and there is yet to be a scientific consensus,
23 sir, as to an outcome on that?

24 A. Well, it's true that, you know, some people
25 still make arguments against it, and some

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1 papers in the literature are-- seem to be
2 written with this concern in mind. So, yes, I
3 think it's safe to say that, certainly, some
4 members of the scientific community are still
5 wrestling with the concept.

6 MR. CALVERT: I would-- do we have
7 the PowerPoint fixed?

8 MS. POSNY: No, sorry. I know, I
9 know, I know.

10 Q. (By Mr. Calvert) (Pause.) While we fiddle
11 with the PowerPoint, why don't we-- I'm going
12 to direct your attention-- do you have another
13 copy?

14 A. Was the problem that my first slide was blank?
15 Was that it?

16 MS. DEBACKER: This is looking
17 better, so just give us a chance.

18 MS. POSNY: At least we have this
19 now.

20 MS. DEBACKER: It should be coming
21 on.

22 Q. (By Mr. Calvert) Dr. Behe, while we fiddle
23 with the-- we're going to talk about page 15
24 and 16 of the Minority Report. There we go.
25 Okay, you have those two pages on your slide.

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1 And I've asked you to comment particularly in
2 your talk today about the proposed change that
3 appears on page 16, which would introduce
4 students to this concept, whether macro-
5 evolution can be extrapolated to explain--
6 excuse me-- whether microevolution can be
7 extrapolated to explain macroevolutionary
8 changes such as new complex organs or body
9 plans and new biochemical systems which appear
10 irreducibly complex is controversial. Would
11 you agree with that statement?

12 A. Yes, I would. I certainly think it's correct.

13 Q. Would you also agree with the next sentence,
14 that these kinds of macroevolutionary
15 explanations generally are not based on direct
16 observation and often reflect historical
17 narratives based on inferences from indirect or
18 circumstantial evidence?

19 A. Yes, I think that's correct as well.

20 Q. Is this something you think students should be
21 made aware of in a complete understanding of
22 biological evolution?

23 A. Yes, I think so.

24 Q. Would you please go ahead, and I believe you
25 have some-- a presentation that addresses the

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1 specific issue, and I ask you to proceed with
2 that.

3 A. Sure. I would like to start by saying that
4 it's not just myself, not even just ID people--
5 Intelligent Design people-- but a number of
6 scientists have been skeptical that micro-
7 evolutionary processes, Darwinian processes,
8 can explain larger patterns in biology and
9 especially-- and the molecular biology itself.
10 For example, Stewart Kauffman, who's a
11 professor at the University of Calgary right

12 now, wrote in a book in 1993 that "It is not
13 that Darwin is wrong, but that he got hold of
14 only part of the truth. Regarding the answer
15 to the sources of the order we see all around
16 us, it overwhelmingly appeals to a singular
17 force, natural selection. It is this single
18 force view which I believe to be inadequate,
19 for it fails to notice, fails to stress, fails
20 to incorporate the possibility that simple and
21 complex systems exhibit order spontaneously.
22 And this was published by Oxford University
23 Press, an academic publishing house.

24 Why do people-- why are some scientists
25 skeptical that Darwinian processes can account

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1 for what they see, especially at the molecular
2 level of life? Because in the past 50 years,
3 science has discovered much to their surprise,
4 and which was completely unknown at the time of
5 Darwin, that the cell, the basis of life, is
6 composed of machines, literally machines made
7 out of molecules.

8 This illustration up here is a cover from
9 the journal "Cell" which was published in 1998,
10 a special review issue on the topic of
11 molecular machines. And you see in the lower
12 left-hand corner a kind of a stop watch to
13 suggest the sorts of machines that people have
14 found in a cell. And inside on the table of
15 contents there are listed a number of articles
16 such as "The Cell as a Collection of Protein
17 Machines," "(not understood) in the Replisome,"
18 "Machines Within Machines," "Mechanical Devices
19 of the (not understood)," "Nature's Clocks,
20 Springs and Things."

21 And the editor of this special issue was
22 a man named Bruce Alberts, who was the
23 President of the National Academy of Sciences,
24 and in his introduction he states, "We have
25 always underestimated cells. Undoubtedly, we

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1 still do today. But at least we are no longer
2 as naive as we were when I was a graduate
3 student in the 1960's. The chemistry that
4 makes life possible is much more elaborate and
5 sophisticated than anything we students had
6 ever considered. Indeed, the entire cell can
7 be viewed as a factory that contains an
8 elaborate network of interlocking assembly
9 lines, each of which is composed of a set of
10 large protein machines."

11 Now, why is this a difficulty for
12 Darwin's theory? Well, because in 1959 in his
13 seminal book, "On the Origin of Species,"
14 Darwin saw a weakness or a difficulty for his
15 theory. He wrote that "If it could be
16 demonstrated that any complex organ existed
17 which could not possibly have been formed by
18 numerous, successive, slight modifications, my
19 theory would absolutely break down," adding,
20 "but I can find out no such case." Here he was
21 insisting that his was a gradual theory.
22 Natural selection had to improve things slowly,

in many steps, over a long period of time. He knew that if things improved too quickly, it would look like something other than random

processes were involved.

Well, that sort of a system can't be explained, or is very difficult to explain, by numerous, successive, slight modifications, one which is irreducibly complex or has the property of irreducible complexity. This is a fancy phrase. It just means that we've got a system with a number of different components that interact with each other to produce a function beyond the system-- or beyond the components itself. And an example I cited in my book, "Darwin's Black Box," on this from our everyday life is a mousetrap. A mousetrap has a number of different components such as a spring, holding bar, catch, and so on, and it needs all these components to work. If you take away the catch, if you take away the spring, if you take away the holding bar, it's not that it works half as well as it used to, it's broken, it doesn't work at all.

Now, things like this are a problem for a gradual theory like Darwin's because the function of an irreducibly complex system only appears, essentially, when the system is complete. In intermediate stages, there's

nothing for natural selection to select. And after it's finished, there's not a whole lot for natural selection to do. So things like this are challenges to Darwin's theory of gradual evolution.

So are there any such irreducibly complex systems in the cell? And I argue that there are many of them, yes. They're all over the place. For example, here's a molecular machine called the bacterial flagellum. And I guess I should add that most machines that we know of are irreducibly complex. And the cell is chock full of molecular machines like this one. This is the bacterial flagellum. It is quite literally an outboard motor. That bacteria can swim. It's got a number of different components like a propeller which actually pushes against the water, pushes the bacterium forward as the rotor spins. There's a hook region which acts as a universal joint to attach the propeller to the drive shaft. The drive shaft is attached to a rotor, which uses a flow of acid from the outside to the inside of the cell. There's a part that act as a stator to keep it clamped onto the cell

membrane, just like an outboard motor has to be clamped onto a boat as the propeller turns. And there are many other components as well. Now, let's see. Where am I? I made this argument in my book, "Darwin's Black Box," in 1996. And since then, the book itself has been pretty widely

8 reviewed, for example, in "New York Times,"
9 "Nature," a prominent science journal
10 "Philosophy of Science," the "Philosophy
11 Journal Quarterly Review of Biology," and so
12 on. What have other scientists had to say
13 about my claim that these things so far are
14 unexplained by Darwinian processes? Well, they
15 have had a lot of things to say, and Richard
16 Restak (spelled phonetically), writing for
17 "Brain Work," liked the book. Just let me say
18 that right up front.

19 James Shreeves, a science writer, writes
20 in the "New York Times" that "Mr. Behe may be
21 right that given our current state of
22 knowledge, good old Darwinian evolution cannot
23 explain the origin of blood clotting or
24 cellular transport." A man named James
25 Shapiro, who is a professor of microbiology at

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1 the University of Chicago wrote, "There are no
2 detailed Darwinian accounts for the evolution
3 of any fundamental biochemical or cellular
4 system, only a variety of wishful
5 speculations."

6 Jerry Coyne, who's a professor of
7 evolutionary biology at Chicago University
8 wrote, "There is no doubt that the pathways
9 described by Behe are dauntingly complex and
10 their evolution will be hard to unravel. We
11 may forever be unable to envisage the first
12 proto-pathways." Andrew Pomiankowski, a
13 British scientist, writes in "New Scientist,"
14 "Pick up any biochemistry textbook, and you
15 will find perhaps two or three references to
16 evolution. Turn to one of these, and you will
17 be lucky to find anything other than, quote,
18 evolution selects the fittest molecules for
19 their biological function, close quote."

20 So the point is that many reviewers of my
21 book have agreed that these complex molecular
22 machines so far are unexplained within the
23 Darwinian framework. But some scientists claim
24 that such explanations are out there somewhere,
25 and a man named David Griffin, who is a

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1 professor of the philosophy of religion at
2 Claremont College in California, nonetheless,
3 wanted to track down those explanations.

4 And in his book, "Religion and Scientific
5 Naturalism," he said that "The response I have
6 received from repeating Behe's claim about the
7 evolutionary literature, which simply brings
8 out the point being made implicitly by many
9 others, such as Chris Dutton and so on, is that
10 I obviously have not read the right books.
11 There are, I am sure, evolutionists who have
12 described how the transitions in question could
13 have occurred." And he continues, "When I ask
14 in which books I can find these discussions,
15 however, I either get no answer or else some
16 titles that, upon examination, do not, in fact,
17 contain the promised accounts. That such
18 accounts exist seems to be something that is

widely known, but I have yet to encounter anyone who knows where they exist."

And I think the most succinct summary of many reviewers of my book is contained in a book called "The Way of the Cell," written by a man named Franklin Harold, who is emeritus professor of biochemistry at Colorado State

University, which was published by Oxford University Press a couple years ago. And Franklin Harold wrote the following. He said, "We should reject as a matter of principle the substitution of Intelligent Design for the dialog of chance and necessity," and he cites my book, "but we must concede that there are presently no detailed Darwinian accounts of the evolution of any biochemical system, only a variety of wishful speculations."

Wishful speculations is oftentimes kind of a word which actually means something called "Just So Stories," which is a phrase oftentimes heard in biology, like the children's stories written by Rudyard Kipling a century ago, you know, "How the Tiger Got Its Stripes," "How the Rhinoceros Got Its Horn," how the bacterium got its flagella. And it's kind of funny if you think about it. If you think about it further, it's astonishing that a theory which has the allegiance of a fair number of biologists has been so utterly fruitless at explaining the molecular foundation of life, and it leaves people like myself to believe that perhaps a different theory might be called for.

Well, I want to say that this isn't the only problem for Darwinian theory. It goes much deeper. Here's a drawing of the bacterial flagellum which occurs in a biology textbook by Voet & Voet, but this is just a little cartoon of the flagellum and it leaves out many, many problems that would have to be overcome for something like this to be produced. For example: How is such a thing put together? How do the parts interact with each other? An outboard motor in our everyday life is assembled by an intelligent agent, but materials in a cell have to assemble themselves. How do they do that? Well, the components of the bacterial flagellum in reality aren't these nice little spheres and oval shapes and disks and so on. Rather, they're composed of proteins which have very complex shapes such as this, and proteins binding each other specifically by having surfaces which are both geometrically complementary as well as chemically complementary. It shows two molecules binding each other, and you can see the physical shape's complementary, but also on the

surface there's a little cartoon taken from Voet & Voet's book.

This shows that the chemical properties

of the surface also have to be complementary to each other. Where there's a positive charge on one, there has to be a negative charge on the other. Or if there's an oily spot, a hydrophobic amino acid side chain, there has to be a hydrophobic spot on the other one, and so on. Where there's a hydrogen bonding donor, there has to be a hydrogen bonding acceptor, and so on.

Well, the question that I have become interested in is: How do things such as this develop? You'll notice that in the interaction of these two proteins-- and there are 30 to 40 different proteins which participate in making the flagellum-- in each pair there are multiple interactions which hold the things apart. How do those things develop? Recently, about six months ago, myself and David Snoke at the University of Pittsburgh published a paper which tries to address this question, which asks: How easy would it be to develop a specific interaction between two proteins that

did not have this interaction before, as evolution would be expected to have to do?

And our paper, now, presents a mathematical model which can be simplified in the following way. Up at the top you see that little array of boxes. We can represent that as the amino acid sequence of a protein. And when the little plus comes along, that means that it has accumulated a mutation which potentially could interact with another protein if it had another few mutations which comprised a set which allowed the interaction to be stable. The red X shows a deleterious mutation which has accumulated in the protein. And the problem would be to accumulate sufficient beneficial mutations before you accumulate even one deleterious mutation.

And, again, you could model this mathematically. This looks a little more complex than it really is. All you have to do is consider the number of organisms in the population and the number of sites that would have to change, the point mutation rate, and other such factors. And what we did was calculate what we expected the number of

generations to be to have just a protein binding site appear between two proteins if you needed multiple amino acid changes before such an interaction would occur. And what we calculated was that even for getting just two proteins to interact, it would take a very, very large number of generations, on the order of 10 to the 20th.

I didn't explain the axes here, but the top axis would be population size, the bottom axis is the number of growth sites that would have to change, and the Y axis is the number of generations that it would take to fix this mutation in the population.

15 And it should be said that most proteins
16 in the cell exist as complexes not two or by
17 themselves, but complexes of six or more. And
18 so the question is: Could those be assembled
19 by Darwinian process? And I have reason to be
20 skeptical that that's the case.

21 Other evidence that shows that micro-
22 evolution does not necessarily lead to macro-
23 evolution has come about recently in a paper by
24 a man named Barry Hall (spelled phonetically)
25 at the University of Rochester. And I think

0093
1 this shows the benefit of not assuming that
2 microevolution does lead to macroevolution. He
3 was worried about the development of antibiotic
4 resistance in bacteria. Antibiotic resistance
5 is often put forward as an example of Darwinian
6 evolution, and many times it is. But when
7 scientists search for antibiotics, they're
8 searching for the limits of Darwinian
9 evolution. They're searching for antibiotics
10 which will be beyond the capacity of bacteria
11 to evolve resistance to, and that's what Barry
12 Hall was trying to do.

13 I won't read his abstract, just a couple
14 of key sentences. He says with what I think is
15 a very commendable attitude, instead of
16 assuming that this particular protein will
17 evolve rapidly and, therefore, confer immunity
18 to antibiotics on a particular bacterium, "It
19 would be highly desirable to accurately predict
20 this evolution in response to a certain
21 antibiotic selection."

22 And when he did that by in vitro mutation
23 in the laboratory, he concluded that-- in vitro
24 evolution was used to predict whether the
25 protein has the potential to evolve an

0094
1 increased ability to confer resistance to this
2 antibiotic, and he says, "The results predict
3 with greater than 99.9 percent confidence that
4 even under intense selection, the protein will
5 not evolve to confer increased resistance to
6 the antibiotic." So he's saying that he has
7 found the limits, at least of this protein, to
8 Darwinian evolution, at least in the
9 foreseeable future. So the point is that not
10 all things can occur by tiny, tiny changes and
11 selectable intermediates leading to more
12 complex systems. And that's been what I have
13 thought in my consideration of these things.

14 So I think I agree with this statement in
15 the Minority Report that I don't think I am an
16 example of a person who disagrees that micro-
17 evolution, at least in biochemistry, where I'm
18 an expert, can be extrapolated to explain new--
19 completely new systems. And I would be glad to
20 respond to any questions now, Mr. Calvert.

21 Q. Dr. Behe, thank you so much for your
22 presentation. I guess I would have one
23 question. In the first paper that you did with
24 Dr. Snoke, what was the bottom-line conclusion
25 of that? Could you sort of simplify that?

0095

1 A. The bottom line was that a process called gene
2 duplication, where a gene coded for a
3 particular protein is duplicated and is free to
4 accumulate mutations, is unlikely to lead to
5 new protein features which require more than a
6 couple amino acid changes to produce them.
7 Once you go beyond just one change to lead to
8 the new feature and you need two or three or
9 four, which is the case if you need to develop
10 a new specific interaction between two
11 proteins, then the expected amount of time that
12 that would take in reasonable population times
13 starts to become prohibitive over a hundred
14 million generations.

15 Q. And how many members of the population in that
16 hundred million generations?

17 A. Well, again, it depends on the number of loci,
18 but if you consider about six, which is roughly
19 the number of amino acids involved in a
20 specific interaction between two proteins, it
21 would take on the order of 10 to the 21st or
22 so, which would be prohibitive for virtually
23 any organism except a single celled organism.

24 Q. Well, 10 to the 21st?

25 A. Yes.

0096

1 Q. That's a big number. And that's just-- and
2 you're saying for the protein to interact, and
3 that's for a binding site?

4 A. That's right. That's not considering the
5 function of the proteins. It's just as if you
6 had, for example, that spring in the mousetrap
7 and you wanted it to attach to, say, the catch,
8 and you didn't want an intelligent agent to put
9 it together, how likely would it be if it
10 mutated in a way similar to the way proteins do
11 in the cell? In order to do that, you need a
12 long time and a very large population size--
13 prohibitively large-- just to get those two
14 things together, not even worrying whether
15 their shapes were the right shapes for the
16 purpose-- just to get them to stick
17 specifically to each other. It's a problem
18 which I think is very much underappreciated not
19 only by the general public, which doesn't know
20 much about it, but also by the scientific
21 community, which generally doesn't spend much
22 time thinking about it.

23 MR. CALVERT: Thank you very much for
24 your time to testify. I believe I don't have
25 any further questions. Mr. Irigonegaray, your

0097

1 witness.

2 MR. IRI GONEGARAY: Thank you very
3 much.

4 DR. ABRAMS: Fifteen minutes, sir.

5 MR. IRI GONEGARAY: Thank you, sir.

6 CROSS-EXAMINATION

7 BY MR. IRI GONEGARAY:

8 Q. Sir, I have a few questions for the record for
9 you. What is your opinion as to the age of the
10 earth?

- 11 A. I think it's what physicists, geologists say,
12 about 4.6 billion years.
13 Q. Do you accept the general principle of common
14 descent, that all of life is biologically
15 related to the beginning of life?
16 A. My position is similar to Professor Nord's, one
17 or two ago, that depending on what you mean by
18 common descent, I do believe in biological
19 continuity of organisms, yes.
20 Q. Do you accept that human beings are related by
21 common descent to prehominiid ancestors?
22 A. With that exception in mind, depends on what
23 you mean by common descent, yes, I do.
24 Q. It is true, is it not, that nowhere in the
25 Kansas Standards does it say that natural

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- 1 selection is the only mechanism for evolution?
2 A. I have not read through the entire Kansas
3 Standards. I was concentrating specifically on
4 that one paragraph that I showed on the first
5 slide. So I couldn't tell you for sure.
6 Q. You have not been provided with Draft 2 of the
7 Majority-- you were not provided with Draft 2
8 of the writing standards?
9 A. Of the Minority Report?
10 Q. No, no, no. The Majority Report, Draft 2.
11 A. No, I have not received that.
12 Q. And to be fair to you, you said that at least
13 as far as the Minority Report, you focussed on
14 a paragraph?
15 A. That's correct.
16 Q. Do you regard Mr. Phillip Johnson as a
17 respected leader of the intelligence-- this
18 Intelligent Design community?
19 A. Yes, I do.
20 Q. Let me read a quote to you by Mr. Johnson, and
21 I would like for you to tell me whether or not
22 you agree with it. "I can say this. You often
23 find the greatest enemies of Christ in the
24 church, even in high positions. There's a kind
25 of person who may be sincere in a way but is

0099

- 1 double minded, who goes into church in order to
2 save it from itself by bringing it into concert
3 with evolutionary naturalism, for example.
4 These are dangerous people. They're more
5 dangerous than an outside atheist like Richard
6 Dawkins, who at least flies his own flag. So
7 I'm not impressed that somebody says that he's
8 a Christian of a traditional sort and believes
9 that evolution is our Creator. This is at the
10 very least a person whose mind is going in two
11 directions. Such people often do a great deal
12 of harm-- of damage within the church." Do you
13 agree with that statement?
14 A. I disagree with it. I think I have met many
15 people who believe in Darwinian evolution and
16 who are quite religious and think that it was
17 God's way to produce life. As a matter of
18 fact, I myself used to think that before I
19 became skeptical.
20 Q. Another quote by Mr. Johnson, "Liberal
21 Christians, those that accept evolution, are

22 worse than atheists, because they hide their
23 naturalism behind a veneer of religion." Do
24 you agree or disagree with that statement?

25 A. The same. I disagree with that statement.
0100

1 Q. Therefore, do you agree or disagree with Mr.
2 Johnson's portrayal of Christians who fully
3 accept evolution and reject Intelligent Design?

4 A. Not at all. I sympathize with them. I used to
5 be one of them until I changed my mind based on
6 the scientific evidence.

7 Q. You would agree with me, would you not, sir,
8 that throughout the history of humanity, we
9 have from time to time been confronted with
10 observations for which we did not have an
11 explanation?

12 A. Sure.

13 Q. And you would agree with me, would you not,
14 sir, that it is important for the progress of
15 humanity that whenever we find questions that
16 we do not understand, that we do our best to
17 understand those questions following the
18 scientific process?

19 A. Sure.

20 Q. And you would further agree with me, would you
21 not, sir, that just because something appears
22 to be extremely complex, that doesn't
23 necessarily mean that we must attach to it a
24 supernatural explanation?

25 A. That's correct.
0101

1 Q. And you would agree with me, would you not,
2 sir, that an appropriate place for the
3 discussion of the supernatural may be theology
4 classes, philosophy, et cetera?

5 A. That's correct.

6 Q. You would agree with me, would you not, sir,
7 that history has taught us that we at times--
8 for example, in studying astronomy-- looked at
9 the complexity surrounding our universe and
10 assumed erroneously that it was set up with the
11 earth at the center of the universe and that
12 that was the religious view which could not be
13 challenged?

14 A. Well, I kind of disagree with that
15 characterization. That was the scientific view
16 at that age because, by observation, scientists
17 saw that the stars and the sun went around the
18 earth. That was actually the scientific
19 observation. And it gets a little bit dicy on
20 occasion when you introduce new ideas because
21 you may know-- you probably do know-- that
22 Isaac Newton's theory of gravity was received
23 with great suspicion during his time because at
24 that point it was considered to be a
25 supernatural explanation because it posited

0102
1 bodies interacting over space without physical
2 interaction. That kind of smacked of
3 Aristotelian type of science.

4 Q. And as a result, it is important to keep
5 science and religion separated. Correct?

6 A. No. I-- no. It's a very complex business. By

7 that example, I was trying to say that what
8 some people think to be religion at the time
9 may turn out to be understandable later on.
10 But if you rule out an explanation which seems
11 to describe the data pretty well because it
12 seems to have unwelcome philosophical or
13 religious overtones, then I think that does
14 science a disservice.

15 Q. (Pause.) As I sat through these hearings,
16 there's a question that keeps coming back to
17 me, sir, and perhaps-- perhaps you could help
18 me. If a scientist wanted to do research to
19 challenge the hypotheses of an intelligent
20 designer, how could he or she go about it?

21 A. Well, it's actually pretty straightforward,
22 surprisingly enough. Many people think
23 Intelligent Design is unfalsifiable, but it
24 turns out it isn't. And since my book has come
25 out, many scientists have been attempting to

0103
1 falsify it. They point to a number of
2 experiments in the literature which they say
3 argue against it.

4 One in particular was done by a man named
5 Russell Doolittle, a member of the National
6 Academy of Sciences, who worked on the blood
7 clotting cascade for 40 years or so, and he
8 advanced an argument against my idea of
9 irreducible complexity with respect to the
10 blood clotting system. And it turns out his
11 argument was incorrect because he had simply
12 misread the paper that he thought supported his
13 ideas. But if he had read it correctly, he
14 thought-- and I would agree with him-- that if
15 things had developed the way he thought, it
16 would have been a problem, because the point is
17 that Intelligent Design, as I see it, makes
18 this claim. It says, "There is no
19 unintelligent process which could produce the
20 complexity that we see in the cell." So if a
21 Darwinian biologist or somebody else who was
22 skeptical of that went into their lab and
23 showed that there was, in fact, some such
24 process-- which they already think there is--
25 but if they demonstrated that, then my claim

0104
1 would be falsified.

2 MR. IRIGONEGARAY: I have nothing
3 further of you, sir.

4 EXAMINATION

5 BY DR. ABRAMS:

6 Q. So you're suggesting that empirical science--
7 and I have talked about it regularly as being
8 observable, measurable, testable, repeatable
9 and falsifiable-- is something that is of great
10 value in the science-- in the research that you
11 do?

12 A. Sure. Yes. I'm a biochemist. I'm trying--
13 what I'm trying to do is explain the
14 biochemistry that I see in the cell or what has
15 been discovered in the cell. And the only data
16 I'm using to come to my conclusions is the
17 physical structure of the biochemical systems

that we've discovered plus normal logic such as inductive reasoning, which is a common scientific way of thinking. Yes. So that's correct.

Q. How would you describe the difference-- or is there a difference-- let me start there first-- is there a difference between Neo-Darwinian evolution and biological evolution? Are they

used interchangeably?

A. Well, it's-- no. There is a distinction. Evolution is often-- it has many definitions, as I'm sure you're aware. Oftentimes it means deceptive modification. Darwinian and now Neo-Darwinian evolution is a proposed answer to the \$64,000 question of: If that can happen, how did it happen? What caused this incredible, you know, sophisticated machinery undergirding life? And Darwinian theory says it was by random mutation and natural selection. Other people like Stewart Kauffman say, "You're full of bologna. It's complexity theory."

I think both of them are wrong. I think intelligence was involved. But Darwinian theory offers this specific answer to the question of how. Just generic evolution, I think, is just common descent.

Q. What I was saying, I was saying biological evolution.

A. Yes, biological evolution.

Q. Is just common descent, is that what you're saying?

A. That's the way I understand it, yes.

Q. Okay, that's what I'm asking. Regarding your comment about microevolution versus macroevolution, can microevolution be extrapolated to explain macroevolutionary changes, and you said-- and it also further stated that that's a rather controversial topic. Is that something that is in the literature, that it is being fully explored?

A. Is what being fully explored, sir?

Q. The idea between microevolution and macroevolution, microevolution leading to macroevolution?

A. Well, there are certainly biologists who are interested specifically in that. They're a subset of people interested in evolution. But, yes, there are papers in the literature which make the distinction, and some which wonder, and there's a recent article by a biologist named Sean Carroll at the University of Wisconsin a year or so ago saying that it looks like it does, because we don't have any evidence of any other process besides microevolution that could lead to it. But they did not consider other processes such as complexity theory or Design, so it was kind of ruled out

by default-- or ruled in by default.

DR. ABRAMS: Thank you, Dr. Behe.

Mr. Calvert.

JOHN CALVERT,
called as a witness on behalf of the Minority,
testified as follows:

DIRECT TESTIMONY

MR. CALVERT: (Pause.) Dr. Abrams,
members of the Committee, my friend Mr.
Irigonegaray, members of the public, I present
my next witness, and guess who. Yours truly.
I had planned to have-- to speak to you about
the legal issues today, and I plan to do that
in a brief form. We had expected to call Mr.
Joel Oster to give his opinion, but due to that
not being possible, I have stepped into his
shoes. The remarks that I will give today are
general in nature. We plan to file a rather
extensive legal brief along with our proposed
suggested findings of fact and conclusions of
law, and that will be handed to the Committee
following the hearings.

Before I get to the legal issues, I would
like to discuss a couple of-- a few exhibits
that I believe would be helpful to the record.

One exhibit was handed to the committee
yesterday in connection with Mr. DeHart's
testimony, and during the examination we didn't
have an opportunity to get to that exhibit, and
I will just discuss it briefly. The exhibit is
a memorandum that documents an instance in
which I helped a National Public Radio producer
arrange a nationally broadcast debate between
Mr. DeHart and Robert Dennison, a Texas biology
teacher and one of the-- one of the individuals
that filed peer reviews with respect to the
Minority Report.

And the essence of Mr. Dennison's
comments were that the Minority Report was
unacceptable because it would serve only to
weaken the theory of evolution. And I thought
that it was appropriate for Mr. DeHart to
comment on this particular incident because
what happened, and what the memorandum
reflects, is that I arranged for a nationally
broadcast debate between Mr. DeHart and Mr.
Dennison on specifically the issue that we're
dealing with today. The NPR published--
published the menu for the program, showing
that Mr. DeHart would indeed debate Mr.

Dennison and that he would be interviewed by
the producer prior to the debate. During that
interview, Mr. DeHart and the NPR producer had
an exchange about a number of the issues which
we're discussing here, and the producer said,
"Well, I'm sorry. I'm an atheist, and that
perspective is not consistent with my view."
And Mr. DeHart said, "Well, shouldn't your
listeners be introduced to the two different
perspectives?" And she said, "Well, I have to
think about that."

The next day, in the morning, it was
still publicized that Mr. DeHart would be on

14 the program. Just a few hours prior to the
15 broadcast, Mr. DeHart got a memo explaining
16 that he would not be on the program because
17 they had run out of time. Anyway, the memo
18 documents a scenario indicating that there was
19 more than sufficient time to have included Mr.
20 DeHart's view in that, quote, debate. As it
21 was, the Science Friday program presented only
22 one side of the scientific controversy about
23 evolution, and that's documented in that
24 memorandum.

25 The second document that I would like to

0110
1 introduce into the record is an email dialog
2 that I recently had with a scientist that is
3 explicitly using Design theory to understand
4 how the genome works. And I'm going to show,
5 hopefully, the exchange here if I can find it.
6 There it is. In this dialog, Albert de Roos, a
7 European scientist who works on trying to
8 understand the genome, published a paper in
9 which he used software engineering design
10 concepts to understand how the genome works. I
11 read the paper, and it struck me that what he
12 was using in his work was not methodological
13 naturalism, but rather it was methodological
14 Design.

15 And so I sent him this email, and I said,
16 "Albert, it is my contention that bio
17 scientists actually use Design-type thinking in
18 trying to understand the genome. That is not a
19 metaphysical construct, rather a methodological
20 construct. Is that correct?" And Mr. De Roos
21 replied, "Dear John, Most scientists indeed do
22 use, quote, Design, as a practical approach or
23 methodology. The teleological approach works
24 very fine in deciphering systems like the
25 brain, the eye. However, as soon as you touch

0111
1 on the subject of the evolution, it is
2 forbidden to talk about Design. I have not
3 come across real Design thinking in trying to
4 understand genome evolution. On the contrary,
5 with the advent of Neo-Darwinism, evolution
6 has, in my opinion, become a magical thing that
7 arose by chance without any goal-direction.
8 This basic lack of understanding evolution has
9 led to the current posture (sic) evolutionary
10 science has gotten into: No logical
11 explanations about evolution before the
12 Cambrian explosion, comprising 90 percent of
13 evolution, and speculative theories about the
14 last part. My article is the first, from a
15 methodological approach, to show how Design
16 thinking can give new insight into evolution."

17 The reason for introducing that into
18 evidence is that-- for a couple reasons. We've
19 heard a lot of publicity about how the adoption
20 of these standards which would suggest to
21 students that just exactly the kind of thinking
22 that is portrayed in that slide, students would
23 come to understand and appreciate, and that is
24 the kind of thinking that is used to really

understand biosystems. And here two weeks

before these proceedings, there is a huge hoopla about how the proposals in the Minority Report will drive bioscience out of the state. It seems, in my mind, rather absurd. The third document that I would like to introduce is a collection of polls. (Pause.) The collection of polls is in a memorandum that we put together in March, and it collects polls from around the country in a number of different states, national polls, polls in Ohio, New Mexico, and so forth. I wanted in particular to show you the results of a poll that I think is highly credible. It was conducted by the Cleveland Plain Dealer in Ohio in the big controversy in Ohio over science standards in June of 2002.

And I think that the poll had a number of different questions which were responded to, but the key question was the one I'm showing on the screen. It says, "Currently, the Ohio Board of Education is debating new academic standards for public school science classes, including what to teach students about the development of life on earth. What (sic) position do you support?"

The first option was teaching only evolution. Only eight percent opted for that particular paradigm, and I submit that the Majority Report essentially is a teaching only evolution position. It reflects methodological naturalism. The second response was teach only Intelligent Design, and that's eight percent. And in my mind, that particular option is as bad as simply teaching only evolution. That's not what we want. We're looking for an objective approach that looks at both sides. And that seemed to be consistent with the next response, which was 59 percent for teaching both. And then teaching the evidence both for and against evolution, but not necessarily Intelligent Design, is 15 percent. Now, when you combine the 15 percent with the 59 percent, you get roughly 76 percent.

There is another interesting option here, which is teach nothing about human development. That's nine percent. And I'll comment later on about that particular option in the case of Epperson v. Arkansas, in which a state adopted a statute which effectively excised the teaching of evolution, and in that statute

essentially would mandate something like the second choice, teach only Intelligent Design. And the Court, in striking down that statute-- and I think properly so-- it struck down that statute because it was a biased formula. The Court said that if the statute had eliminated all theories of origins and just taken the subject off the table completely, that would have been a religiously neutral posture, and it

would have been permissible.

And so the nine percent position would be one way for the State of Kansas to receive-- to achieve religious neutrality. However, the kids need to know about evolution. They need to be taught about origins because that, in fact, is a focus of much of a segment of science, and so science education needs to teach that subject. And so the question is: Well, how do you teach it in a scientifically satisfactory way that is religiously neutral? And I submit that it is either teach both, or at least the fourth option, which is teach the evidence both for and against evolution, but not necessarily Intelligent Design. And that essentially reflects the Minority Report

position.

All the other polls in this document essentially reflect, you know, these same percentages with a little bit more or less. Generally, the public very much wants an objective approach to teaching origin science.

The third document-- or the next document I would want to introduce is an analysis of public comment of the four public hearings that were held about the Minority Report and the Majority Report. I attended all those hearings, and I was interested in what an analysis would show, as a general proposition, the comments of those opposing the Minority Report and a general summary of the comments of those that were for the Minority Report. And I'd like to mention Ken Carlson and Mark Matthews, who labored at length-- oops. (Pause.) Okay. Mr. Carlson and Mr. Matthews spent an enormous amount of time analyzing the public testimony, and these were their conclusions. And I believe that we do have a hard copy of their analysis, but we've had difficulty getting it printed out, but we will add it to the record at a later time and, of

course, these slides will be produced. Those opposing the Minority Report opposed it generally on the reason that they did not want Intelligent Design, creation science, or religion in the science classroom. That represented 61 percent of the negative comments. Others were opposed to the Minority Report because they wanted evolution only. They said evolution is accepted science, evolution is a fact, and that was-- reflects eight percent. That's an interesting number. It reminds me of the results in the Ohio poll.

And others argued that Intelligent Design has not proved itself, i.e., is bad science, six percent. I would probably lump that up in the 67 percent. And then there were those favoring the Minority Report, critical analysis of-- well, let me comment further on this particular slide.

I think that this is really significant

evidence favoring the Minority Report, and the reason is that none of these arguments are consistent with that report. As we have repeated over and over again, it's clear the Minority Report does not contemplate or urge

the State to put Intelligent Design, creation science, or religion into the science classroom. It simply-- or into the Science Standards. It actually seeks to take the religious problem out of the Standards that adheres in the Standards now, as has been testified to by numerous witnesses today.

And so I think that those who-- and the other thing that it indicates, which is really sort of interesting, is that none of those witnesses, we must assume, read the Minority Report. Now, our witnesses have been criticized all day long for not reading the Majority Report, but it is very obvious that these witnesses had not read it, because all of their arguments against it were not consistent with its content.

Those favoring the Minority Report, 57 percent, again, is really consistent with the Ohio poll, teach both sides. And others, ten percent, evolution is not proven and is not a fact. Evolution is religion, naturalism philosophy, eight percent. I don't believe evolution is a religion, and I don't believe, as a theoretical concept, it is a philosophy or

an ideology. The problem, as testified by Dr. Menuge and Dr. Nord, is that when you combine a theory with a philosophy that does not allow the theory to be criticized, it elevates the theory to a dogma or an ideology that happens to support non theistic religion.

Teach Intelligent Design and or creation science, only seven percent of those wanted Intelligent Design or creation science taught, which is, again, consistent with the Minority Report. We're not asking for it to be taught, only permitted, not outlawed. If you outlaw it, then you're promoting an ideology.

The conclusions of the-- of this analysis is that a vast majority opposing the Minority Report believe that Intelligent Design, creation science, religion are promoted by the Minority Report, and the testimony has shown that's not the case. The vast majority of those favoring the Minority Report want critical analysis of evolution, teach both sides, examine all evidence, very rational and legitimate concerns.

My last exhibit that I want to introduce-- which I believe we do have

documented, and the document has been passed out-- is an analysis of biology textbooks regarding the definition of science. And the purpose of my analysis, when I got interested in this-- in this issue-- in fact, it was what

6 prompted-- what prompts me to be here today,
7 it's not necessarily a lack of evidence for
8 evolution, it was my-- it was my becoming aware
9 that science had stacked the deck about origins
10 with the use of methodological naturalism.

11 And you've heard a number of witnesses
12 testify about that stacking of the deck.
13 Evolution is essentially propped up by a
14 methodological or philosophical construct, and
15 I recognized this in the mid 1980's. And what
16 got me into this debate was when in 1999
17 somebody asked me to look at the Standards, and
18 I saw that the State of Kansas was being asked
19 to embrace that crutch that held Darwin up.
20 And it's a philosophic bias that bothers me
21 more than anything else, because it takes
22 information off the table.

23 And most of my career as a lawyer has
24 been focused on the securities industry and
25 making sure that stocks were sold honestly.

0120
1 And whenever you hand anything to the SEC for
2 their acceptance of your offering statement,
3 they ask you not necessarily what you have put
4 in it, but they ask you: What have you
5 omitted? What have you left out of the
6 document? What really creates a problem in
7 information is when you selectively hold out
8 information. And it was my impression that it
9 was this rule, methodological naturalism, that
10 essentially selectively holds out information
11 that got me interested in this.

12 And I recognized it-- that it creates two
13 issues. First, a scientific issue. How can we
14 scientifically know, you know, whether the
15 evolutionary account is valid if relevant
16 evidence, evidence relevant to that theory, is
17 not allowed to be considered? And then that
18 also creates a constitutional issue, because
19 origins, as we have heard testified over and
20 over again, and undeniably, impacts religion.
21 And so when you enter a religious sphere, it is
22 the obligation of the State to be neutral.

23 And I'm sorry that I don't think I agree
24 with Mr. Irigonegaray's definition of
25 neutrality. Neutrality does not mean that the

0121
1 State is to favor non theistic religions over
2 theistic religions. And I believe that his
3 idea and concept of neutrality is not really
4 neutral at all. And we'll get to that later
5 on.

6 But I was interested in this issue,
7 because I was wondering what the textbooks did.
8 Were the textbooks disclosing this
9 philosophical bias? Were they using-- were
10 they explaining the bias so that at least the
11 students would know the purpose and effect of
12 it? And the analysis we conducted shows that
13 the definition usually covered in the
14 introductory chapter of the biology textbooks
15 we reviewed simply discussed the scientific
16 method and did not discuss any methodological

or naturalistic exception to that method.

Some texts included statements that restrict science to natural phenomena, but that's okay. That's what the study of science is. However, when they couple that with "many people believe that a supernatural force or creative deity created life," that's true, but that does not justify the exclusion of scientifically valid evidence that can be

detected scientifically that happens to support the belief in a deity, and that's exactly what methodological naturalism does. If the textbook was honest and candid, it would explain exactly that, that this book excludes evidence that is indeed relevant to the origins controversy, and we're not showing it to you.

A few texts have a direct statement that science seeks natural causes for natural phenomena, but I would doubt that an eighth grader or even a senior in high school would understand the significance of that. Again, the issue is: Are we fully disclosing the assumptions that we're using and talking about the evidentiary basis for them? Others are less direct or infer it by saying that scientists consider the whole universe a system in which basic rules apply to all events, small and large. Scientists assume that those rules can be discovered through scientific inquiry. Again, although in some areas of science that's true, but the effect of that assumption is not discussed.

The other thing we were interested in was how the textbooks covered the origin of life,

and indeed, all the textbooks we examined did cover the origin of life, but it's only restricted to a naturalistic explanation, little if any critique of origin of life hypotheses are included in the text. The emphasis is on stories or plausible evidence about the unobserved past, little or no inference of the unobserved past based on observations in the present.

This is a-- my understanding of the picture in the textbooks is that evolution is really, in many respects, propped up by this philosophy of naturalism. That's what holds it up. Naturalism rules out Design-- the evidence of Design, which actually is the counter argument to evolution's core claim of no Design. So when that counter argument is ruled out in historical science, the only competitor is disallowed. That essentially winds up being a violation of the scientific method. It is this infrastructure which is not disclosed, which is actually used, as we've heard testified today.

Now, what happens is that none of this is really effectively described in the textbook,

and so the textbook it's almost like a

2 tablecloth has been put over this pedestal, and
3 the only thing the students see is: We use the
4 scientific method, we develop all our
5 explanations using empirical science. And so
6 the students are led to believe that this is
7 really supported by empiricism rather than
8 naturalism.

9 What we propose is that instead of using
10 naturalism or religion, we use the scientific
11 method. The Minority Report does not require
12 that this evidence be shown, but at least it
13 requires students to understand criticisms of
14 that. (Pause.)

15 Now, if I could talk briefly about the
16 legal issues. How much time do I have left?

17 MS. POSNY: About 20 minutes.

18 MR. CALVERT: Okay. I think that in
19 our-- what we-- what Dr. Harris said we
20 proposed to do in these hearings was to show
21 that there is a genuine scientific controversy
22 about origins. And I don't see how anybody can
23 deny that, given the testimony that you've
24 heard during the past three days. There is a
25 clear and undeniable scientific controversy

0125 1 about the origin of life.

2 We heard one witness say: I just don't
3 see that it's possible that-- a physical
4 chemist-- that it's even possible that you
5 could ever get life started in a random,
6 self-assembling process. Of course, there may
7 be explanations. It's in historical science,
8 and it may be, you know, five years from now we
9 will actually discover that, and then that
10 evidence goes in the scales, and the scales are
11 constantly moving up and down. But we have
12 shown that there is a scientific controversy
13 about origins.

14 Secondly, we have shown that the
15 controversy unavoidably impacts religion. The
16 side of the controversy that supports the idea
17 that man is the product of an unguided
18 evolutionary process, that side which is the
19 evolutionary biology, supports but does not
20 require one kind of religious belief and
21 conflicts with theistic religious beliefs. So
22 we saw an example of that, in spades, in the
23 Humanist Manifesto. The secular humanism was
24 decided in the Schempp case in, I believe,
25 1987. It was a fascinating case. It involved

0126 1 books in a school that were charged to be
2 promoting secular humanism. By the way, none
3 of the books involved science books or biology
4 textbooks.

5 And so the Court had to make a decision:
6 Is secular humanism a religion? Because if it
7 wasn't, then, there wouldn't be an issue
8 regarding the books. And the Court took an
9 enormous amount of testimony and concluded
10 ultimately that secular humanism is a religion.
11 It found that it was a religion because the
12 tenets of secular humanism is that there is no

reason to believe in the existence of a Creator. Well, why is there no reason to believe in the existence of a Creator? It's because an evolution unguided process is perfectly capable of producing life as we see it, and so there's no reason for us to even imagine one. Given the lack of any reason to believe in a Creator, we can ignore traditional religion, and we use human reason to decide our ethics and morals.

And the very last portion of the description of secular humanism that the Court decided on explained that the entire basis of

secular humanism is grounded on the principles of modern naturalism and physical science. So you see that naturalism is an important ingredient in the philosophy, in the religion of secular humanism. Of course, there are others, atheism, agnosticism, and scientism.

So one side of this origin controversy supports those types of non theistic beliefs. The evidence of Design, which is essentially the opposite of evolution's core claim of no design, that idea and the evidence that supports it does not require-- so long as it's kept theoretical-- does not require but certainly supports theistic beliefs. And so you have-- and what we've shown is that there's a controversy over those issues.

Now, what the Minority Report seeks to do with respect to that religious controversy is to-- is to use what science calls for at its core, and which is particularly necessary in origin science and historical science, is a good measure of scientific objectivity. And when you are objective, you allow students to show evidence that supports and that does not support a particular theory.

It is important that we're talking about objectivity at the institutional level. Every scientist is going to have his own bias. It's just like when we go to a courtroom, we're looking for an unbiased adjudicator of the particular result. And so when we go into a science classroom, it's essentially the job of the public school and the job of the teacher to put behind themselves, to put aside, their own personal philosophical, religious biases and simply do good science. Let the evidence-- the scientific evidence dictate what is shown to the students on both sides of that issue. And that's precisely what the Minority Report does. That achieves not only the best science, but the best science education.

What is so fascinating about that approach is that when you do an objective approach, what you do is you take the bias out. You take a bias out. Whenever you have a bias in a religious discussion, you're not going to have neutrality, and that's essentially what the Constitution calls for is a-- when the

24 State decides to embark upon-- enter an arena
25 which touches the religious sphere, when the

0129 1 State chooses to do that, you trigger
2 Establishment Clause responsibilities.
3 If we were talking about gravity and
4 there was a controversy over it, or if we were
5 talking about string theory and there was a
6 controversy over it, that wouldn't implicate an
7 Establishment Clause. But when we're talking
8 about origins, where do we come from, then you
9 have gotten into a religious discussion. And
10 so the question is: How are you going to
11 discuss that, and how are you going to conduct
12 that discussion consistent with your
13 Establishment Clause obligations?

14 I believe there are two cases which are
15 particularly important and essentially control
16 the outcome, and-- but they're very, very
17 misunderstood. The first case I've mentioned
18 is Epperson v. Arkansas, and that was a Supreme
19 Court case that was decided in the late '60's,
20 and it related to the State of Arkansas that
21 adopted a statute that would essentially
22 suppress one theory of origins. So, you know,
23 what is the origin of life? You have evolution
24 over here, and then you have theory that
25 criticism-- criticizes that. You have

0130 1 scientific criticisms, and then you have the
2 idea of Design.

3 Well, what happened in Epperson was the
4 State of Arkansas said that when you enter into
5 a classroom and you're going to talk about
6 origins, when you go in there, you have to take
7 the evidence in this hand-- this is the
8 evolution hand-- and put it behind your back.
9 And the Court said, "No, you can't do that.
10 You're in a religious sphere. You're favoring
11 one kind of view over another." The Court
12 said, essentially, if you were going to discuss
13 origins, the only neutral way you could do it
14 is to show both or put both hands behind your
15 back. And practically, it doesn't work to put
16 both hands behind your back. So I think
17 Epperson is essentially our case. In our case,
18 instead of the State doing this, the State is
19 doing that (indicating) when it embraces
20 methodological naturalism, and that is Epperson
21 v. Arkansas in spades.

22 Now, a subsequent case of Edwards v.
23 Aguilar was a bit different situation, but it
24 wasn't-- but the mechanism in the Louisiana
25 statute was to say, "You can teach this

0131 1 evolution, but only if you bring into the
2 classroom creation science, which is science
3 designed to validate the literal interpretation
4 of the book of Genesis." And the Court said
5 this idea essentially ties into a religious
6 text. This is religious. If you have to do--
7 if you do this, you have to do this
8 (indicating), then you're actually infringing

9 upon academic freedom of teachers to teach
10 this, and that, in effect, has a suppressing
11 effect and is being done for religious
12 purposes, and so that's not appropriate.

13 The most interesting quote in the Edwards
14 case is a description of what the Court said
15 should have happened. And I don't have my
16 reference here, but essentially what the Court
17 said, that if the Louisiana legislature had
18 really wanted to do effective science
19 education, to maximize the effectiveness of
20 science education, it would have simply
21 permitted teachers to teach all theories
22 relating to the origins of humankind. It
23 essentially was, you know, teach both sides.

24 That was the-- you know-- so in my mind,
25 Edwards is a similar instance of the State

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1 taking some action that would actually suppress
2 the mix of information that would be given to
3 students about this concept, a mix of
4 scientific data and information. And so I
5 think both Epperson and Edwards are consistent
6 with the idea that to teach origin science
7 constitutionally, you must try to teach it--
8 you must do it comprehensively, limited to
9 scientific explanations, scientific data.

10 And I think you heard all the witnesses
11 testify today that that is precisely what the
12 Minority Report does. It limits the discussion
13 to scientific discussion, but within that
14 limit, it opens up the discussion immensely.
15 And when you open up that discussion, and you
16 allow the evidence to come in, you remove fear
17 from the classroom. You remove the tension
18 from the classroom. Students can raise their
19 hands and ask questions, because they're being
20 shown both sides, they're being encouraged to
21 critically analyze this issue.

22 You won't have Jill Gonzales coming in
23 here in a mass of worry about the impact of her
24 testimony on her career. You won't have-- I
25 get calls from teachers all the time. I had a

0133

1 teacher call, she said, "I showed 'Unlocking
2 the Mystery of Life' in my scientific issues
3 class, and the next day the department head of
4 Biology in our high school went to the library
5 and said, 'Remove that video from the library.'
6 He'd never even seen it." And I submit that
7 anybody who's seen that video would acknowledge
8 that it's purely scientific, purely legitimate,
9 there's absolutely no reason for that to
10 happen.

11 But what happens is that the other
12 science teachers in that classroom see what
13 happened to Ms. Gonzales, and you wind up
14 freezing the discussion in its entirety. And
15 that winds up-- and essentially, it winds up
16 with teachers not really teaching evolution
17 effectively, because they're afraid to teach
18 it. If they teach it per the textbook, the
19 students and the parents are going to get

upset. If they teach criticism, their peers are going to lean on them, and they will be guilty of, quote, doing something that weakens evolutionary theory, you know, a breach of the rules. That just can't happen.

Rodney LaVey, science teacher in

Minnesota, he has a master's in biology, and he was reassigned from a biology class because all he wanted to do was teach evolution honestly. And there is a real problem when teachers can't be honest in a biology classroom. So the-- I think the Establishment Clause is-- I want to show-- okay, how much time do I have left?

MS. POSNY: About five minutes.

MR. CALVERT: Okay. I want to show the NAGB policy. Okay. When No Child Left Behind was enacted, there were added-- oops-- when No Child Left Behind was enacted, in addition to the report of the conferees which contains the language that Dr. Abrams has been reading and that's contained in the Minority Report, the provisions of No Child Left Behind contain a clause in many of its provisions that require that services and materials delivered by educational agencies be secular, neutral, and non ideological. And you see this language here. The provision-- one of the provisions provides that if a child is left behind under those-- the matrix of the guidelines by a school, the parents of the child can then select an outside provider from the public

school system to provide supplemental services. Now, for the provider to require-- to meet the requirements necessary for delivery of these outside it services, the provider must certify that it's services it will deliver are secular, neutral, and non ideological, and the second requirement is that they be consistent with State Standards, State Educational Standards.

Now, the implicit effect of that two-pronged requirement is to require that the State Standards themselves be secular, neutral, and non ideological, and that only makes sense, because the phrase "secular, neutral, and non ideological" essentially reflects much of the jurisprudence of the Supreme Court on the issue of public education.

MS. POSNY: Two minutes.

MR. CALVERT: Well, the provision was also imposed upon the National Assessment Governing Board, which prepares the nation's report card test. So the NAGB had to define that phrase "secular, neutral, and non ideological."

The definition of "secular" is interesting because it says questions will not

contain language that advocates or opposes any particular religious views or beliefs. Not advocate or oppose any particular religious views or beliefs. Well, religious views or

5 beliefs consist of theistic and non theistic.
6 So what does methodological naturalism do?
7 Which belief system does it favor?

8 Well, we've heard a lot of testimony
9 today it favors non theistic beliefs. Is it
10 appropriate, is it secular for the State to
11 adopt and embrace methodological naturalism and
12 suppress evidence that is relevant? Whether
13 it's religious or not, it is clearly relevant,
14 it is scientifically gathered, it's not drawn
15 from a religious text, it's clearly relevant.
16 What is the-- how can that be secular?

17 In fact, the state of reason for
18 methodological naturalism is to keep the
19 supernatural out. That is a reason that is
20 related directly to God. So in order to keep
21 God out of the question, we're going to
22 suppress evidence that might lead one to that
23 idea. I submit that is not a secular purpose,
24 that is a purpose relating to religion, and so
25 it runs afoul of that particular requirement.

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1 Next, look at the definition of "neutral" and
2 "non ideological."

3 MS. POSNY: One minute.

4 MR. CALVERT: Items will not advocate
5 for a particular political party or a single
6 perspective on a controversial issue. And
7 that's what methodological naturalism does. It
8 insures that only one side of the scientific
9 controversy we presume it to be will be shown
10 to the students. Thank you for listening to my
11 testimony, and we will provide a detailed legal
12 brief in our final submission.

13 DR. ABRAMS: Mr. Irigonegaray, five
14 minutes.

15 CROSS-EXAMINATION

16 BY MR. IRIGONEGARAY:

17 Q. Not having your legal brief makes it difficult
18 for me to question you about your legal
19 assertions. However, you have raised a couple
20 of issues that I think are important to
21 discuss. You mentioned the Epperson case, and
22 thinking that you might attempt to rely on such
23 authority, I did bring a copy of that case that
24 I will include in the record. Epperson, et al.
25 versus Arkansas No. 7 is a Supreme Court of the

0138
1 United States case cited at 393 U.S. 97, 89
2 Supreme Court 266. It was argued on October
3 16th, 1968, and decided November the 12th,
4 1968.

5 That case stands for the proposition that
6 a statute that makes it unlawful for a teacher
7 in any State supported school or university to
8 teach or use a textbook that teaches that
9 mankind ascended or descended from a lower
10 order of animals is unconstitutional. Which is
11 to say, is it not, Mr. Calvert, that that case,
12 in fact, stood for the proposition that the
13 statute which was a product-- and I'm quoting
14 now on page 2 of the opinion-- "The statute was
15 a product of the upsurge of fundamentalist

religious fervor of the '20's. The Arkansas statute was an adaptation of the famous Tennessee Monkey Law which that state adopted in 1925."

Now, you would agree with me, would you not, sir, that as far as the Establishment Clause of the United States Constitution, it is important that in public schools, teaching should be secular in the science curriculum? Correct?

0139

1 A. I agree with that.

2 Q. And the only argument that you have with which
3 to impeach mainstream scientists in this
4 country, and the teaching of evolution as it
5 occurs every day in Kansas and across this
6 country, is your view that that science,
7 evolution, is biased by methodological
8 materialism. Correct?

9 A. Methodological naturalism.

10 Q. Methodological naturalism.

11 A. Well, or scientific materialism.

12 Q. And--

13 A. I think that-- I think that that comes close to
14 articulating what I said. I think evolution by
15 itself without the bias and the prop is a
16 perfectly legitimate scientific theory. It's
17 when you combine it with methodological
18 naturalism and origin science that it has the
19 effect of promoting a naturalistic belief
20 system.

21 Q. And in order for your argument to hold water,
22 we would have to assume that the majority of
23 scientists in this country, including every
24 major scientific organization, is biased in the
25 manner that you suggest.

0140

1 A. No, I think that that doesn't follow. I think
2 that there are a huge number of scientists that
3 themselves don't even recognize the existence
4 of the bias. And I think that there are a
5 number of even those that do, or that maybe
6 don't, that are in dissent of, you know, the
7 science elite, as I might say. I mean, I run
8 into scientists all the time, and they say,
9 "Yeah, I know that's what they say, but I can't
10 subscribe to that." But they suffer
11 significant professional retribution if they
12 happen to be in the academic community. It's a
13 tenet that they have to abide by, or they wind
14 up like Nancy Bryson. We just saw an example
15 of it.

16 Q. Would you agree, sir, that with respect to the
17 teaching of theories of origin in public
18 schools, both the Supreme Court and the lower
19 Courts have struck down anti-evolution statute
20 policies, and disclaimers, as well as balanced
21 treatment legislation?

22 A. Yes. And I think that I probably agree with a
23 good number of those cases, and I think a good
24 number of those cases were properly decided.

25 Q. Would you agree with the principles set out in

0141

1 Edwards versus Aguilar, striking down a statute
2 that forbids the teaching of evolution in
3 public schools unless creation science was also
4 taught?
5 A. Yes, I agree with that.
6 Q. Would you agree with Epperson versus Arkansas,
7 striking down the statute that made it unlawful
8 for teachers to instruct on Darwinian theory of
9 evolution in public schools?
10 A. Very definitely.
11 Q. Would you agree Freiler versus Tangipahoa-- and
12 for the court reporter, that is T-A-N-G-I-P-A-
13 H-O-A-- where efforts of the Board of Education
14 invalidate a disclaimer required to be read to
15 students prior to teaching evolution because
16 the disclaimer had the primary effect of
17 endorsing a particular religious view?
18 A. I take exception to the Freiler case.
19 Q. You take exception to the Supreme Court in that
20 case?
21 A. I don't think the Supreme Court decided that
22 case. I believe it was decided by the 11th
23 Circuit--
24 Q. The 5th Circuit.
25 A. -- and the Supreme Court simply didn't take
0142 cert.
1 Q. And by the Supreme Court not taking cert, that
2 means that, in essence, they stood by the
3 ruling of the 5th Circuit. Correct?
4 A. That means that they couldn't get the votes
5 necessary to accept it. That does not mean
6 what-- that does not endorse a lower court
7 ruling.
8 Q. Well, it certainly doesn't set it aside, does
9 it?
10 A. No, it doesn't. I would agree with that.
11 Q. Daniels v. Waters, 515 Fd.2d, a 6th Circuit
12 Court, declaring unconstitutional a statute
13 that required disclaimer to accompany all
14 theories of origin except the biblical theory
15 of creation and that precluded the teaching of
16 occult or satanical beliefs of human origins,
17 you have no problem with that case, do you?
18 A. Mr. Irigonegaray, I will have to say I have not
19 read that. I can't recall reading that
20 particular case, and--
21 Q. How about--
22 A. -- I may have. I have a hundred cases or more
23 in my computer here, but I don't--
24 Q. It is unfair to try to have you--
0143
1 A. -- but I would--
2 Q. Let me just finish.
3 A. I mean that--
4 Q. Let me just finish, sir.
5 A. Yeah, but I--
6 Q. Let me-- just a second. It is unfair, Mr.
7 Calvert, to have anyone standing there
8 questioned about a long line of cases and to be
9 asked specifics, so I'm going to reframe the
10 question in this manner.
11 A. Sure.

- 12 Q. Would you agree that the Establishment Clause
13 of the United States Constitution requires
14 neutrality in the teaching in our schools--
15 A. Yes.
16 Q. -- as far as Satan?
17 A. Yes.
18 Q. And your argument then would be that since
19 neutrality is already breached by
20 methodological naturalism, that it is only fair
21 that Intelligent Design be permitted as an
22 alternative theory.
23 A. No. I don't think so. I think that-- I think
24 that what methodological naturalism does is
25 that it prohibits-- it prohibits a particular
0144 point of view based on-- even if-- even if
1 there is scientific evidence that supports that
2 view, methodological naturalism essentially
3 rules it out of order. And I think that that
4 is not-- and when you're in-- that impacts
5 religion, origin science. I think that any
6 time you get into a discussion of religion and
7 you decide we're going to skew the evidence one
8 way or the other, I think you violate the idea
9 of neutrality.
10 Q. And it is your opinion, therefore, that
11 evolution as it is being taught across this
12 country today is skewed in a biased manner
13 towards methodological naturalism?
14 A. I think so. I think that-- and that's been my
15 experience. I have been in a lot of different
16 states, and I've seen a lot of-- you know, the
17 last five years, it's just been-- you know, and
18 so I can cite a number of different examples of
19 the implementation of it in addition to what
20 we've heard today in testimony.
21 Q. And you would further agree with me, would you
22 not, that that term is found nowhere in the
23 Kansas Standards?
24 A. Yeah. I don't find that specific expression in
0145 the Kansas Standards.
1 Q. And you would agree further with me, would you
2 not, sir, that in order to bring this issue to
3 bear, one would have to, in essence, read
4 between the lines to assume that that is the
5 purpose of the Standards? Correct?
6 A. Well, see, that's the problem. If you're going
7 to-- and it is-- see, it's admitted that it's
8 skewed. And John Staver's admitted it, Steve
9 Case has admitted it. The reviewers of the
10 peer review all admit that methodological
11 naturalism adheres in the Kansas Science
12 Standards. And it is surprising to me that the
13 admission says it's there, but you can't find
14 the term. That really is, to me, very damning.
15 Q. Isn't what they're talking about, sir, that
16 scientists are simply interested in finding
17 natural answers to the world around us?
18 A. I think that's true. But when you get into an
19 area of origin science, you have a different
20 kind of science. It is much different than
21 other kinds of science. It's historical. That
22

requires competing multi-hypotheses.
Naturalism essentially limits to-- when we use
methodological naturalism, why do we even

discuss or investigate origins? Because we
know the answer before we even started the
investigation. What process, where do we come
from? A natural cause. I mean, why-- why even
discuss origins? You know in advance what the
answer is.

MR. IRIGONEGARAY: Mr. Calvert, do
you disagree with the-- well, I think we're
just simply going back and forth, and we're
simply not going to agree, sir. And I
respectfully disagree with you, and we'll leave
it at that.

MR. CALVERT: Mr. Irigonegaray, I
really want to thank you for your demeanor in
these proceedings. I think that you have done
a good job defending your client, and I just
want to thank you for participating. I think
it's given the public a much more interesting
discussion.

MR. IRIGONEGARAY: Thank you, Mr.
Calvert, and I look forward to the opportunity
of presenting our side this coming Thursday.

MR. CALVERT: Yes, sir.

MR. IRIGONEGARAY: Thank you, sir.
By the way, I do have a little bit of time

left, don't I?

MS. POSNY: Oh, yes.

Q. (By Mr. Irigonegaray) There's a line of
questions I forgot to ask you about. How much
money are you--

A. I knew that was coming.

Q. How much money are you expecting from the State
of Kansas taxpayers for these hearings?

A. Well, my understanding is that we're-- our
witnesses-- I'm not expecting any, but our
witnesses, other than myself, other than Dr.
Harris, I don't think we have any significant
expenses-- but other witnesses are subject to a
\$5,000 expense budget.

Q. And that 5,000 expense budget is being paid by
Kansas taxpayers?

A. Yeah, I believe so. I assume it is.

Q. And the \$5,000 is coming from the Board of
Education's budget?

A. I assume that's the case, but I don't know.

Q. And those are dollars that would normally go to
further the education of Kansas children.
Correct?

A. I believe that's the function of this hearing,
yes.

Q. And included in the \$5,000 expenses, for
example, is the expenses for the travel of the
gentleman from Turkey?

A. Not from Turkey. His travel-- he was in the
United States on other business, and so his
travel expenses are simply from Washington,
D.C., to Kansas City.

8 Q. And the expenses of others that have come here
9 and testified.
10 A. Yes.
11 Q. Does it include lodging for those individuals?
12 A. Yes.
13 Q. Does it include their food?
14 A. No.
15 Q. So you're not paying for food?
16 A. No.
17 Q. Not you, but the taxpayers are not paying for
18 their food, but they're paying for their hotel.
19 A. They're paying for their hotel.
20 Q. And do you think, sir, that the Kansas
21 taxpayers-- well, I know what your answer's
22 going to be.
23 A. Right.

24 UNIDENTIFIED SPEAKER: I don't mind
25 paying for them. It's an important issue. I'm
0149 speaking for the people.

1 MR. IRIGONEGARAY: Sir, that
2 gentleman is out of order, and he should be
3 removed from the hearings.

4 DR. ABRAMS: That's out of order.
5 We're not taking comments from the audience.

6 UNIDENTIFIED SPEAKER: Yeah, but you
7 just--

8 DR. ABRAMS: No, no, no. Please.

9 MR. SISSON: Mr. Chairman, may I make
10 one statement on behalf of my law firm? Would
11 that be okay, Mr. Irigonegaray?

12 MR. IRIGONEGARAY: I have no problem
13 with you making a statement--

14 MR. SISSON: We're not--

15 MR. IRIGONEGARAY: -- when I'm done.
16 Excuse me, sir. When I'm done.

17 MR. SISSON: I thought you were.

18 MR. IRIGONEGARAY: No, not yet.

19 Q. (By Mr. Irigonegaray) And the expenses that
20 are being paid, how are those going to be paid?
21 Are they going to come directly to the witness
22 from the State of Kansas, or are they going to
23 be funneled through you?
24

25 A. The witnesses have been asked to submit expense
0150 vouchers.

1 Q. To whom?

2 A. They will be submitted-- I will be sort of a
3 conduit. I'll gather those expense vouchers,
4 and then I will submit them to the State of
5 Kansas, making sure that there are no expenses
6 on there that we should not be asking the State
7 of Kansas to pay for.

8 Q. And you will make that determination?

9 A. Well, the State can second guess me.

10 Q. And it is true, is it not, that just before I
11 got started on this process, the budget that
12 you sought was \$20,000 for yourself? Correct?

13 A. No. That's not the case.

14 Q. How did the figure of 20,000 come about when I
15 became involved in this?

16 A. I think that the figure of 20,000-- and you
17 would have to talk to the Department of
18

19 Education, but-- and this is secondhand
20 knowledge-- but my understanding was that the
21 Department and the State Board were budgeting
22 20,000 for the entire process, not just for the
23 witnesses on this side. And so that would
24 include-- it was contemplated that you would
25 have a like number of witnesses, and so there

0151
1 would be expenses for them, and that there
2 would be expenses for the court reporter and so
3 forth. My guess is that the expenses will be
4 under the 20,000, but maybe not.

5 Q. Well, sir, I'm not accepting a penny for any of
6 the work we've done. I think that would be, in
7 essence, stealing from the children of the
8 State. Further-- further, I think it is
9 important to also place on the record that it
10 was after my objections that the \$20,000 budget
11 was reduced to 5,000. Is that correct?

12 A. I just know that we were submitting a list of
13 witnesses that looked like it could very well--
14 it was essentially a list of witnesses without
15 any cap on the amount of expenses, and the
16 State Department of Education said, "We don't
17 think it's appropriate to have an uncapped--"
18 or at least that was the impression I had, and
19 that the expenses-- "You need to figure out a
20 way to limit your expenses to \$5,000." And to
21 me, that was a reasonable request, and so
22 that's what we've tried to do.

23 We have-- we have found a lot of
24 volunteers, for example, that are handling all
25 of the ground transportation. By the way, I

0152
1 just can't thank those ground volunteers
2 enough. They have done an absolutely Trojan
3 job in getting witnesses back and forth between
4 KCI and Topeka.

5 Q. And who, sir, made the arrangements for the
6 lodging and travel for these witnesses that
7 testified on your side of the case?

8 A. The lodging was arranged by-- there was a-- the
9 Department of Education contacted the Ramada
10 Inn, I believe, and got a per-room rate of,
11 like, \$50 a night or something like that. And
12 the witnesses made their own arrangements for
13 travel in terms of airfare and things like
14 that, and so they are paying for those expenses
15 up front. And they will also-- they're paying
16 for their hotel bills as they check out. So at
17 this point in time, the State hasn't spent a
18 penny on any travel expense.

19 MR. IRIGONEGARAY: Thank you.
20 Nothing further.

21 MR. SISSON: Just to state for the
22 record, neither I nor my law firm are getting
23 one penny from this \$5,000 fund or any other
24 Kansas funds. This is entirely a pro bono
25 effort of Arnold and Porter. Had Mr.

0153
1 Irigonegaray presented witnesses next week, I
2 would have been available to question next
3 week, and that would also have been at no cost

4 to the people of Kansas.

5 DR. ABRAMS: Thank you, Mr. Calvert.
6 None of us have any questions for you.

7 MR. CALVERT: Okay. Thank you very
8 much. I would like to say just a word of
9 thanks to the court reporter, to Mr.
10 Irigonegaray, to the Committee, and to the
11 Department of Education. They have done an
12 absolutely yeoman's job, just absolutely
13 terrific job in the logistics of this hearing,
14 and they are to be commended for it. Thank you
15 so much.

16 DR. ABRAMS: We will meet again next
17 Thursday at 8:30 in this room. Thank you for
18 your interest in Kansas education.

19 (THEREUPON, the hearing was in
20 recess.)
21
22
23
24
25

0154

C E R T I F I C A T E

1 STATE OF KANSAS)
2) ss:
3 COUNTY OF SHAWNEE)

4 I, Roxana S. Montgomery, a Certified
5 Shorthand Reporter in and for the State of
6 Kansas, duly commissioned as such by the
7 Supreme Court of the State of Kansas, do hereby
8 certify that I was present at and reported in
9 shorthand the foregoing proceedings had at the
10 aforementioned time and place; further that the
11 foregoing 153 pages is a true and correct
12 transcript of my notes requested transcribed.

13 IN WITNESS WHEREOF, I have hereunto
14 affixed my Official Seal this _____ day of
15 _____, 2005.
16
17
18

19 _____
Roxana S. Montgomery
CERTIFIED SHORTHAND REPORTER
20
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