

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

3 TAMMY KITZMILLER, et al., : CASE NO.
4 Plaintiffs : 4:04-CV-02688
5 vs. :
6 DOVER SCHOOL DISTRICT, : Harrisburg, PA
7 Defendant : 28 September 2005
8: 9:00 a.m.

7 TRANSCRIPT OF CIVIL BENCH TRIAL PROCEEDINGS
8 TRIAL DAY 3, MORNING SESSION
9 BEFORE THE HONORABLE JOHN E. JONES, III
10 UNITED STATES DISTRICT JUDGE

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I N D E X
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1 PROCEEDINGS

2 THE COURT: Be seated, please. Be seated.

3 All right, we commence Day 3, and we remain in
4 the plaintiff's case. Mr. Rothschild, you look
5 most eager, so you apparently are going to take
6 charge as we start Day 3.

7 MR. ROTHSCHILD: Good morning, Your Honor.
8 Plaintiffs are here to call Robert Pennock to
9 the stand.

10 (Dr. Robert Pennock was called to testify
11 and was affirmed by the courtroom deputy.)

12 COURTROOM DEPUTY: Thank you very much.
13 Please state your name and spell your name for
14 the record.

15 THE WITNESS: It's Robert T. Pennock,
16 P-E-N-N-O-C-K.

17 DIRECT EXAMINATION BY MR. ROTHSCHILD:

1 18 Q. Good morning, Dr. Pennock?

19 A. Good morning.

2 20 Q. I have placed before you a notebook of
21 exhibits that we may use today. In addition
22 certain of the exhibits will also appear on
23 the screen and on the monitor before you.

24 Where do you live?

25 A. I live in East Lansing, Michigan.

3 1 Q. And what do you do?

2 A. I'm a professor at Michigan State
3 University. I teach in the Lyman Briggs School
4 of Science, in the department of philosophy, and
5 the department of computer science.

4 6 Q. Matt, could you pull up Exhibit P-319?

7 Dr. Pennock, do you recognize this document?

8 A. Yes. This is an earlier version of my CV.

5 9 Q. And when you say earlier, is it accurate
10 as of the date on the CV?

11 A. As of January that's accurate. There's
12 been some changes. I am now a full professor
13 and not an associate professor anymore.

6 14 Q. And where do you teach?

15 A. At Michigan State University. I'm
16 appointed in several departments. My primary
17 appointment is in the Lyman Briggs School of
18 Science, which is in the college of natural
19 sciences. I'm also in the department of
20 philosophy, and I'm also in the college of
21 engineering and the computer science and
22 engineering department, and also in the graduate
23 program in ecology, evolutionary biology, and
24 behavior.

7 25 Q. And what subjects do you teach at Michigan

1 State?

2 A. Primarily courses in the philosophy of
3 science, things having to do with confirmation
4 theory, philosophy of biology in particular.

5 I also teach courses in artificial life,
6 evolutionary computation, and issues related
7 to ethics in science.

8 8 Q. If I could ask you just to speak up a
9 little bit more for the benefit of the court
10 reporter. What degrees do you hold?

11 A. I hold a bachelors, BA, from Earlham
12 College, a double major in biology and
13 philosophy, and my graduate work was in history
14 and philosophy of science at the University of
15 Pittsburg, Ph.D.

9 16 Q. Did you write a dissertation?

17 A. Yes, I did.

10 18 Q. And what was the topic of that
19 dissertation?

20 A. My dissertation was on the nature of
21 scientific evidence in the philosophy of
22 science, the area known as confirmation theory.
23 The specific topic had to do with the nature of
24 what's known as the evidence relationship,

25 what's the notion of relevance between

7

1 hypothesis and the evidence that tests it.

2 That's the specific area that I was writing

3 about.

11 4 Q. Can you explain what philosophers of
5 science do?

6 A. Many people ask that question. What
7 philosophers of science do is analyze the basic
8 concepts, assumptions, practices of science and
9 scientists. It's like any other philosophical
10 practice, focused on the nature of the concepts
11 in particular. So philosophy of those subjects,
12 and there are a whole range of them, deals with
13 the concepts, assumptions of that area.

14 So philosophy of science deals with the
15 areas within science. There are subspecialties
16 of philosophy of biology, philosophy of physics,
17 philosophy of psychology, and so on, and each of
18 those cases what we do is look at what
19 scientists say, what they write, the practices
20 that they engage in, to try to understand the
21 concepts that are behind it, and try to in our
22 terms explicate them, which is to say take
23 concepts that may not be systematic, but to try
24 to make them systematic, try to make them

25 rigorous.

8

12 1 Q. How do philosophers of science distinguish
2 between science and non-science?

3 A. Philosophers of science focus on what
4 scientists do. If one does philosophy of art,
5 then one looks at what artists do. So our
6 primary starting point is the practices, the
7 concepts of science. So we'll look at the
8 nature of evidence for example, the basic
9 characteristics that we expect to find that we
10 will start with is that science is a practice
11 that deals with examining questions about the
12 natural world, giving explanations about the
13 natural world in terms of natural law, and
14 offering hypotheses that can be tested against
15 the natural world.

13 16 Q. Have you focused your research and writing
17 on any particular subjects?

18 A. As I said, my general topic of interest is
19 the nature of evidence in science, and the
20 particular case study that I have most focused
21 on over the years has been creationism, and more
22 particularly intelligent design creationism as a
23 way of looking at those issues.

14 24 Q. When you use the term creationism, what do
25 you mean?

9

1 A. Creationism as I use it in its general
2 sense is a rejection of evolution as science
3 understands it and a positing instead of that
4 some sort of supernatural non-material
5 intervention. There are many different kinds
6 of creationists, but that's the generic notion
7 when I use it. I also try to be specific about
8 what particular time I'm referring to. It
9 doesn't necessarily have to be a Christian.
10 There are non-Christian creationists. So one
11 has to be specific about the type.

15 12 Q. And what are the types of creationism that
13 you commonly find in the United States?

14 A. A whole range. Probably the stereotypical
15 notion is what's known as young earth
16 creationism, a view that says one can from
17 scripture perhaps calculate how old the earth
18 is and come to a conclusion that says six to
19 ten thousand years. Other creationists say well,
20 we can accept something much more along
21 scientific lines, you can interpret scripture to
22 allow geological time. So those would be older
23 creationists.

24 Within the camps you then have other
25 differing views regarding other topics such as

10

1 whether there was a global universal flood that
2 was catastrophic that shaped the world and its
3 land forms. Others would say the flood was
4 local or tranquil. So as I got into researching
5 this topic I very quickly learned that there are
6 many different factions among creationists and
7 that the stereotypical view that we have today,
8 the young earth, ten thousand year old one, is
9 actually just one, though obviously dominant
10 view, but just one of many different views.

11 The old earth creationist's view is
12 actually more somewhat of an earlier view that
13 continues to hold. In the Scopes trial
14 obviously we can think of that as the key
15 example of a creationist's view, but that was
16 the old earth view. It was not a young earth
17 view that Bryan held.

16 18 Q. Are you familiar with the term special
19 creation?

20 A. Yes.

17 21 Q. What does that mean?

22 A. Special creation is another general

23 term that's focusing on the issue that the
24 intervention from the creator the designer
25 is periodic. It's a series of special

11

1 creations, a particular one. The term actually
2 gets used in different ways, and in some cases
3 historically there's a connection that says
4 that special refers to the creation of species.
5 So that it was individual creations of species
6 themselves, special in that sense. But the term
7 is used somewhat inconsistently.

18 8 Q. What is intelligent design?

9 A. Intelligent design creationism is a
10 movement that attempts to unite these various
11 factions. I think it's best described as a
12 strategy to take disparate views such as the
13 ones that I have mentioned and to unite them
14 against a common enemy. Nancy Pearcey in her
15 recent book on "Total Truth" actually explains
16 this very well. She says that intelligent
17 design is a way for Christians who might be
18 young earth creationists, old earth
19 creationists, progressive creationists, theistic
20 evolutionists, to come together, she mentions
21 how Phillip Johnson specifically created that
22 strategy to allow them to come together to then

23 oppose the naturalist world view of evolution.

19 24 Q. Is intelligent design creationism?

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

12

20 1 Q. And is it a form of special creationism?

2 A. Yes. They hold that you cannot have a
3 natural explanation of biological complexity
4 and you need to have some special intelligence,
5 non-natural intelligence that intervenes to
6 produce this.

21 7 Q. I take it from your answers that you have
8 researched intelligent design extensively?

9 A. I've been following this from pretty much
10 the beginning of the movement really for the
11 last fifteen years focusing on intelligent
12 design, but my work on creationism really
13 started before that when it was called creation
14 science, and I sort of watched in part as the
15 transition and language occurred from creation
16 science to abrupt appearance to intelligent
17 design.

22 18 Q. Describe how you go about your research on
19 these topics.

20 A. My early work was actually inspired in part
21 by a student coming in with the book "Pandas

22 and People," it was in Texas, and it was going
23 to be proposed to be introduced in her school
24 district, and she was concerned about this. It
25 was the first time I had looked at the book. I

13

1 had also seen Phillip Johnson, I believe the
2 pioneer of the intelligent design movement, give
3 a talk in the early, early parts of this
4 movement, and wrote an article based upon one of
5 his early articles his early book.

6 I was present at a very important
7 conference that they held at Southern Methodist
8 University where many of the current big names
9 came together to articulate some of the meetings
10 for the first time. I read many of their books.
11 I have a large shelf of that, and probably
12 hundreds of their articles. I have attended
13 their talks. So that's the process by which I
14 have come to know them quite well.

23 15 Q. Who is Phillip Johnson?

16 A. Phillip Johnson is a retired law professor,
17 and he's thought of as like a pioneer most
18 credited with bringing this movement together
19 and crafting a strategy.

24 20 Q. Not a scientist?

21 A. No.

25 22 Q. This conference at Southern Methodist
23 University, do you remember who was in
24 attendance?

25 A. It was on the occasion of Phillip Johnson's

14

1 book "Darwin on Trial," something that was
2 organized around the publication of that book.
3 Some of the names that we now recognize where
4 there are William Dembski, Stephen Meyer, I
5 believe Michael Behe as well.

26 6 Q. And these are all people involved in the
7 intelligent design movement?

8 A. That's right. Those are the core, among
9 the core leaders of the movement.

27 10 Q. And they continue to be to this day?

11 A. That's right.

28 12 Q. Have you written on the subject of
13 intelligent design?

14 A. Yes. I have written probably a dozen
15 articles in various journals, and a book, and
16 I have edited an anthology.

29 17 Q. What is that book called?

18 A. The book is called "Tower of Babel: The
19 Evidence Against the New Creationism."

30 20 Q. Could you pull up Exhibit 339 on the

21 screen? Is that the cover of the book?

22 A. Yes.

31 23 Q. Can you tell us what it's about?

24 A. What it does is look at the arguments of
25 creationism both in its creation science form

15

1 and in its intelligent design form, mostly
2 focusing on the second, showing what they argue,
3 and, you know, what is wrong with it. So it's
4 a critical analysis of the movement.

32 5 Q. Did you in this book discuss how
6 intelligent design arguments compare to
7 prior creation arguments?

8 A. That's one of the things that I do in
9 comparison there is show how really, although
10 the terminology is different, the basic concepts
11 underlying it are straightforwardly connected to
12 the earlier view.

33 13 Q. You also said you edited an anthology?

14 A. The anthology was called "Intelligent
15 Design Creationism and Its Critics:
16 Philosophical, Scientific, and Theological
17 Perspectives."

34 18 Q. And could you pull up Exhibit 627? Is
19 that the cover of the anthology you edited?

20 A. Yes, that's right.

35 21 Q. And what's contained in that anthology?

22 A. The goal in that was to have a source book
23 as complete as possible of representative
24 articles from the intelligent design group
25 itself and critical assessments thereof. I

16

1 focused on articles that they published, and
2 on the critical side some previously published
3 articles, and in some cases new articles that
4 I commissioned for the volume.

36 5 Q. Have you done any scientific research on
6 the subject of evolution?

7 A. Yes. Some of my current research is on
8 testing evolutionary hypotheses making use of
9 evolving computer organisms.

37 10 Q. Can you describe in general terms what that
11 research is?

12 A. Sure. The idea is to make use of a system
13 that essentially is an evolutionary system
14 whereby the Darwinian mechanism is implemented
15 in the computer and using that to form
16 experiments to test evolutionary hypotheses.
17 Essentially one is able to watch evolution
18 happen and in replicable controlled experiments
19 test particular evolutionary hypotheses.

38 20 Q. Has this research been published in a peer
21 reviewed scientific journal?

22 A. Yes, in Nature.

39 23 Q. Matt, could you pull up Exhibit P-330?
24 Is this the first page of that article in
25 Nature?

17

1 A. Yes, that's right.

40 2 Q. And Ken Miller plugged Nature repeatedly in
3 his testimony, but I'll give you the chance as
4 well. Is Nature one of the more prestigious
5 scientific journals?

6 A. Nature, together with Science and PNAS,
7 Proceedings of the National Academy of Science,
8 are really considered the top three journals
9 within science.

41 10 Q. And obviously peer reviewed?

11 A. Peer reviewed journals, that's right.

42 12 Q. You didn't write this article by yourself?

13 A. This was a collaborative project. My
14 collaborators in this case were two of my
15 colleagues at Michigan State, Richard Lenski,
16 who is an evolutionary biologist. He's most
17 known for his work on experimental evolution
18 using bacteria. He's had lines of bacteria
19 evolving for the last fifteen years that allows

20 one to do experiments to test evolutionary
21 hypotheses in that kind of system.

22 He got very excited about this new system
23 that allows one to test evolutionary hypotheses
24 in a way where things are even faster. Charles
25 Ofria is another colleague at Michigan State.

18

1 He's in the department of computer science, and
2 he together with Christoph Adami, the last name
3 there, are the two originators of the platform
4 known at Evita. Adami is a theoretical
5 physicist. He's most known currently for his
6 work solving a problem that Steven Hawking was
7 trying to work on regarding black holes, but he
8 works in this area as well. He at the time was
9 at Tech.

43 10 Q. At where?

11 A. At Tech Research Institute out in
12 California.

44 13 Q. I'm going to ask you the same question here
14 that I have asked you in our private meetings,
15 which is these are computer organisms. They're
16 not biological organisms. What can they
17 possibly show about biological evolution?

18 A. They show us how the Darwinian mechanism

19 works. The key thing about them is that it's
20 a model where you have the laws that Darwin
21 discovered, the mechanism of random variation
22 that's heritable, that then can be naturally
23 selected, can be seen, manipulated, experimented
24 with in just the same way, it works in just the
25 same way that it works in the biological case.

19

1 These organisms, computer viruses if you will,
2 evolve. And so one can set up experiments to
3 watch them evolve and test hypotheses about how
4 the Darwinian mechanism works.

45 5 Q. Now, these organisms, computer organisms,
6 they didn't arise by themselves, correct? There
7 was a programmer involved?

8 A. Yes. That would have been Charles Ofria
9 particularly, writing we called the Ancestor
10 Program. The Ancestor is simply a
11 self-replicator, an organism that has
12 instructions to allow it to replicate itself,
13 but otherwise is just a series of blank
14 instructions. That's the basic part that,
15 was hand coded.

46 16 Q. So with that, you know, fact of a human
17 designer, a programmer, how can this teach us
18 anything about evolution in the natural world?

19 A. Our investigations are not about the
20 origin of life. Like Darwin we're not really
21 interested in that particular question. We're
22 interested in as Darwin said the origin of
23 species, the origin of complexity, the origin
24 of adaptations, and what we're able to do in
25 this system is examine essentially what Darwin

20

1 examined. We're not investigating how life
2 began itself. We're investigating how once that
3 happens, things evolve, evolve complex traits.

47 4 Q. So just to make sure I understand, this
5 research wouldn't be valuable in any way to
6 coming up with a natural explanation for how
7 the first biological life arose?

8 A. No. It's not at all aimed at that.

48 9 Q. Does the designer, the programmer, play
10 any role in the development of these computer
11 organisms, like their evolution after that?

12 A. The wonderful thing about this is that we
13 can essentially sit back and watch evolution
14 happen. We'll set up an environment, set up a
15 system, put in place the Ancestor, put in place
16 the original organism, and then within the
17 experimental set-up, depending on what one wants

18 to investigate you'll set it up differently, but
19 essentially at that point we're not going to go
20 in and hand code anything. We're not going to
21 manipulate the code. What happens at the end,
22 if they've evolve some new functional trait,
23 that something that happens by virtue of the
24 Darwinian mechanism. They randomly evolve, they
25 randomly vary, that variation is inherited, and

21

1 the natural selection then does its work.

49 2 Q. What advantages does this computer model
3 have over doing research on the subject of
4 evolution with biological organisms?

5 A. It has the advantage of speed primarily,
6 and precision. It allows us to do what you
7 really can do with natural organisms. Lenski's
8 work with E. coli lets one do experimental
9 evolution so one can test hypotheses in that
10 way. It's taken fifteen years, E. coli are
11 pretty fast replicators, but even so, four
12 generations or so a day still is a long time,
13 and your graduate students would never get out
14 and get jobs if you had to wait for that whole
15 process to go through, and what this does is let
16 one watch it happen much more quickly, and then
17 set up very controlled circumstances so that you

18 can really do replications. A controlled
19 experiment is now possible in a way that allows
20 very precise comparison of groups and then
21 statistically significant results.

22 MR. ROTHSCHILD: Your Honor, at this time
23 I'd like to move qualify Dr. Pennock as an
24 expert in the philosophy of science, in the
25 history of science, in intelligent design, the

22

1 subject of intelligent design, and in his
2 research on the evolution of computer generated
3 organisms.

4 THE COURT: All right. Subject to the
5 stipulation of the parties it's my understanding
6 that you are agreeable to that, although I'll
7 certainly give you the opportunity to conduct
8 any voir dire that you may want to.

9 MR. GILLEN: You're correct, Your Honor.
10 We've stipulated to the qualifications of all
11 the experts with one exception you're aware of.

12 THE COURT: As noted previously, so if you
13 have no questions on qualifications we'll admit
14 this witness for the purpose stated by
15 Mr. Rothschild, and you may proceed then with
16 your direct examination.

17 BY MR. ROTHSCHILD:

50 18 Q. Do you have an opinion about whether
19 intelligent design is science?

20 A. Yes, I do.

51 21 Q. And what is that opinion?

22 A. My opinion is that it does not qualify
23 as science.

52 24 Q. Why not?

25 A. As scientists go about their business,

23

1 they follow a method. Science is probably
2 most characterized by its way of coming to
3 conclusions. It's not so much the set of
4 specific conclusions that it comes to, but
5 the way in which it reaches them. In philosophy
6 we talk about this as epistemology, it's a way
7 of knowing, and science has limits upon itself.
8 It follows a particular method. It has
9 constraints. It requires that we have testable
10 explanations. It gives natural explanations
11 about the natural world. Intelligent design,
12 creationism specifically, wants to reject that.
13 And so it doesn't really fall within the purview
14 of science.

53 15 Q. Is there a name or term of art for this
16 rule of science that it must look for natural

17 explanations for natural phenomena?

18 A. Scientists themselves may not use the term.
19 This is something that philosophers of science
20 use, but the term is methodological naturalism,
21 and the idea is that this is a form of method
22 that constrains what counts as a scientific
23 explanation.

54 24 Q. In his opening defense counsel used the
25 term philosophical naturalism. Is that a term

24

1 you're familiar with?

2 A. Yes. Philosophical naturalism is one term
3 that's used. Some other terms that one finds
4 include metaphysical naturalism. I've used the
5 term ontological naturalism. The key notion
6 there is a philosophical one about the nature
7 of ultimate reality, the metaphysical notion,
8 and that's not part of science itself.

55 9 Q. If one were a philosophical naturalist or a
10 metaphysical naturalist, what conclusions does
11 that lead one to?

12 A. A philosophical naturalist would be someone
13 who says the world as it is in its ultimate
14 reality, its metaphysical reality, is nothing
15 but material natural processes, and there is no

16 supernatural, there is no god, there is nothing
17 beyond. A philosophical position, sometimes
18 with subtleties, one might call it a
19 metaphysical naturalist or metaphysical
20 materialist position, but it's a statement
21 about the ultimate nature, the metaphysical
22 nature of reality.

56 23 Q. And a statement of that nature is not
24 a scientific statement?

25 A. That's right. Science is not in the

25

1 business of making philosophical metaphysical
2 claims.

57 3 Q. Some scientists may make those statements,
4 but that doesn't make it science?

5 A. That's right.

58 6 Q. How did science adopt this rule of
7 methodological naturalism?

8 A. As I said, the term itself is something
9 that philosophers have used. So one really has
10 to go back and sort of see how that method, that
11 concept arose, and it really arose in fits and
12 starts. It's not as though one can point to a
13 particular time, but it's a change that one can
14 really trace back even to the pre-Socratics, we
15 sometimes point to Hippocrates for example as

16 one of the early glimmers of this type of view
17 with regard for example to the nature of
18 disease. An earlier view would have said that a
19 disease is the result of some perhaps possession
20 by some supernatural, divine, or demonic being.

59 21 Q. Can you give us an example of that?

22 A. Yes. Epilepsy was the example that
23 Hippocrates dealt with. It was called the
24 sacred disease. The idea was that it was kind
25 of divine possession when one went into an

26

1 epileptic seizure. Hippocrates suggested that
2 we should not think of it in that way but just
3 think of it as a normal illness and try to find
4 a normal, natural way of curing it. As he
5 talked about epidemics, again epidemics would
6 have been things that under some non-scientific
7 ways of thinking about it they're the result of
8 displeasure of God perhaps, and Hippocrates said
9 we should try to find by cataloging natural
10 regularities try to find causes for epidemics.

11 So that's sort of an early inkling of this,
12 and it's not as though this then set root and
13 established everything. One go through really
14 century by century before one finds these things

15 being teased apart. So for example really in
16 the 13th through 15th century one finds
17 alchemists, people doing supernatural magic,
18 trying to think that one can find ways of
19 overcoming the laws of nature by appeal to
20 supernatural entities and so on.

21 And a switch that kind of happened of the
22 same sort where people suggested well, maybe
23 there are just hidden regularities that we don't
24 yet know about that are actually natural
25 explanations for these apparent magical things.

27

1 So they talked about the natural magic, and the
2 idea then was let's think about what these might
3 be. Now, it's not as though they got things
4 right. Facchino was one 15th century natural
5 magic proponent who thought that influences from
6 the planets of particular sorts could explain
7 events on earth. He wasn't thinking of these as
8 supernatural. He thought of them as natural,
9 but that they could be controlled by other
10 material, talismans for example.

11 So there you're getting this notion of a
12 method that assumes natural regularities and
13 appeal to those as coming out. Really this
14 gets much more firmly established then in

15 enlightenment and scientific revolution.
16 That's probably what's most characteristic
17 of the scientific revolution, rejecting appeal
18 to authority and saying we will appeal just
19 to nature itself. We'll appeal just to the
20 evidence, the empirical evidence.

21 And it's very clear at that point then that
22 when one does science, one is setting aside
23 questions about whether the gods or some
24 supernatural beings had some hand in this. A
25 classic example had to do with meteorological

28

1 phenomenon, lightning. It would have been
2 thought or that lightning perhaps would have
3 been an expression of God's displeasure, right?
4 That God by design would send lightning
5 somewhere, and it was one of the founding
6 fathers, Benjamin Franklin of course, who
7 investigated lightning under this assumption
8 of methodological naturalism and said you can
9 have a natural explanation of lightning, it's
10 electricity.

11 And that's an example of this shift, a
12 shift as saying we're not going to say what God
13 may or may not be doing with sending lightning

14 bolts. We'll simply say let's examine this as
15 part of the natural laws of nature. Today this
16 is just firmly entrenched. Several month ago I
17 did a literature search to see if I could find
18 whether scientists might be reintroducing the
19 supernatural, the transcendent into their work,
20 and I did find the supernatural in there in one
21 sense.

22 It was considered by folks who were doing
23 work, research on medicine, and wondering about
24 how we could better get patients to follow a
25 medical regimen, follow their medications, and

29

1 it turned out that the beliefs that patients had
2 about the supernatural played a role. And so
3 in that sense they had to consider it, people
4 believed this, and so they had to understand
5 that in order to help them better follow their
6 therapies for example. The single case where I
7 found, though, where it was proposed as the
8 supernatural should be introduced in some way
9 was in an alternative medicine journal, and in
10 that case the author specifically said, "But to
11 do so of course would be to take this out of the
12 realm of science, and I'm not proposing that."

60 13 Q. So methodological naturalism is basic to

14 the nature or science today?

15 A. As I said, I could not find an exception to
16 that.

61 17 Q. And the rule is well accepted in the
18 scientific community?

19 A. That's right.

62 20 Q. Why is this methodological rule important
21 for science?

22 A. Well, it's important in the sense that I
23 just described that it's part of what it means
24 now to be a scientist. If one were to start
25 appealing to the supernatural, one would

30

1 immediately get the reaction from one's
2 colleagues this is no longer part of what it
3 is to be a scientist. So part of it is just
4 essential to the notion. Philosophically it's
5 important in the sense that it's relevant to the
6 justification of conclusions, of scientific
7 conclusions.

8 What one expects in science is that one
9 is going to be testing hypotheses against the
10 natural world, and what methodological
11 naturalism does is say we can't cheat. We
12 can't just call for quick assistance to some

13 supernatural power. It would certainly make
14 science very easy if we could do that. We're
15 forced to restrain ourselves to looking for
16 natural regularities. That's part of what it
17 means to be able to give evidence for something.
18 You've undermined that notion of empirical
19 evidence if you start to introduce the
20 supernatural.

21 And then the second part of that is it's
22 important because it makes a difference. Okay?
23 That then allows you to practically apply the
24 results of scientific inquiry. When you
25 discover these natural regularities, these

31

1 causal regularities, you're then able to use
2 them in pathology and so on, and to just take
3 it back to the example of Franklin, Franklin's
4 naturalistic, let's say methodological
5 naturalistic understanding of lightning then
6 led him to be able to invent the lightning rod,
7 which then was a very practical way of stopping
8 buildings from being hit by lightning. So
9 that's a sense in which this is crucial, because
10 it makes a difference. It lets us apply the
11 conclusions, the discoveries that scientists
12 make.

63 13 Q. Is the theory of evolution an example of
14 utility of methodological naturalism?
15 A. I actually recommend that science teachers
16 use evolution as a great exemplar of the
17 application of scientific method. It's a well
18 confirmed interlinked series of hypotheses.
19 It's not just one hypothesis, but a whole range
20 of them, that have been tested and well
21 confirmed, and in the same way that I was
22 describing before, it has practical utility.
23 One can make use of evolutionary knowledge, as
24 scientists do in a range of fields, to social
25 utility.

32

1 One needs to know it with regard to
2 medicine, and even with regard to engineering
3 applications, now one can make use of Darwin's
4 mechanism to allow engineering designs to
5 evolve. So there's practical applications
6 to evolution right now. You can get a job at
7 Google if you know something about evolution.
8 They're looking for people who know about this.
64 9 Q. And the theory of evolution has been able
10 to come up with explanations and useful
11 conclusions without appeal to the supernatural?

12 A. That's the basic presumption. That's the
13 way evolution works, the way science works
14 generally. Evolution is not exceptional in this
15 case. It's really exactly the same as any other
16 sort of science. We test it in the same way,
17 and we can apply it in the same way.

65 18 Q. Do leaders of the intelligent design
19 movement agree that science as it is currently
20 practiced includes the rule of methodological
21 naturalism?

22 A. They do, except that it includes
23 methodological naturalism, and really their
24 primary goal is to try to overturn that.

66 25 Q. Are you familiar with someone named William

33

1 Dembski?

2 A. William Dembski is one of the intelligent
3 design leaders that I have mentioned and
4 researched. He's someone who is very much
5 at the forefront of this movement.

67 6 Q. And is he one of the people who has
7 asserted this position that intelligent design
8 needs to overturn the rule of methodological
9 naturalism?

10 A. Yes, he has. In a number of different
11 places he's explicitly discussed the importance

12 of this and how intelligent design has to be
13 able to overturn this in order to move forward.

68 14 Q. And I'm going to show you some of
15 Dr. Dembski's writings. And have you
16 highlighted particular portions of those
17 writings that emphasize this point?

18 A. What I did was just take a representative
19 selection to try to indicate the way in which
20 he describes this.

69 21 Q. Could you pull up Exhibit P-343 please,
22 Matt? And do you recognize this cover here?
23 This is a cover from one of William Dembski's
24 several books, "The Design Revolution: Answering
25 the Toughest Questions about Intelligent

34

1 Design." And is this a book you have read?

2 A. Yes.

70 3 Q. Could you turn to page 19 of this book
4 please, Matt? And could you just illuminate
5 the passage that Dr. Pennock highlighted?
6 Could you read that into the record?

7 A. So this is Dembski writing, "Nonetheless,"
8 he says, "there is good reason to think that
9 intelligent design fits the bill as a full scale
10 scientific revolution. Indeed not only is it

11 challenging the grand idol of evolutionary
12 biology, Darwinism, but it is also changing the
13 ground rules by which the natural scientists are
14 conducted. Ever since Darwin the natural
15 sciences have resisted the idea that intelligent
16 causes could play a substantive empirically
17 significant role in the natural world.

18 Intelligent causes might emerge out of a blind
19 evolutionary process, he says, "but they were in
20 no way fundamental the operation of the world.

21 Intelligent design challenges this exclusion of
22 design from the natural sciences, and in doing
23 so promises to remake science in the world."

71 24 Q. Could you now go to Exhibit 341, Matt?

25 Do you recognize this cover page here?

35

1 A. This is another one of William Dembski's
2 books, "Intelligent Design: The Bridge Between
3 Science and Theology."

72 4 Q. And have you read this book?

5 A. Yes.

73 6 Q. Could you turn to page 224 of this book
7 please, Matt? Could you illuminate the passages
8 that Dr. Pennock has highlighted? Could you
9 read this statement into the record?

10 A. Here Dembski writes, "The scientific

11 picture of the world championed since the
12 Enlightenment is not just wrong, but massively
13 wrong. Indeed entire fields of inquiry,
14 including especially the human sciences, will
15 need to be rethought from the ground up in
16 terms of intelligent design." Essentially he's
17 telling us that we need to reject what it means
18 to be scientists and start over.

74 19 Q. And just one more exhibit on this point.
20 Could you pull up Exhibit 359, please? And
21 if you could illuminate the title and author?
22 Do you recognize this document?

23 A. Yes. This is an article from, by William
24 Dembski, "What Every Theologian Should Know
25 About Creation, Evolution, and Design."

36

75 1 Q. And have you read this article?

2 A. Yes.

76 3 Q. Could you turn to page 7 of the document,
4 Matt, and illuminate the passage that
5 Dr. Pennock has highlighted? And could you
6 read that highlighted passage into the record?

7 A. Dembski writes, "The view that science must
8 be restricted solely to purposeless naturalistic
9 material processes also has a name. It's

10 called methodological naturalism. So long as
11 methodological naturalism sets the ground rules
12 for how the game of science is played, is to be
13 played, IDT has no chance," Hades, I assume no
14 chance in Hades.

77 15 Q. What do you understand Dr. Dembski to be
16 conveying in that passage?

17 A. What he's saying here is pretty clear,
18 that if you take science as science, that
19 intelligent design theory has a snowball's
20 chance, and they need to change the ground
21 rules. They need to change what science is,
22 that, you know, science is hard. It requires
23 that one test things. One always says as the
24 scientists know, where's the beef, show us the
25 evidence. It's I suppose hot in the kitchen,

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1 and I guess what they're saying is if it's too
2 hot and they won't survive in the kitchen, and
3 one might say well, if the kitchen too hot, go
4 elsewhere.

78 5 Q. Specific reference to a hot kitchen there.

6 A. Exactly.

79 7 Q. Could you turn to page 8 of the article?

8 And again highlight the passage? And could you
9 read that highlighted passage into the record?

10 A. Here he writes, "In the words of Vladimir
11 Lenin, 'What is to be done?' Design theorists
12 aren't at all bashful about answering this
13 question. The ground rules of science have to
14 be changed."

80 15 Q. And I have to admit I didn't know until I
16 read that that Vladimir Lenin was part of the
17 intelligent design movement, but putting that
18 aside these passages summarize the position that
19 intelligent design takes about scientists' rule
20 of methodological naturalism?

21 A. They're quite clear. They admit that these
22 are the ground rules of science, and what they
23 want to do is revolutionize that. They want a
24 theistic science.

81 25 Q. What would it mean for science if

38

1 intelligent design's project of overturning
2 methodological naturalism was successful?

3 A. Essentially what this would be, what this
4 would mean if they were to succeed in this
5 project would be that it would turn back us to
6 an earlier era, a pre-Enlightenment era, an era
7 that I was speaking about before, before we had
8 teased apart these differences, and that would

9 be a really radical change. It would be a
10 number of steps backwards.

82 11 Q. Are there any other reasons besides this
12 rejection of methodological naturalism that
13 intelligent design does not, the intelligent
14 design argument does not qualify as science?

15 A. I point to one other particularly important
16 one which is connected to the first and one that
17 I have already mentioned indirectly, which is
18 the importance of testing. Intelligent design
19 needs to have for it to be a science a way of
20 offering a specific hypothesis that one could
21 then test in an ordinary way. They failed to do
22 that, and so they really don't get off the
23 ground with regard to science.

83 24 Q. Well, doesn't intelligent design have some
25 arguments like irreducible complexity and

39

1 specified complexity?

2 A. The notions of irreducible complexity,
3 specified complexity, or as it's sometimes
4 called complex specified information, these
5 are characteristic terms. In a way there's,
6 they're new terms for old concepts. Creation
7 scientists had similarly made criticisms of
8 the possibility of evolution to produce complex

9 features. The particular challenges from
10 irreducible complexity or specified complexity
11 are challenges to evolution and its ability to
12 produce adaptations to produce complexities of
13 certain sorts. Their claim is evolution can't
14 do it. Systems that are "irreducibly complex" or
15 have specified complexity are supposed to be by
16 them impossible to produce through Darwinian
17 mechanisms, or indeed any natural mechanism.
18 So it's a challenge to evolution.

84 19 Q. Is it a positive argument in favor of
20 intelligent design?

21 A. It's like the creation scientists before in
22 attempt to say here's something that you can't
23 do. It's an attempt to poke holes in evolution
24 itself.

85 25 Q. And what's wrong with that as a way of

40

1 demonstrating the proposition you support?

2 A. One would expect as someone who is offering
3 a particular hypothesis, if one were to do that,
4 that you would give evidence directly in support
5 of that rather than simply trying to knock down
6 one's opponent with the hope that one would be
7 left standing. The way in which this was done

8 in the earlier iteration of creationism was to
9 propose that there were two views. In that
10 sense it was called creation science. Evolution
11 science, and creation science has said here are
12 some things that science can't explain, that
13 evolution can't explain, with the hope of
14 casting doubt upon evolution.

15 What would then be left standing, well,
16 there's would be, you wouldn't have to say
17 anything positive about that. Now the
18 terminology has changed. Now it's intelligent
19 design theory versus Darwinism, but the logic
20 of the argument is exactly the same. It's
21 here's what's wrong with you, here's something
22 that purportedly you can't explain, and we're
23 going to be the ones then to be left standing.

86 24 Q. And is there a logical problem with that
25 kind of argument?

41

1 A. It's an example of a false dichotomy. It's
2 an example of in the previous iteration we
3 called it the dual model argument, as though
4 there are only two positions, and that by
5 knocking down one the other is left over. But
6 of course it's a false dichotomy. There are
7 many other positions besides Darwinism, and

8 there are certainly many other positions besides
9 intelligent design.

87 10 Q. Are irreducible complexity and specified
11 complexity associated with particular
12 individuals in the intelligent design movement?

13 A. Irreducible complexity is most associated
14 with Michael Behe. Specified complexity is most
15 associated with William Dembski. These are
16 interrelated concepts though. Specified
17 complexity is the more general form. Dembski
18 directly though says that irreducible complexity
19 is a type of, a case of specified complexity.

88 20 Q. Does your work on computer organisms
21 address these arguments of irreducible
22 complexity and specified complexity?

23 A. Yes, it does.

89 24 Q. Can you just describe for us briefly how it
25 does that?

42

1 A. Sure. The claims that are made with regard
2 to these two concepts are as follows. Systems
3 that exhibit or that purportedly exhibit
4 irreducible complexity or specified complexity,
5 actually at this point let me just focus on
6 irreducible complexity, because since it's an

7 example of specified complexity, any conclusion
8 that we can get with regard to irreducible
9 complexity would also deal with specified
10 complexity. So we can just focus on that.

11 So the claim is any system, Behe's example
12 is a mouse trap, so it doesn't have to be a
13 specifically biological system, just a very
14 general argument, any system that is irreducibly
15 complex, thus to say has interacting parts that
16 are well matched to introduce a function, such
17 that if you remove any of those parts, it
18 breaks, stops functioning, doesn't produce that
19 basic function, is an irreducibly complex
20 system, and such systems the claim is couldn't
21 have been evolved through a Darwinian mechanism.

22 What our system shows is that's just wrong.
23 We can observe digital organisms evolving by the
24 Darwinian mechanism, starting with an organism
25 that cannot produce some effect, cannot fulfill

43

1 a function, doesn't have this possibility, and
2 later on evolve to the point where it can, some
3 complex trait that we can then examine. The
4 nice thing about this system is it lets one look
5 at it very precisely, we can look inside and see
6 does it fulfill the definition?

7 In fact, it does. We can test to see,
8 remove the parts, does it break? In fact, it
9 does. And we can say here at the end we have an
10 irreducibly complex system, a little organism
11 this can produce this complex function. But the
12 nice thing about the system is that we can look
13 back and see in fact it did evolve. We can
14 watch it happen. So it's a direct refutation
15 of that challenge to evolution.

90 16 Q. Is that point addressed, put forward in the
17 Nature paper?

18 A. It's not. The Nature paper itself is meant
19 just to be a test of a general evolutionary
20 hypothesis, examining how it is that complex
21 features arise. Darwin had specific things to
22 say about that. What we were doing was simply
23 looking into that, testing it in a way. It just
24 turns out that it also applies to this case.

91 25 Q. Still on the subject of Michael Behe, but

1 in a slightly different way, if you could pull
2 up Exhibit 602? This is the expert report by
3 Michael Behe that was provided to plaintiffs in
4 this case. And could you turn, Matt, to --
5 actually if you could display both pages 9 and

6 10 of the report, and highlight the language
7 that I asked you to last night? In this report
8 Dr. Behe lists five claims for the theory of
9 evolution made by the renowned biologist Ernst
10 Meyer.

11 Evolution as such, common descent,
12 multiplication of species, gradualism, and
13 natural selection. And if you could now turn
14 to page 11, and highlight the underlined
15 language in the report? Dr. Behe asserts,
16 "Intelligent design theory focuses exclusively
17 on the proposed mechanism of how complex
18 biological structures arose. In other words,
19 intelligent design focuses exclusively on the
20 fifth claim of Darwinism, natural selection, in
21 Ernst Meyer's list on the preceding page and
22 does not concern any of the other claims."
23 Is that an accurate characterization of the
24 claims of intelligent design?

25 A. I would say not at all. I'm very surprised

45

1 to seeing something put in that way. Intelligent
2 design creationists have written about and
3 explicitly dealt with far more than just the
4 proposed mechanism, the Darwinian mechanism.
5 They have claims rejecting a range of biological

6 theses from evolution, including common descent,
7 and really things from physics, cosmology as
8 well. So they focus far more than just this
9 point.

92 10 Q. On the issue of common descent, do you know
11 what position the book "Of Pandas and People"
12 takes on that topic?

13 A. "Pandas and People" quite explicitly says
14 that we should not take common descent, it's
15 not accepted. So it's rejecting that.

93 16 Q. Just we got quite a biology lesson and
17 evolution lesson from Dr. Miller over the past
18 couple of days, but what do you mean by the term
19 common descent?

20 A. Common descent is sometimes talked about in
21 terms of the metaphor of the tree of life, the
22 idea that the organisms, the species that we see
23 today are the result of common ancestors. So
24 they descend through a pathway that has common
25 points of origin.

46

94 1 Q. And as William Dembski taken a position on
2 whether common descent is a valid proposition?

3 A. Dembski is one of the design theorists who
4 has rejected that.

95 5 Q. And let me just ask, Matt, to pull up
6 Exhibit 323, and I think we looked at this
7 article earlier, but could you turn to page,
8 and this is the article "What Every Theologian
9 Should Know About Creation, Evolution, and
10 Design," would you turn to the page Bates
11 stamped R-214 and highlight the language
12 Dr. Pennock asked you to highlight? Could
13 you read that passage into the record from
14 Dr. Dembski's article?

15 A. Dembski writes, "Yes, I do believe that
16 organisms have undergone some change in the
17 course of natural history, though I believe that
18 this change has occurred within strict limits
19 and that human beings were specifically
20 created." This is really language that is
21 exactly the same really as from the creation
22 science literature, excepting small changes
23 within strict limits, sort the micro-evolution,
24 but requiring a rejection of common descent in
25 speciation for example.

47

96 1 Q. If human becomes were specially created, at
2 least in their case there was no common descent?

3 A. That's correct.

97 4 Q. Does intelligent design make claims about

5 the age of the earth?

6 A. Intelligent design as I mentioned before is
7 often claimed to accept the scientific age of
8 the earth, but that's not correct. Intelligent
9 design as I mentioned before as Nancy Pearcey
10 described it and as you see from the literature
11 is a view that unites young earth creationists
12 and old earth creationists, and so individual
13 folks who would identify themselves as
14 themselves design theorists, some of them would
15 take a young earth view, some of them would take
16 an old earth view.

17 So it's not correct to say intelligent
18 design is old earth if it accepts that, and they
19 have explicitly written about this in many cases
20 but agreed to set that aside temporarily until
21 the initial proposition that organisms were
22 designed, that they were created, is put into
23 place. Phillip Johnson talked about how after
24 we established that, after we've gotten the thin
25 edge of the wedge in, then we can have a great

48

1 time talking about how old the earth is, and
2 that together with common descent is something
3 that they have explicitly said should be

4 appropriate to be considered in public school
5 science classes under the heading of intelligent
6 design.

98 7 Q. And just on this point of Phillip Johnson,
8 if you could pull up Exhibit 338? And this is
9 an article in the magazine "Christianity Today,"
10 if you could first turn to the article, do you
11 recognize this document?

12 A. Yes, this is an interview with Phillip
13 Johnson.

99 14 Q. And could you turn to page RP-184 and
15 highlight that passage that Dr. Pennock asked
16 you to? And could you read that into the
17 record?

18 A. So the introductory paragraph says, "In
19 spite of the division between religious
20 believers, University of California law
21 professor Phillip Johnson, whose books critique
22 Darwinism, says Christians should set aside
23 internally divisive issues and focus on
24 establishing the credibility of a theistic world
25 view. Johnson told CT," that's to say

1 Christianity Today, "people of differing
2 theological views should learn who's close to
3 them, form alliances, and put aside divisive

4 issues until later." He says, "I say after we
5 have settled the issue of a creator, we'll have
6 a wonderful time arguing about the age of the
7 earth."

100 8 Q. From a scientific perspective does this
9 agnosticism towards the age of the earth, is
10 that problematic for intelligent design?

11 A. It's an example of a general problem with
12 the view to say we just won't say is the earth
13 six thousand, ten thousand years old, or 4.5
14 billion. You know, that's a big difference.
15 And one can't remain neutral on that. The
16 sciences are interconnected, and hypotheses,
17 biological hypotheses, in order to test them
18 have to rely upon what we've learned from other
19 sciences as well. We make use regularly in
20 biology to information that we get from
21 geologists to information that we get from
22 physicists, and vice versa as well.

23 One can't just set aside the issue of this
24 huge difference between six thousand and 4.5
25 billion and say well, we just don't take a stand

1 on that. You have to be able to say here's is
2 what we can take from what geologists have

3 discovered and then make use of with regard
4 to testing, confirming biological hypotheses.
5 Young earth creationists are of course pretty
6 much concerned that you could quickly reject
7 evolution. They like this idea if there's only
8 six to ten thousand years old, then of course
9 that would reject the possibility of evolution.
10 That would falsify it right away. You couldn't
11 get the Darwinian mechanism in that short time
12 to produce this. The strategic silence on this
13 issue is a sign of just how far this is removed
14 from the ordinary basic practice of what one has
15 to deal with science. Science is
16 interconnected.

101 17 Q. Darwin's theory of evolution with small
18 incremental steps is somewhat more plausible or
19 tenable if there were 4.6 billion years to act
20 than six thousand years?

21 A. It's sometimes said by creationists that
22 evolution itself can't be tested, can't
23 falsified, and of course this is an example
24 to show just why that's wrong. If the world is
25 really only six thousand years old, that would

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1 falsify evolution.

102 2 Q. But that's not what the geological record

3 says?

4 A. But that's not the case.

103 5 Q. Is intelligent design a religious
6 proposition?

7 A. Yes, I believe it is.

104 8 Q. Why?

9 A. Really for the same reason here that by
10 insisting upon this basic proposition that the
11 features of the natural world are produced by
12 transcendent, immaterial, non-natural being,
13 that's by itself a supernatural, a religious
14 proposition.

105 15 Q. Have intelligent design leaders actually
16 described intelligent design as a religious
17 proposition?

18 A. In many different ways they have. As I
19 said, the terminology has shifted over time,
20 and it also shifts depending upon who
21 intelligent design creationists are talking
22 to. If they're talking to the press they will
23 say one thing, but if they're talking to a
24 church group they will be more explicit. The
25 terms have varied. Now we most hear intelligent

1 design theory, but at other times it's been

2 talked about not as the design hypothesis but as
3 the creation hypothesis or even the God
4 hypothesis. So there are lots of examples of
5 that.

106 6 Q. Could you pull up Exhibit 332, Matt? Do
7 you recognize this document?

8 A. This is an article from Stephen Meyer, "The
9 Return of the God Hypothesis."

107 10 Q. And who is Stephen Meyer?

11 A. Meyer is one of the core intelligent design
12 leaders. He's currently at the Discovery
13 Institute directing the center for science and
14 culture. He was also one of the "Pandas and
15 People" authors.

108 16 Q. And this article is obviously called "The
17 Return of the God Hypothesis"?

18 A. And what he does here is describe how it is
19 that this new movement is able to bring this
20 back, the God hypothesis.

109 21 Q. Call you pull up Exhibit 328? Do you
22 recognize this document?

23 A. This is a review essay from Phillip Johnson
24 of a book, "The Battle of Beginnings: Why
25 Neither Side is Winning the Creation Evolution

110 2 Q. And could you turn to page RP-63 in the
3 document and highlight the passage Dr. Pennock
4 asked you to? And could you read that passage
5 into the record?

6 A. Here's Phillip Johnson describing
7 intelligent design. He says, "My colleagues
8 and I speak of 'theistic realism,' or sometimes
9 mere creation, as the defining concept of our
10 movement." That's to say of the intelligent
11 design movement. "This means that we affirm
12 that God is objectively real as creator, and
13 that the reality of God is tangibly recorded
14 in evidence accessible to science, particularly
15 in biology."

111 16 Q. Is intelligent design a universal religious
17 view, or is it hostile to some religious views?

18 A. In some sense it's generic enough that some
19 other religious traditions can accept it under
20 the umbrella where we will speak about other
21 things later, but intelligent design is also
22 explicitly hostile to other particular religious
23 views. It takes a stand for example rejecting
24 what philosophers sometimes call theistic
25 evolution, a compatibilist position that allows

1 that evolution is true as science has discovered
2 it, but also accepts belief in God. They reject
3 that position.

112 4 Q. Are there particular individuals who have
5 rejected that?

6 A. One can find many such examples from a
7 range of folks. William Dembski in particular
8 has quite explicitly said intelligent design
9 theorists are no friends of theistic evolution.

113 10 Q. And just to be clear, is theistic evolution
11 a scientific proposition?

12 A. No, and that's actually important to say.
13 Science is neutral with regard to these sorts
14 of issues, and this isn't something that one
15 would teach or discuss in a science class.
16 Whether or not something is compatible with a
17 particular religious view, that's a theological
18 view. You might talk about that in a theology
19 class or a comparative religion class, but
20 that's not part of science itself.

114 21 Q. Proponents of intelligent design claim that
22 intelligent design is not religious because it
23 does not name the designer or describe how or
24 why it carried out the design. Why doesn't that
25 rebut your argument that intelligent design is

1 religious?

2 A. It's always important in philosophy to
3 focus upon the concepts rather than simply the
4 terms that are used, and even if one doesn't
5 explicitly say God, although as we have seen
6 they do indeed say God directly in many cases,
7 but even if one were to leave out that word and
8 simply say we're speaking of a transcendent
9 non-natural being or power, that by itself is
10 what we would call a direct description. It
11 identifies a religious concept. Even if one
12 doesn't exactly say the name, one still has the
13 concept there. It's like saying well, I didn't
14 say Valerie Plame Wilson. I simply said
15 Ambassador Wilson's wife. That's a direct still
16 identification of an individual.

17 THE COURT: To use a popular example.

18 A. Just as an example.

115 19 Q. Another argument that we hear from the
20 intelligent design movement is that, and if you
21 could pull up "Pandas," which is Exhibit 11, and
22 actually turn to page 7 of the book, is that --
23 you see the writing "John loves Mary" in the
24 sand on the page of "Pandas" there, that
25 writings like "John loves Mary" or something

1 like the statue of Mt. Rushmore or an
2 archaeological object is regularly concluded
3 that those things were designed, and we're just
4 doing the same thing here for biological
5 organisms. Why isn't that argument valid?

6 A. This is a pretty common misunderstanding
7 about what science does. It's not the case that
8 you don't speak about design in science. We do
9 so quite regularly. Archaeologists will unearth
10 artifacts, and by looking at them and examining
11 them will try to draw some conclusions about the
12 civilization that created them. Forensic
13 scientists will look at evidence and say, you
14 know, here's who done it.

15 So this is very common to draw those
16 ordinary sorts of design inferences in science
17 and just in ordinary life. But that's of course
18 not what's at issue. We do that through
19 ordinary means under the presumptions of
20 methodological naturalism. That's not what
21 is at issue here. That's very, very different
22 from drawing the conclusion about a transcendent
23 supernatural being. We really don't have any
24 grasp upon that.

116 25 Q. So when we do that for example, for a stone

1 object that an archaeologist is trying to
2 determine is this something that was the product
3 of erosion or is it a tool, do archaeologists
4 make some conclusion about who did that?

5 A. In ordinary cases that would be one of the
6 first things that one would ask. In examining
7 an artifact we're able to draw conclusions about
8 when it was created. We're able to draw some
9 conclusions perhaps about who did it, what
10 civilization it was, something about why they
11 did it perhaps. These are pretty standard
12 questions one would ask. In fact, they're
13 natural questions one would ask with regard to
14 ordinary notions of design, natural notions of
15 design, under the normal presumptions of
16 methodological naturalism. Again there's
17 nothing unusual about that, but that's not
18 what's being posited by intelligent design
19 theory. This is something that's removing those
20 constraints.

117 21 Q. And in the case of an archaeological object
22 we also draw some conclusions about how it was
23 done?

24 A. That's right. We know something about
25 other human beings, we know something about

1 their motives, we know something about their
2 interests, we know something about their causal
3 properties. We know lots of background
4 information that allows us to say here's what
5 we can conclude about who did it, when, where,
6 why, how, those natural sorts of questions that
7 we would ask.

118 8 Q. And all those questions which all the media
9 in the audience ask every day. Who, when,
10 where, why, are those questions that intelligent
11 design answers?

12 A. They'll explicitly say design can tell us
13 nothing about who the designer was or anything
14 about the designer's characteristics or motives,
15 and that's really just a sign of how disparate
16 this concept is from the basic scientific notion
17 where those would be among the first things that
18 one would offer and then get evidence for.

119 19 Q. Intelligent design also argues that their
20 work is similar to the SETI project, the Search
21 For Extraterrestrial Intelligence. Are you
22 familiar with SETI?

23 A. Yes, this is a topic that I sometimes used
24 as a case study in some of my courses.

120 25 Q. Do you know how the SETI project works?

1 A. What SETI scientists attempt to do is see
2 if they can find evidence of extraterrestrial
3 beings, that is to say beings on other planets.
4 They search for signals from other planets that
5 might be an indication that there are beings
6 there who would be sending such a signal.

121 7 Q. And what kind of signal are they searching
8 for?

9 A. I have got this information secondhand, I'm
10 not a SETI scientist myself, but in talking to
11 SETI scientists, particularly a SETI scientist
12 who was addressing the question about whether
13 their work was like intelligent design, explain
14 that they don't do anything like is claimed of
15 them. They're not looking for Pi to be found
16 and so on. They're looking for a very simple
17 signal, they sometimes describe it as a whistle.
18 The key thing is it's an artificial signal,
19 something that we produce ourselves, that we
20 know something about, a radio signal that's
21 focused in a certain way. And they quite
22 explicitly said this isn't at all like is being
23 claimed of us by intelligent design theorists.

122 24 Q. One more question. During his opening
25 argument defendant's counsel argued that the

1 Dover policy which presents intelligent design
2 as a scientific concept in the science class is
3 the essence of liberal education. Do you agree
4 with that assertion?

5 A. I don't.

123 6 Q. Why not?

7 A. It's true only in the sense that, and as a
8 philosopher I'm actually happy with this sense,
9 the classic liberal arts includes philosophy, it
10 includes theology, and in that sense certainly
11 this is a part of that. We talked about the
12 design argument in its classical theological
13 sense, arguments for the existence of God, very
14 regularly in a philosophy class or in a theology
15 class or a comparative religion class. So in
16 that sense, sure, it's part of a classical
17 liberal education.

18 But the liberal arts and sciences as we
19 understand them now differentiate that aspect
20 of the liberal arts from the sciences. The
21 sciences has its own characteristic method,
22 and to take these sorts of arguments, which
23 properly belong in this other area, and claim
24 that it's science I think really undermines the
25 very notion of a discipline. There is a rigor

1 that's important to careful thought, and that's
2 what the liberal arts attempts to instill, a
3 kind of systematic way of thinking, and it says
4 there's something about a discipline that's
5 critical that should be respected.

6 This could certainly be respected within
7 those other kinds of classes. I regularly
8 talked about them. This is actually a very
9 common thing to discuss in the philosophy class,
10 theology class, comparative religion class, but
11 not a science class. In that sense it would not
12 at all be a liberal education.

13 MR. ROTHSCHILD: Thank you, Dr. Pennock.
14 I have no further questions.

15 THE COURT: All right. Thank you,
16 Mr. Rothschild. This would be a good time
17 to take our customary mid-morning break for
18 at least twenty minutes. We'll do that now,
19 and we'll stand in recess and we'll pick it up
20 with the cross examination of Dr. Pennock.

21 (Recess taken at 10:17 a.m. Trial
22 proceedings resumed at 10:45 a.m.)

23 THE COURT: Be seated, please. It looks
24 like Mr. Gillen is up, and you may proceed with
25 cross examination.

1 CROSS EXAMINATION BY MR. GILLEN:

124 2 Q. Thank you, Your Honor. Good morning,
3 Dr. Pennock.

4 A. Good morning.

125 5 Q. Pat Gillen. We met at your deposition, and
6 I'm here today to ask you a few question.

7 A. Good to see you again.

126 8 Q. Thank you, same here. You know, you did
9 miss Ken Miller's testimony which Mr. Rothschild
10 referenced, and it was quite a show, but let
11 me ask you this. I learned something from
12 Dr. Miller's testimony that I didn't know
13 before, which is that Ken Miller believes that
14 God is the creator of all things seen and
15 unseen, and I ask you this. That doesn't make
16 Ken Miller an intelligent design creationist,
17 does it?

18 A. I'm sorry that I didn't get to hear Ken
19 himself. I feel like one follows dogs and
20 children, you know, you don't want to do that.
21 You also don't want to follow Ken Miller. He's
22 a hard act to follow. And I don't know the way
23 in which he put that, so could you say again
24 what that --

127 25 Q. My request is this. Does Dr. Ken Miller's

1 belief that God created all things seen and
2 unseen make him an intelligent design
3 creationist?

4 A. No, it doesn't.

128 5 Q. Okay, and that's because the religious
6 beliefs of a given person doesn't determine
7 whether or not that person is engaged in
8 science, is that correct?

9 A. This express belief in a creator is
10 compatible with evolution, and so that he
11 believes that or that another one doesn't is
12 not substantive to that.

129 13 Q. In fact, I believe some people describe
14 that position as theistic evolution, the notion
15 that evolutionary theory is consistent with
16 their religious faith, is that correct?

17 A. That's right. Theistic evolution is
18 sometimes used inconsistently though.
19 Occasionally it is used in the literature
20 to refer to a creationist type belief. That
21 distinction I think is better, the term that's
22 is better used is evolutionary creationism in
23 that case. So sometimes theistic evolution is
24 misused in that way, but the way that you're

25 using it and the way in which you've described

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1 it is correct, compatibilist view.

130 2 Q. Thank you. And that doesn't make,
3 Dr. Miller's beliefs doesn't make evolution
4 a religious theory, correct?

5 A. That's right.

131 6 Q. And that's because a theory doesn't become
7 scientific or not scientific based on whether
8 persons discuss whether it's consistent with a
9 given set of religious beliefs, is that correct?

10 A. The way in which one holds a position,
11 articulates a position is relevant. So you
12 have to look at exactly what they say.
13 Sometimes people will make and hold a theistic
14 view and claim that it's science. Other times
15 you will speak of it as separate. So you have
16 to look specifically at what people say with
17 regards to that.

132 18 Q. But a theory doesn't become scientific or
19 not scientific based upon whether its proponents
20 have discussed its consistency with religious
21 beliefs, is that correct?

22 A. When a person discusses whether or not the
23 content of a view is consistent or not, right,
24 at that point one is, it should be clear as to

25 whether one is speaking qua scientists or qua

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1 philosophers say, and as long as one is clear
2 about that then that's quite fine. One should
3 not say qua scientist that this is so or not
4 theologially.

133 5 Q. Well, is it your testimony here today that
6 as theory becomes scientific or not scientific
7 depending on whether a proponent has discussed
8 its consistency with religious beliefs?

9 A. To determine whether a theory is scientific
10 or not you have to look at the content of that
11 theory itself.

134 12 Q. Is it your opinion --

13 A. So the proponents of that theory would be
14 what they've said is going to be relevant when
15 you find out about what that theory exactly
16 says.

135 17 Q. And forgive me for interrupting you. Is
18 it your opinion that a theory can become
19 non-scientific because a proponent has discussed
20 its consistency with religious beliefs?

21 A. Again my point has to do with what people
22 say substantively. So it depends on what they
23 say when they discuss its consistency. If they

24 discuss substantively theological content, then
25 that's part of the content of the view, then

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1 that is relevant.

2 MR. GILLEN: If I may, Your Honor, I'd like
3 to ask the witness to examine his deposition
4 testimony.

5 THE COURT: You may.

6 MR. GILLEN: Thank you. May I approach?

7 THE COURT: You may.

8 BY MR. GILLEN:

136 9 Q. Thank you. Dr. Pennock, I have given you
10 copy of your deposition which I took on Tuesday
11 June 14th, 2005, and I'd ask you to look at page
12 51 of your deposition testimony, line 10. Have
13 you had a chance to --

14 A. I have found it here, yes.

137 15 Q. Okay. If you look at page 50, on page 9 I
16 asked you a question, "Concretely do you think
17 that a theory would be properly classified as
18 not scientific if a proponent of that theory
19 discussed its metaphysical implications?"
20 And you asked me to ask that question again, and
21 then you gave an answer. Would you look that
22 answer over?

23 A. At line 13?

138 24 Q. Yes.
25 A. Uh-huh.

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139 1 Q. I ask you again today, is it your opinion
2 that theory becomes scientific or not scientific
3 based on whether someone has discussed whether
4 the theory is consistent with religious beliefs?

5 A. And as I said there, if the discussion is
6 merely is it consistent or not, that by itself
7 does not make it so.

140 8 Q. Okay. For example, the Big Bang theory is
9 not a non-scientific theory, even though it's
10 consistent with some people's belief in creation
11 out of nothing, is that correct?

12 A. As a scientific theory the Big Bang itself
13 is not a religious view, that's right.

141 14 Q. Dr. Miller also noted that he had a
15 friendship with Richard Dawkins, and it was
16 brought to his attention that Richard Dawkins
17 in his book "The Blind Watchmaker" had made the
18 assertion that Darwin made it possible to be an
19 intellectually fulfilled atheist. My question
20 to you is it's true that Dawkins' observation
21 along those lines doesn't mean that evolutionary
22 theory is a religious theory, is that correct?

23 A. That's correct.

142 24 Q. And he's engaged in what's sometimes called
25 metaphysical extrapolation, is that correct?

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1 A. I don't see in that statement that he's
2 giving metaphysical extrapolation. The quote
3 that you have is one that's commonly quoted,
4 makes it possible to be an intellectually
5 fulfilled atheist, so that's simply saying
6 something about his own comfort.

143 7 Q. I understand.

8 A. So it's not as though he's saying this
9 proves atheism or something of that sort.
10 It allows one this state of mind.

144 11 Q. In your opinion is atheism a scientific
12 theory?

13 A. No, it's not.

145 14 Q. And Dawkins' observation doesn't make
15 evolution a non-scientific theory?

16 A. That's right. He's not saying that this
17 is something that is part of the contents of
18 the theory at all.

146 19 Q. And that assertion on Richard Dawkins'
20 part is not a scientific assertion?

21 A. The assertion there is not saying something
22 about the content of the view qua scientist,

23 that's right.

147 24 Q. And when you look at Dawkins' statement, it
25 makes it very evident that not everything that

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1 comes out of a scientist's mouth is science,
2 correct?

3 A. That's correct. Sometimes people will
4 speak qua scientist and sometimes they will
5 speak about something from their own personal
6 views.

148 7 Q. Now, Ken Miller is a friend with Richard
8 Dawkins, who engaged in this, who made this
9 statement, and Ken Miller as I have told you
10 has testified here in court that he believes
11 God created all things seen and unseen. That
12 association between Miller and Dawkins doesn't
13 make evolution a non-scientific theory, correct?

14 A. That association and the fact that they are
15 friends?

149 16 Q. Yes.

17 A. No, I think one should be friendly as
18 possible with people of all beliefs.

150 19 Q. Sure. And the fact that one of
20 Dr. Miller's friends has engaged in a
21 non-scientific statement about his view

22 concerning the possible implications of
23 evolutionary theory doesn't mean that Ken
24 Miller isn't engaged in science, correct?

25 A. The fact that he's referring to

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1 conversations you're saying with Dawkins? No.

151 2 Q. Connections with religious organizations
3 don't make a scientific theory non-scientific,
4 correct?

5 A. Connections of the theory to a --

152 6 Q. No. Connections of a given individual who
7 proposes a given theory with a religious
8 organization don't make a scientific theory
9 non-scientific, do they?

10 A. Unless it's something where the theory is,
11 includes the content of this, but the mere
12 association does not.

153 13 Q. So, for example, Ken Miller indicated to
14 the court that he's a Roman Catholic. That
15 doesn't mean because he's affiliated with the
16 Catholic Church that evolutionary theory is a
17 non-scientific theory, correct?

18 A. That's right. What one looks to is the
19 statements about the theory itself. What is its
20 substantive comment. So my commence here with
21 regard to intelligent design had to do with the

22 contents of view, statements like that of Nancy
23 Pearcey, who says that what intelligent design
24 allows one to do is in her view sit in what you
25 call it the supernaturalist's chair. You can

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1 sit in the naturalist's chair. She said the
2 design theory lets, demonstrates that the
3 Christian can sit in the supernaturalist's
4 chair, and she says it lets one in one's
5 professional life see the cosmos through the
6 lens of a comprehensive biblical world view. So
7 that's content of the theory, the content of
8 what design is. But that's different from
9 whether one is a member of a particular church
10 or something.

154 11 Q. And I understand that Nancy Pearcey is
12 entitled to her opinion as to what the benefits
13 of intelligent design theory are, just as
14 Richard Dawkins is entitled to his opinion
15 concerning the benefits of evolutionary theory.
16 But that's their opinion, correct?

17 A. The difference there is that Nancy Pearcey,
18 as one of the authors of "Pandas," and
19 describing in this case, this is in her later
20 book "Total Truth" where she's saying here's

21 what intelligent design is, it's something that
22 demonstrates the objective truth of
23 Christianity, restores it to genuine knowledge,
24 she's telling us something about the content of
25 intelligent design, as a leader of the movement

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1 describing its substance.

155 2 Q. So but Richard Dawkins is not a leader of
3 the evolutionary movement?

4 A. He's a scientist. It's hard to think of
5 the evolutionary movement as just a bunch of
6 scientists who are investigating the world.

156 7 Q. Sure. Well, a lot of intelligent design
8 people think that it's hard to think of an
9 intelligent design movement.

10 A. They explicitly talk about their movement.
11 That's actually language they use very often.

157 12 Q. Are you familiar with evolutionary theory
13 being discussed as a big tent theory?

14 A. As a big ten theory?

158 15 Q. Yes.

16 A. I have not heard that, although I'm a
17 member of a Big Ten school. I think I ought
18 to know that, I'm sorry.

159 19 Q. Forgive me if I was unclear. I said big
20 tent theory?

21 A. Oh, big tent. All right, you can see
22 that --

160 23 Q. I know you're in the Big Ten. I'm in
24 Michigan, too?

25 A. Football. A big tent theory, yes.

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1 Yes, indeed, I do know that.

161 2 Q. I live in Michigan, so I'm introduced to
3 the Big Ten. Are you familiar with that usage
4 that evolutionary theory is a big tent theory?

5 A. Yes, indeed. That's a very common usage.

162 6 Q. So it encompasses a range of positions on a
7 variety of issues, including for example common
8 descent. Is that correct, Dr. Pennock?

9 A. That's right, among a variety of positions,
10 yes.

163 11 Q. You testified that a characteristic of
12 modern science is a commitment to what's called
13 methodological naturalism, is that correct?

14 A. Yes.

164 15 Q. It's also true though that scientific
16 progress has been made prior to, what shall we
17 say, what we think of as modern science, isn't
18 that correct?

19 A. If you're saying in terms of whether we

20 made scientific discoveries, things that we
21 would regard as empirical discoveries of that
22 nature before the scientific revolution,
23 certainly so, my examples from Hippocrates and
24 others that comes before that period, but we
25 still sort of recognize that as the making use

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1 of methodological naturalism.

165 2 Q. So scientific progress has been made before
3 what we characterize as modern science with its
4 commitment to methodological naturalism, isn't
5 that correct, Dr. Pennock?

6 A. As I tried to say, the term methodological
7 naturalism is one of these philosophical long
8 terms that scientists themselves may never have
9 heard of. So the important thing is whether in
10 their practice, in their method they're actually
11 following it or not, and what I was trying to
12 explain is that this notion that we're
13 identifying now with methodological naturalism
14 in fact can be found in an early form even in
15 the early Greeks. So I wouldn't say that it's
16 sort of before science. In that sense they are
17 sort of performing what we would now think of as
18 science to the extent that they're making use of
19 that method.

166 20 Q. Let me ask you this. I mean, things such
21 as gravity, that was once thought of as an
22 occult force, correct?

23 A. Exactly. This was something where it was
24 actually sometimes described as spooky action at
25 a distance, and the change that happened there

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1 was to reconceptualize it as a natural property,
2 see it as something that was a law of nature in
3 the same way that other laws are, and to treat
4 it as something to be experimented upon,
5 investigated in the normal ways, under the
6 normal constraints of methodological naturalism,
7 and essentially what that does is take it out of
8 the realm of the occult and see it as a natural
9 sort of thing.

167 10 Q. Right, and that's what Newton did. He I
11 believe the term that you used which is useful
12 is explicate. He explicated. Is that correct,
13 or am I misunderstanding?

14 A. Explication is what philosophers do in
15 trying to take a notion, a concept in its form
16 within a practice and to try to make it
17 systematic and rigorous. So Newton himself
18 would not be doing explication. Newton is doing

19 research as a scientist. Newton is one of those
20 transitional figures where we now of course cite
21 him for the scientific work, but we also leave
22 aside those aspects that were unscientific.

168 23 Q. And the result of his work was to take a
24 force that was previously thought to be occult
25 and I believe as you have testified to bring it

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1 into the natural world, the natural causal
2 world, is that correct?

3 A. That's to say what he did was treat
4 something under the constraints of
5 methodological naturalism to say we'll view
6 this and see it no longer as supernatural, no
7 longer as breaking the laws of nature, but
8 actually as a law of nature itself.

169 9 Q. Isn't it true that in his day Newton was
10 thought to have departed from naturalism?

11 A. I'm sorry, can you say that again?

170 12 Q. Isn't it true in his day Newton was thought
13 to have departed from the law of naturalism?

14 A. As I said, this is something where Newton
15 himself is a transitional figure, and I don't
16 know if something specific in that day where
17 there was a discussion with regard to that.
18 Newton himself was very straightforward that in

19 his rules of reasoning he says we shouldn't
20 introduce superfluous causes. He talks about
21 explaining things in terms of philosophy by
22 which he means natural philosophy or what he
23 calls now science rather than bringing in the
24 divine. So with regard to his scientific work
25 we now take his scientific work, I don't think

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1 there's a departure from methodological
2 naturalism.

171 3 Q. Didn't Leibniz criticize Newton for
4 departing from naturalism?

5 A. Leibniz and Newton were at loggerheads as
6 for a number of reasons. Each thought that they
7 were the origin, the originator of the calculus
8 or fluxions, and so they were not friends with
9 regard to things. Certainly that's right,
10 Leibniz criticized some of Newton's arguments
11 on a number of points.

172 12 Q. And you're aware of the hypothesis that
13 intelligence is an emergent property of matter,
14 correct?

15 A. That would be viewing intelligence in the
16 ordinary science, scientific sense, under the
17 constraints of methodological naturalism and

18 treating it like any other property.

173 19 Q. So you regard that as a natural claim?

20 A. If viewed in that way, then that would be
21 an example of design understood, as I was trying
22 to give examples of the way archaeologists use
23 it, it's treating it in the ordinary sense the
24 natural sense of design. Someone, some person
25 like us did something.

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174 1 Q. Isn't it true that as we sit here today
2 scientists are investigating what some people
3 call psychic powers?

4 A. I know that there are a few scientists who
5 did that I believe. Mack is one name, someone
6 who's done this. So there are a few scientists
7 who have done that, that's right, and what they
8 do in that case is really the same thing. It's
9 often misunderstood to think, to call something
10 paranormal means that it is supernatural.
11 Essentially what's going on in those scientific
12 investigations is to say no, that's not so. We
13 will again treat this purported phenomenon, ESP
14 or telekinesis for example, as though this is a
15 natural, still yet unknown, but ordinary causal
16 process, treating it essentially in the same way
17 we treat other things under the constraints of

18 methodological naturalism, reconceptualizing it
19 as a natural thing rather than a supernatural.

175 20 Q. And that's more or less what Newton did,
21 right? He took something that was occult or not
22 normal and he studied it and brought it from the
23 supernatural or paranormal to the natural world
24 by virtue of his theory, correct?

25 A. It's a little misleading to say he took it

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1 from supernatural and brought it in. I mean,
2 essentially what is going on is reconceiving
3 something that we thought was supernatural we
4 now realize isn't. That's different from making
5 a claim this is the supernatural. That's
6 departing, that would be to depart from
7 methodological naturalism.

176 8 Q. Let me ask you this. There are scientists
9 investigating as you said telekinetic powers.
10 Those scientists perform experiments, don't
11 they?

12 A. I know of some experiments related to
13 attempts to study this. It's always a question
14 as to whether in fact it's a real phenomenon,
15 but there are some attempts to do that, and
16 again it's done by treating it as though it is

17 a natural phenomenon.

177 18 Q. And that's what Newton did with gravity,
19 correct?

20 A. That's right. Newton essentially says
21 gravity is a natural property.

178 22 Q. So gravity was thought to be an occult
23 force, and Newton said, "I think it's natural,"
24 correct?

25 A. That would be one way of putting it, yes.

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179 1 Q. Are you familiar with the philosopher Jerry
2 Fodor, and forgive me if I mispronounced his
3 name, F-O-D-O-R?

4 A. Yes.

180 5 Q. Are you familiar with the philosopher Saul
6 Kripke?

7 A. Saul Kripke? Yes.

181 8 Q. Isn't it true that Fodor argues that mind
9 cannot be explained in terms of evolutionary
10 naturalism?

11 A. I don't know Fodor's work specifically with
12 regard to that point. If you could say a little
13 bit something where he's coming from on that.

182 14 Q. No, if you don't know that's fine. How
15 about Saul Kripke, isn't it true that Saul
16 Kripke argues that mind cannot be explained by

17 evolutionary naturalism? Are you familiar with
18 his work?

19 A. Again I don't know any specific thing where
20 he's claiming that this is something that
21 departs from science.

183 22 Q. Isn't it true that Fodor argues that
23 scientists have failed to establish clear
24 physical criteria for saying that someone is
25 in a particular mental state?

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1 A. That's a claim that I do know that Fodor
2 has made. It has to do with establishing the
3 direct connections between these. It's not
4 something that departs from the rules of
5 science. It simply says here's an unanswered
6 question, we don't yet have an answer from that.

184 7 Q. And isn't it true that Kripke likewise
8 argues that scientists have failed to establish
9 clear physical criteria for identifying a
10 particular mental state?

11 A. Yes. Kripke is writing quite a few decades
12 back, and again the same point is true, science
13 is quite clear we have not yet been able to do
14 this. There are lots of those open questions
15 where we don't have an answer to it, but that's

16 something I would agree with as well. We don't
17 yet have an answer to that.

185 18 Q. You're familiar with the work of Gregor
19 Mendel?

20 A. Yes.

186 21 Q. And what is his status in the history of
22 science?

23 A. Mendel is important as we think of as the
24 founder of genetics. It was Mendel who was the
25 investigator of factors that determine traits.

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1 He was working with peas, beans, and postulated
2 factors which would produce the patterns that
3 were seen in differential colors for example in
4 peas or short and long stem lengths. So
5 Mendel's laws we speak of have to do with basic
6 features of the genetic mechanism.

187 7 Q. And isn't it true that Mendel's paper on
8 genetic theory was rejected for publication by
9 the German botanist Karl Von Nageli, if that's
10 the proper pronouncing, which I doubt. It's
11 spelled N-A-G-E-L-I. Isn't that true?

12 A. I don't know about that. It was eventually
13 published in a regular scientific journal.

188 14 Q. And Mendel's theory was lost for forty
15 years between the time he submitted it for

16 publication initially and the time it was, his
17 work was rediscovered, correct?

18 A. Right. This was one of the examples where
19 science re-finds something that had been known
20 before those genetic laws were rediscovered
21 independently three times by scientists
22 essentially at the same time who then all looked
23 back into the literature and found Mendel's work
24 and gave him credit for that.

189 25 Q. Now, Von Nageli, the man who rejected

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1 Mendel's article for publication, did so because
2 Mendel was an anti-evolutionist, correct?

3 A. I'd be surprised if an editor would tell
4 somebody that it's rejected because they're an
5 evolutionist in particular because at that point
6 this is the same time that Darwin's work is
7 getting underway. So those things had not yet
8 even come together. I don't know the details of
9 this. If there's a letter to that effect I'd be
10 interesting in seeing it.

190 11 Q. Von Nageli regarded Mendel as a
12 creationist, didn't he?

13 A. I'm not aware of that.

191 14 Q. Okay. You said that Mendel, we regard

15 him as the father of modern genetics.

16 A. We think of him as the pioneer of this,
17 that's right.

192 18 Q. And modern genetics is one of mainstays of
19 the so-called neo-Darwinian synthesis, correct?

20 A. Part of what Mendel's work did was show how
21 it is that the genetic mechanism works in early
22 form. Obviously we've learned much more since
23 then, so we don't talk about Mendel's theory
24 when we're talking about genetics except as sort
25 of a tip of the hat to a progenitor. And so

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1 yes, we think of Mendel as the founder of that.

193 2 Q. Dr. Pennock, isn't it true that there's not
3 agreement among philosophers of science
4 concerning the validity of methodological
5 naturalism?

6 A. The term methodological naturalism is
7 fairly straightforward in the literature.
8 There have been criticisms of it from people
9 like Del Ratzsch from discussions specifically
10 of this debate. So there's some who have taken
11 up a sympathetic position to the intelligent
12 design folks and tried to argue that we could
13 dispense with this.

194 14 Q. Dell Ratzsch is a philosopher of science,

15 correct?

16 A. He's a philosopher of science at Calvin
17 College.

195 18 Q. And one of the exhibits today featured a
19 disagreement between Dell Ratzsch and Phil
20 Johnson, correct?

21 A. That was the review that I quoted where
22 Johnson is reviewing Ratzsch's book.

196 23 Q. That's correct.

24 A. I don't think of it as a dispute. He's
25 actually dispositive with regard to, pretty much

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1 with regard to the article, with regard to the
2 book.

197 3 Q. Is it your opinion that Dell Ratzsch is an
4 intelligent design creationist?

5 A. Ratzsch himself, I don't know his position
6 on this. I haven't talked with him in regard
7 to that.

198 8 Q. Isn't it true that initially some
9 scientists resisted the Big Bang because of
10 its consistency with Christian religious
11 beliefs?

12 A. Some people rejected it because of its
13 connection to Christian religious beliefs?

14 I know that there were those such as Eddington,
15 who was one of the early scientists to look at
16 this and investigate it scientifically, that he
17 had troubles with it philosophically. It's hard
18 to say that he did because he was, I'm not sure
19 how you put it, because of its agreement with
20 Christian beliefs.

199 21 Q. Consistency.

22 A. Consistency? That would be strange to say
23 that because Eddington himself was a Christian,
24 was a Quaker, so I don't see that as something
25 that would have been the basis of this.

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200 1 Q. So it's your testimony here today that the
2 Big Bang theory did not encounter resistance
3 from persons who opposed it because of its
4 consistency with Christian beliefs?

5 A. No. There may very well be some who
6 rejected it on that grounds.

201 7 Q. In fact, initially that theory was received
8 very skeptically by some for that reason,
9 correct?

10 A. I would not be surprised to find people who
11 gave that as a reason for their own initial
12 skepticism. And there's also of course
13 scientific objections to it at the time.

202 14 Q. The Big Bang theory is currently the
15 dominant theory in that area, correct?

16 A. Yes, that's right.

203 17 Q. So those scientific objections were
18 overcome, correct?

19 A. That's correct.

204 20 Q. In fact, Einstein tinkered with his
21 equations to avoid tailoring his equations
22 and his theory to the reality of an expanding
23 universe, correct?

24 A. When you say tinkered with, what he was
25 doing was taking into account what was known

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1 and trying to work into his general theory.

2 He was attempting to come up with a very general
3 view, a constant, a cosmological constant to
4 make the equations work, make them fit with the
5 evidence.

205 6 Q. It's evident today that you published two
7 books that have to do what you call intelligent
8 design creationism. I trust you have no
9 objection to your books being in the library of
10 Dover High School?

11 A. I actually had someone call me and offer to
12 donate sixty copies to the library, and my reply

13 was I'd be happy for him to do that, but I
14 thought that he should really include sixty
15 different books, which would be easy to come
16 by, and happy that mine would be amongst them.
17 I should have just taken him up on the offer
18 though.

206 19 Q. You're familiar with the French chemist
20 Lavoisier? Did I say that correctly?

21 A. Lavoisier, yes. I can't say that in French
22 either.

207 23 Q. I'll spell that for you after the session.
24 Isn't it true that he called for a scientific
25 revolution in the area of his inquiry, self

88

1 consciously called for a scientific revolution?

2 A. With regard to chemistry, that's right.

208 3 Q. By that he meant a reinterpretation of
4 knowledge in that area as it had been known
5 to that time, correct?

6 A. This is something within the discipline
7 of chemistry that would have been regarded as a
8 significant change in basic assumptions. So
9 that's right, it's not something that was a
10 challenge to science itself. It was a challenge
11 to some specific chemical presuppositions.

209 12 Q. When you say challenge to science itself,

13 you mean science as characterized by a
14 commitment to methodological naturalism?

15 A. That's right. There's nothing in
16 Lavoisier's revolution, the chemical revolution,
17 that was at all a challenge to the basic methods
18 of science.

210 19 Q. And you're familiar with what is termed
20 the Copernican Revolution?

21 A. Yes.

211 22 Q. And that consisted in a radical re-thinking
23 of theory of universe, shifting it from a
24 geocentric theory to a heliocentric theory,
25 correct?

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1 A. That's right. Historians now more credit
2 Kepler with that and talk we should say, we
3 should really say it's a Keplerian revolution
4 because it was Kepler who was more detailed in
5 being able to establish the laws, orbital laws
6 and so on and how those work, but yes, we do
7 credit Copernicus as well with shifting our
8 perspective with regard to its center. Again
9 neither of those is a change in the methods of
10 science itself. It's accepting those and giving
11 a different physical account of the world.

212 12 Q. And again when you say that, you mean it
13 doesn't pose a challenge to the convention of
14 methodological naturalism, correct?

15 A. That's right.

213 16 Q. Your claim concerning these views that
17 intelligent design focuses on natural
18 selection is based on, and that's not an
19 accurate characterization of the intelligent
20 design position, is based on your opinion
21 concerning who belongs in the intelligent
22 design camp, correct?

23 A. What I have done throughout my research is
24 to read the full range of proponents, focusing
25 most upon the key leaders of the movement, but

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1 also more broadly and understand them in their
2 own terms, the way in which the literature, the
3 intelligent design literature is presented.

214 4 Q. And I do understand that you have conducted
5 research, but that research provides the basis
6 for the opinion you have offered here today,
7 correct?

8 A. That's right.

215 9 Q. Do you know whether Dr. Behe accepts common
10 descent?

11 A. Behe has said a number of things with

12 regard to common descent. In his book, in
13 fact he's usually described as someone who
14 accepts it, but when you look specifically at
15 what he said, he's always very careful in his
16 wording and says thing like "I have no
17 particular reason to doubt it," something of
18 that sort, leaving himself a little bit of
19 wiggle room with regard to whether he actually
20 accepts it or not or is just agnostic with
21 regard to it.

216 22 Q. Is it your opinion that Dr. Behe rejects
23 common descent?

24 A. I would like to know his specific direct
25 view on that. I have asked him and Dembski

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1 sometimes direct questions and have been unable
2 to get direct answers with regard to those.

217 3 Q. So you don't know whether Dr. Behe rejects
4 common descent?

5 A. I know what he has said, and he has said,
6 "I have no particular reason to reject it."

218 7 Q. I want to ask you a few questions about
8 your work in the computer science area and
9 Evita. You testified that in your opinion that
10 Evita is an artificial life system designed to

11 test evolutionary hypotheses, correct?

12 A. That's correct.

219 13 Q. And that's the scope of your testimony here
14 today. You said the same thing, correct?

15 A. That's correct.

220 16 Q. And you said today and I believe in your
17 opinion that it's designed to instantiate
18 Darwin's law, correct?

19 A. That's correct. By instantiate, just so
20 that I this kind of explain this sort of
21 philosophical term, the difference here is
22 between a simulation of something and an actual
23 instance of it. That's to say a realization of
24 it. In the Evita system we're not simulating
25 evolution. Evolution is actually happening.

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1 It's the very mechanisms of evolution itself as
2 Darwin discovered them. The organisms actually
3 do self replicate. They do randomly vary the
4 code changes. The mutations happen at random.
5 There is competition and actual natural
6 selection. So these are not being simulated.
7 Those processes are actually happening. So
8 that's the sense in which it's an instance of
9 evolution, not just a simulation.

221 10 Q. And to make sure I understand, it seems

11 you're saying that the instantiation makes it
12 a more perfect model of Darwinian law of natural
13 selection, is that correct?

14 A. What I'm saying is it's an actual example
15 of it, that what we have in the system our
16 organisms, Evitians, have the very properties
17 that the Darwinian mechanism discusses. So
18 it's not a simulation of replication. They
19 are actually self replicating. It's not a
20 simulation of a random mutation. That's what's
21 going on with the code. It's not a simulation
22 of natural selection. They do compete and are
23 naturally selected, without intervention,
24 without design.

222 25 Q. And Mr. Rothschild asked you and I believe

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1 you testified that the program doesn't address
2 the question of origins, but rather the process
3 of Darwin's law, it's working out in the
4 computer program organisms, correct?

5 A. It doesn't deal with the origins of life.
6 It deals with the evolution of complexity of
7 adaptations. So origins can sometimes be used
8 in both ways. So what's relevant here is it's
9 not about the origin of life. It's about the

10 origin of complex traits.

223 11 Q. And I believe you said that the overall
12 purpose of the project is to test how evolution
13 actually works, is that correct?

14 A. That's right. What we're able to do in the
15 system is put forward an evolutionary hypothesis
16 and then set up a controlled experiment and let
17 the system evolve with replications, as many are
18 as needed, and in some cases you might have
19 fifty different populations replicating in a
20 controlled situation, fifty in an experimental
21 situation, so that you can then watch what
22 happens in each case and observe evolution, the
23 Darwinian process, do its stuff.

224 24 Q. Now, if someone looked at a computer
25 program, I think you have said that it was

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1 written by a particular individual called the,
2 what did you call it, the genesis program or
3 the --

4 A. No, the Ancestor.

225 5 Q. Ancestor program, forgive me. They would
6 look at that and immediately know that was done
7 by a computer programmer, correct?

8 A. Not necessarily at all. In fact, one can
9 look at these things and not know which things

10 were coded by a programmer and which things were
11 evolved. We know because we put them in there
12 this was the one that we coded, but if one were
13 to just look at them, you wouldn't necessarily
14 be able to tell at all.

226 15 Q. So is it your testimony that if someone
16 happened to cross that computer program, they
17 wouldn't know that someone had designed it?

18 A. That's right. You would not be able to
19 pick out the ones that were evolved from those
20 that Charles Ofria hand coded as the Ancestor.
21 As I said, what the Ancestor does is simply
22 replicate it. It's a very basic program. Most
23 of it is just blank code, and as the organisms
24 evolve it can actually turn out that they lose
25 the ability to replicate. Some mutations are

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1 harmful.

2 Many are. Most are, or neutral. It might
3 make no difference. Some mutations can actually
4 make them better replicators, and if it turns
5 out that random mutations replicates better than
6 another organism, that means that in the
7 competition, in the digital environment, those
8 will be naturally selected. So what you'll have

9 over time is the evolution of for example faster
10 replicators. That is they figure out a way to
11 replicate faster than the original programmer
12 programmed in.

13 Or it could turn out that they'll be worse,
14 and those will then lose out in the competition.
15 So what you see is the evolutionary process,
16 random mutations to the code, being naturally
17 selected for and generation after generation
18 organisms evolving, in this case better
19 replication ability. Or, and this is the other
20 thing that's characteristic about Evita, it can
21 evolve the ability to perform complex logical
22 operations, and in this case again it's not
23 something that was programmed in at all.

24 The original Ancestor could do none of
25 that, but what one sees at the end are organisms

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1 that have evolved these complex abilities. The
2 code has changed. It's acquired an ability that
3 it did not have before. And that's what we're
4 able to see, something we know that was designed
5 at the beginning but couldn't do any of this
6 stuff to something at the end that has evolved
7 so it's quite complex.

8 The set of instructions has to be executed

9 in a specific order to produce a particular
10 function. That's something we can look at and
11 say how did it do it, and often they're very
12 clever, they evolve things where the programmer
13 would think why, I would never have thought even
14 to do it that way. And that's what allows this
15 to be a nice model for examining how evolution
16 can produce complex functional adaptations.

227 17 Q. Sure.

18 A. If you have it, and the other thing about
19 it is -- sorry, I get excited about this. We
20 can trace, we can keep track of the full
21 evolutionary history. So we have a complete
22 fossil record if you will. So after we've see
23 that it's evolved something we can look back and
24 look, it's a mutation by random mutation of how
25 that evolved.

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228 1 Q. Sure, and forgive me if my question was
2 imprecise. I didn't want to cut you off, but
3 my question is a little different than one
4 you've answered at least as I see it, not
5 technical, which is this. I'm not asking about
6 the difference between the organisms you're
7 looking at. I'm saying if someone came across

8 that computer program, the Ancestor program,
9 wouldn't they believe it was designed?

10 A. And my answer is that you really can't say
11 that. You might believe it and you'd be wrong.
12 You can't tell the difference between the one
13 that was encoded and one that was evolved later
14 on.

229 15 Q. So it's your testimony that someone could
16 believe the computer program was not designed?

17 A. You're asking a psychological question
18 about what someone could believe, is that right?
19 In that case they could believe all sorts of
20 things, but the question has to do with can
21 you look at them and tell this was one that
22 was designed, and the answer there is no,
23 not necessarily.

230 24 Q. Let's use your definition and let's
25 constrict causality to the natural world

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1 and I'll ask you the question again. If
2 someone like myself wandered down to Michigan
3 State University and came across your computer
4 system generating this pattern that you have
5 described in great detail which is designed to
6 substantiate Darwinian mechanism, is it your
7 testimony or do you have an opinion concerning

8 whether someone like me would think that was
9 designed or not?

10 A. Someone might think it was. You might look
11 at it and you might say wow, that looks pretty
12 complicated, how could that have happened. You
13 might think this is so amazingly functional and
14 interrelated, it's irreducibly complex, it had
15 to have been designed by someone, and you'd be
16 wrong.

231 17 Q. So I would be wrong if I inferred that that
18 computer program has been designed by a computer
19 programmer?

20 A. That's right. You'd be wrong about that.
21 The ones that emerged at the end of the
22 evolutionary process have specific code that
23 lets them do specific adaptive functions, and
24 that was not programmed in.

232 25 Q. Would I be wrong if I inferred that

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1 the computer program had been created by a
2 supernatural force?

3 A. If you were to conclude this just as
4 a theological position or as a scientific
5 position?

233 6 Q. If I were to conclude it in any way.

7 A. So again, and this is a nice example to
8 sort of show the difference between thinking
9 about this as a scientist under methodological
10 naturalism versus the intelligent design notion
11 of opening our minds to the possibility, what I
12 have said here is that the organisms at the end
13 weren't designed. We didn't have a hand in
14 doing that. They evolved. Someone who says
15 well, we have to consider the possibility of
16 supernatural interventions might say well, you
17 know, God was in there or some supernatural
18 designer was in there changing the bits inside
19 the computer.

20 Well, you know, we don't know if that's
21 true, and no scientist can ever know if that's
22 true. That's not a testable proposition. So
23 in that sense we can never rule that out.
24 That's part of what it means to be a
25 methodological naturalist. So we're neutral

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1 with regard to that. Our conclusion that there
2 was no design is one based upon methodological
3 naturalism, namely we're assuming that this is
4 working through ordinary laws, that there aren't
5 any interventions that breaking laws. We know
6 that we didn't do it, and that's what we can say

7 as scientists. If God or some supernatural
8 being is in there fiddling with the gates, the
9 logic gates such that there really was design,
10 we don't have any way of testing that.

234 11 Q. Dr. Pennock, you testified that if someone
12 were to reject, if the intelligent design
13 theorists or intelligent design creationists
14 as you call them were to succeed, modern science
15 would be knocked backward. Is that your
16 testimony today?

17 A. That's right. It would be a return
18 to this earlier pre-scientific notion.

235 19 Q. Are you familiar with the work of
20 Dr. Scott Mennick?

21 A. I am familiar with him. I have met him
22 and talked with him.

236 23 Q. Do you know whether he's engaged in
24 scientific research?

25 A. I believe he is.

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237 1 Q. Do you know whether he is a proponent of
2 intelligent design?

3 A. He is.

238 4 Q. I believe that you have testified today
5 that in your opinion as an expert, intelligent

6 design is creationism.

7 A. That's correct.

239 8 Q. And that's based on your research and your,
9 the application of your training to the database
10 that you have used for that research, is that
11 correct?

12 A. That's right.

240 13 Q. And your expert credentials are those that
14 were listed on your CV, is that correct?

15 A. Yes.

241 16 Q. You testified about young earth
17 creationists. Is it your opinion that
18 that's not science?

19 A. That's correct.

242 20 Q. Are you familiar with the work of Larry
21 Laudan, L-A-U-D-A-N?

22 A. Yes, Larry Laudan was a philosopher of
23 science who actually has been a previous
24 professor at the university where I did my work.

243 25 Q. And Larry Laudan said he believes that

1 creationism is science, it's just bad science,
2 correct?

3 A. You're referring to a particular article
4 that Laudan wrote that Michael Ruse included in
5 his anthology on creation science movement in

6 the early 80's, and in that case Laudan is
7 making arguments that creation science should
8 be allowed to be science in that he says it's
9 offering a claim that could be proved, but that
10 is found to be false such as the age of the
11 earth, because we know that that's not true.
12 So in that sense he says this is something that
13 is bad science.

14 If one were to put that forward as though
15 it were science, that would be wrong, it's bad
16 science. But he said we can allow that as
17 science. Now, he does that under the assumption
18 that we're judging this under the kinds of rules
19 that I'm mentioning, to say that we're judging
20 that the young earth hypothesis, let's say that
21 the earth is ten thousand years old is false,
22 and that we have disconfirmed that. That
23 disconfirmation is done by assuming that we
24 can judge it under the rule of methodological
25 naturalism.

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1 That's to say that we're taking our
2 ordinary notion and not allowing supernatural
3 intervention. If we were to allow it, then we
4 would not be able to say that this is something

5 that has been disconfirmed. That's to say if
6 you take seriously the content that departs from
7 scientific method and at that part, point, you'd
8 be wrong to say that it's just bad science. At
9 that point you'd just say it's not science.

10 So this is always the sort of a subtle
11 point that's important to try to get across,
12 and let me try to put it this way, right?

13 It's often complained by creationists that
14 they say oh, you know, you're saying that we
15 can't be falsified, and yet at the same time
16 you're saying that we are falsified. Gosh,
17 isn't that a contradiction? And that's just
18 a misunderstanding, right?

19 The claim that it can't be falsified is
20 the claim that it can't be falsified if one is
21 departing from methodological naturalism. That
22 is to say if you treat this as just an ordinary
23 scientific hypothesis, then you'd say well, we
24 projected that the earth is ten thousand years
25 old. But if you depart from it and take

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1 seriously the supernatural content, then you
2 can't say that anymore, because at that point
3 who knows?

4 Young earth creationists, some of them have

5 said well, the world looks old, but it looks old
6 because God made it old, that really it is six
7 thousand years old but he made it so that it
8 appears to be much longer, did much, much
9 earlier. Well, that's sort of a deceptive view
10 about the way things were created. But if you
11 take that view that it's possible to say that
12 the supernatural being is deceiving us in this
13 way, then there's no way to say that we've
14 disconfirmed that.

15 For all we know the world may have been
16 created five minutes ago and we've just been
17 implanted with memories to make us think it
18 that it's much longer, right? There's no way
19 to disprove that. If you seriously take the
20 supernatural possibility, then you can't
21 disconfirm it. So that's the sense in which
22 it's important to say under the assumption of
23 methodological naturalism, we have disconfirmed
24 it, it's bad science, that's what Laudan is
25 talking about, but if you were to take seriously

1 the non-natural part, that's to say rejecting
2 scientific method, then it's just not science,
3 and we can't say that we have rejected it. So

4 there's always these two different hypotheses.
5 You've got to keep them distinct. There's no
6 contradiction.

7 MR. GILLEN: Thank you, Your Honor. I
8 have no further questions.

9 THE COURT: Thank you, Mr. Gillen. Redirect
10 by Mr. Rothschild?

11 MR. ROTHSCHILD: Just a few questions,
12 Your Honor.

13 REDIRECT MR. ROTHSCHILD:

244 14 Q. Hello again, Dr. Pennock. Early in your
15 cross examination Mr. Gillen brought up the
16 subject of Newton and suggested that there have
17 been supernatural explanations for action at a
18 distance, I think you called it spooky action
19 at a distance, but that Newton took that
20 supernatural proposition and came up with a
21 natural explanation, is that correct?

22 A. That's right. Essentially it's a
23 reconceptualization of what was taken to be
24 supernatural and saying oh, no, it's not
25 really supernatural, we're not even going to

1 think of it in that way, we'll think of it under
2 the constraints of methodological naturalism and
3 treat it as a natural hypothesis and then treat

4 it as such.

245 5 Q. And your example of epilepsy with
6 Hippocrates, a similar phenomenon, we had a
7 supernatural or spiritual explanation and
8 Hippocrates said no we can come up with a
9 natural explanation?

10 A. Exactly. And again one remains neutral
11 metaphysically about whether or not there is
12 some divine basis for this. That's just
13 something that's outside of science. It's what
14 one is doing within science as saying this is
15 just a natural explanation, that's what we're
16 getting.

246 17 Q. Is intelligent design making the same
18 kind of transition?

19 A. Explicitly not. Their basic goal and
20 proposition is to change the ground rules.
21 They want the supernatural to be introduced as
22 you know Nancy Pearcey has said, this lets us as
23 professionals, intelligent design demonstrates
24 that Christians as professionals can sit in the
25 supernaturalist's chair. She's not saying that

1 we can say what we thought was supernatural is
2 natural. No, this is meant to be substantive,

3 it's meant to be a rejection of the basis of
4 science.

247 5 Q. Dr. Pennock, isn't intelligent design in
6 fact doing the exact opposite as Newton, taking
7 a natural phenomenon for which we have natural
8 explanation and arguing that we have to replace
9 it with a supernatural explanation?

10 A. Exactly, in the sense that the kinds of
11 examples that they give of design inferences,
12 every single one of them is a natural notion
13 of design. No one has any objection to those,
14 but those are done under ordinary constraints
15 within science, and we can give evidence and
16 test those, which we do all the time. They're
17 wanting to reject that notion such that even
18 ordinary cases wind up being quite
19 extraordinary.

248 20 Q. And in the case of the theory of evolution
21 we have a natural explanation?

22 A. We can see it happen.

249 23 Q. And they want to displace it with a
24 supernatural explanation?

25 A. Exactly.

1 MR. ROTHSCHILD: I have no further
2 questions, Your Honor.

3 THE COURT: Recross.

4 RECROSS BY MR. GILLEN:

250 5 Q. Dr. Pennock, it's your opinion that we have
6 a natural explanation for the origin of life?

7 A. I haven't said something about the origin
8 of life. I think science does not yet have an
9 explanation of the origin of life. It's a topic
10 of research. People are working on it. One of
11 my colleagues at Lyman Briggs is part of a
12 project that is actually looking at a new method
13 for how one can have an explanation of that.
14 We'll see whether that pans out or not. So
15 there's real research going on, but that's not
16 part of the Darwinian theory. Darwin has set
17 aside that question. The question is the origin
18 of species, the origin of adaptations, of
19 complexity and so on, and that's where we can
20 say we have an explanation.

251 21 Q. Do you have an understanding concerning
22 whether intelligent design theory as I call it,
23 intelligent design creationism, is usually what
24 speaks to the origin of life?

25 A. In some of their literature they have used

1 origin of life explicitly as an example of

2 something that cannot be explained naturally.

3 Stephen Meyer for example often uses that in his
4 talks. Others have as well. Sometimes though
5 the focus is on things other than the origin of
6 life.

252 7 Q. And there are philosophers of science who
8 believe that mind cannot be understood in terms
9 of evolutionary naturalism, correct?

10 A. The question is whether science has been
11 able to explain this in natural terms.

253 12 Q. No, the question is whether there are
13 philosophers of science who believe that mind
14 cannot be explained in terms of evolutionary
15 naturalism.

16 A. If we're talking about philosophers,
17 then that's certainly true. There are some
18 philosophers who will consider the matrix
19 hypothesis as well that life was created five
20 minutes ago. So yes, indeed, we have lots of
21 discussions about that within philosophy.

22 MR. GILLEN: No further questions, Your
23 Honor.

24 THE COURT: All right. You may step down,
25 Dr. Pennock, thank you. Our exhibits then for

1 Dr. Pennock are as follows. We have P-319,

2 which is the CV for Dr. Pennock. Any objection?

3 MR. GILLEN: No objection.

4 THE COURT: That's admitted. 339 is the
5 "Tower of Babel" book as indicated by, or as
6 discussed by Dr. Pennock during his testimony.
7 Are you seeking to introduce the entire book?

8 MR. ROTHSCHILD: We are, Your Honor.

9 THE COURT: Objection?

10 MR. GILLEN: No objection.

11 THE COURT: That's admitted. P-627 is
12 the book "Intelligent Design Creationism,"
13 I'm abbreviating that title I believe. But
14 are you seeking to admit the entire volume or
15 not?

16 MR. ROTHSCHILD: We're not going to move
17 that into evidence.

18 THE COURT: All right, that's not admitted.
19 The nature article is P-330. What's your
20 pleasure with that, Mr. Rothschild?

21 MR. ROTHSCHILD: We'd like to move that
22 into evidence.

23 MR. GILLEN: No objection, Your Honor.

24 THE COURT: That is admitted. 343 is the
25 book "The Design Revolution."

1 MR. ROTHSCHILD: We'd like to move that into
2 evidence.

3 THE COURT: Any objection?

4 MR. GILLEN: We have no objection.

5 THE COURT: That is admitted then, P-343.
6 P-341, another book, "Intelligent Design,"
7 you're pleasure on that?

8 MR. ROTHSCHILD: We'd like to move that into
9 evidence, Your Honor.

10 MR. GILLEN: No objection, Your Honor.

11 THE COURT: That's admitted. The Dembski
12 article is P-359.

13 MR. ROTHSCHILD: We'd like to move that into
14 evidence, Your Honor.

15 MR. GILLEN: No objection, Your Honor.

16 THE COURT: That's admitted. The expert
17 report is P-602.

18 MR. ROTHSCHILD: We are not moving that into
19 evidence.

20 THE COURT: I assume that, that's not
21 admitted. Separate article, separate Dembski
22 article is P-323.

23 MR. ROTHSCHILD: We're moving that into
24 evidence, Your Honor.

25 MR. GILLEN: We have no objection.

1 THE COURT: That's admitted. P-338 is
2 the Christianity Today article.

3 MR. ROTHSCHILD: We are moving that into
4 evidence, Your Honor.

5 MR. GILLEN: No objection.

6 THE COURT: That's admitted. The Meyer
7 article is P-332.

8 MR. ROTHSCHILD: We are moving that into
9 evidence.

10 MR. GILLEN: No objection.

11 THE COURT: All right, that's admitted.
12 And the Ratzsch article is P-328.

13 MR. ROTHSCHILD: We are moving that into
14 evidence.

15 MR. GILLEN: And I have no objection.

16 THE COURT: And that's admitted. I have no
17 exhibits, no new exhibits by Mr. Gillen during
18 his cross. Is that correct, Mr. Gillen?

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

20 THE COURT: Any other exhibits that I have
21 missed?

22 MR. ROTHSCHILD: No, Your Honor.

23 THE COURT: All right. Let me have counsel
24 approach, please?

25 (Side bar at 11:48 a.m.)

1 THE COURT: It's ten of 12:00, and what have
2 you heard from Mr. Benn?

3 MR. WALCZAK: He will be here at 1:15.
4 The reporters will be here with them, and I
5 advised him that Your Honor would give him an
6 opportunity to make whatever arguments he wants
7 to make at that time, and at that time we'd go
8 from there.

9 THE COURT: Well, my intention would be to
10 meet in chambers with all counsel, not the
11 reporters, and then have a discussion and see
12 precisely where we are. I think there's it's
13 appropriate for you not to try to paraphrase
14 what Mr. Benn's exact position is.

15 MR. WALCZAK: I have a hard enough time
16 making my own arguments.

17 THE COURT: But given that, I guess the
18 question is should we start with another witness
19 now or should adjourn and come back at 1:15?

20 MR. HARVEY: I think we should adjourn. The
21 next witness is going to be Steve Stough. He's
22 going to be I would say approximately 45 minutes
23 to an hour maybe.

24 THE COURT: So it seems to make little sense
25 to -- are you all right with that?

1 MR. GILLEN: Yes, certainly.

2 THE COURT: All right. Why don't we do that
3 then. Let's break and we'll come back roughly,
4 why don't you assemble in chambers. I'll let
5 you all find Mr. Benn when he gets here and
6 yank him into chambers and we'll have that
7 discussion, and then my intention is if in fact
8 the answer is in the negative, I guess we're
9 going to have to have a proceeding in open court
10 with respect to the reporters to see where that
11 goes at this point. You do not know whether
12 it's his intention at this point, you don't know
13 the reporters' intentions with respect to
14 whether they would indicated that they'd
15 testify? That seems rather counterintuitive.

16 MR. WALCZAK: My best information is that
17 he will not.

18 THE COURT: That would make sense.
19 That would be more consistent than if they
20 would show up and they say won't testify,
21 and I frankly will have to ask for an
22 understanding --

23 MR. WALCZAK: I think they will say their
24 names and then they will refuse to answer
25 questions in both their alleged First

1 Amendment --

2 THE COURT: No rank, no serial number?

3 MR. HARVEY: Your Honor, I want to give you
4 a heads up on something else that's coming up
5 this afternoon. Probably not at momentous as
6 this. This afternoon we're going to call Steve
7 Stough, who read a number of the -- he only
8 knows what he read in the paper, and so we're
9 going to do again what we did yesterday, which
10 is attempt to introduce the article.

11 THE COURT: You mean he really only knows
12 what he read in the paper?

13 MR. WALCZAK: He didn't attend --

14 MR. HARVEY: He didn't attend the meetings.
15 So and then in addition we're going to --

16 THE COURT: What's the purpose of
17 Mr. Stough?

18 MR. HARVEY: The purpose of Mr. Stough is
19 to testify about the harm to him, his perception
20 of the Dover school district's public statement
21 that was published, but also to testify about
22 what he learned through the paper at the time,
23 because we think it's relevant to the effect
24 on the community and the endorsement test.

25 THE COURT: Well, they have an objection,

1 and I haven't ruled on whether or not the
2 contents of the papers are admissible for
3 the purpose of the effect portion, and you're
4 forewarned that I might not allow that. You
5 know, that compels me to decide that objection,
6 and if I have to do it this afternoon I may
7 not allow it as it goes to --

8 MR. WALCZAK: Even for a non-hearsay
9 purpose, this is clearly for --

10 MR. GILLEN: It's not clearly for any such
11 purpose, Your Honor.

12 THE COURT: Well, I think it's an attempt
13 to introduce it for that purpose.

14 MR. GILLEN: Yes.

15 THE COURT: Your argument is that it's not
16 clearly for that purpose, and I understand that
17 argument. I think this is a complicated
18 question and, you know, we'll rule as we must
19 if you bring him in at that point. I think
20 it's difficult, you know, I've made the popular
21 analogy to unringing the bell, I think in a
22 bench trial intellectually I can separate out
23 one from the other, but I'm not so sure I
24 should, and I think that's entirely problematic.

25 Now, you know, if I would not allow that

1 testimony for example, and if for example the
2 determination that I have made with respect to
3 reporters is appealed to the Third Circuit and
4 if the Third Circuit believes that I'm correct,
5 and if the reporters are compelled to testify,
6 and if you get the newspaper articles in through
7 that mechanism, then that I guess would allow
8 you conceivably if I sustain an objection this
9 afternoon to bring this witness back in a
10 rebuttal phase, and I wouldn't prevent you from
11 doing that, but at this stage I have to tell you
12 I don't think it's clear as you believe it to be
13 that I should simply let the newspaper article
14 in on the effect.

15 And I have to tell you, too, that given the
16 state of jurisprudence on these issues, which is
17 somewhat dicey, and all of you would admit that
18 probably in moments of candor, that to simply
19 state that you introduce it on the effect part
20 of it and it doesn't go to truth I think is
21 problematic, because I think it does wash over
22 the truth, and I think courts are unclear on
23 that point, and I might say that also to further
24 buttress the difficulty you have.

25 MR. HARVEY: Let me, Judge, just have a

1 couple of other things I think you need to know.
2 One is is that I anticipated that if when I did
3 this with the articles today that you might take
4 it under advisement until later if the reporter
5 issue hadn't been considered, just as we did
6 yesterday, and I was putting a heads up, just I
7 didn't want you to think I was butting heads
8 with you.

9 THE COURT: No, and to be fair I understand
10 that and I respect that. But you understand
11 it wouldn't be so much that I take it under
12 advisement. It might be that I would sustain
13 the objection, and then you're left with the
14 scenario that I outlined.

15 MR. HARVEY: I understand. I understand.

16 THE COURT: So you call it --

17 MR. HARVEY: Here's a related problem. We
18 intend through Mr. Stough to also seek to lay
19 a foundation for the admissibility of letters to
20 the editor and editorials that were in the Dover
21 papers during the relevant time frame that
22 relate to this issue and as they are related to
23 the endorsement and the endorsement issue.

24 THE COURT: Why can't you recall him for
25 that purpose? When we see what happens with

1 the reporters why can't you do that?

2 MR. ROTHSCHILD: The reporters obviously are
3 not the author of these letters anyway, so that
4 isn't going to change with the resolution of the
5 reporters.

6 MR. WALCZAK: This is a completely
7 non- hearsay issue that all of these
8 articles are self-authenticating is a 9026 --

9 MR. HARVEY: Letters and editorials.

10 THE COURT: Well --

11 MR. WALCZAK: Even those that are coming
12 in not for the truth of what is said, simply
13 is the fact that this is what's out there.

14 THE COURT: Well, I understand that,
15 Mr. Walczak. But as I just said, I'm not
16 so sure that when you consider the effect
17 problem it doesn't wash over into the truth.
18 I don't think it's as pure as you cast it to
19 be. Now, we're talking about different things.
20 If we're talking about the articles that
21 contain statements, quotations from individuals
22 school board members, I think that's entirely
23 problematic, and I don't necessarily buy into
24 your argument that it self-authenticates for
25 the purpose of the effect on that.

1 If we're talking about letters to the
2 editor, I think that's something different. If
3 we're talking -- it may be something different.
4 If we're talking about editorials that don't
5 contain quotes, that may be something different.

6 MR. GILLEN: I can argue it's not, because
7 the effect, if that effect is going to be
8 charged to the defendants, you have to conclude
9 that that's true.

10 THE COURT: No, I don't know that you do.
11 I think an editorial is something different and
12 a letter is something different than an article
13 that contains a quote, particularly a quote from
14 a school board member on an issue in the case
15 is what was said during the ramp up to the
16 enactment of the policy.

17 MR. GILLEN: I understand what you're
18 saying, Judge, but from our standpoint Steve
19 Stough, he's going to testify about what he
20 thought when he read a letter to the editor.
21 That's evidence of the effect of a letter
22 to the editor. But just as you said, in order
23 to get that effect and charge it to the
24 defendants, you have to conclude that that

25 letter to the editor is true. Otherwise --

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1 THE COURT: I don't think you do. No,
2 I disagree with that, and I'll hear you further
3 on that. I'm not preventing, my purpose is not
4 to get off the exit ramp here and do an argument
5 that we don't need to get into.

6 MR. GILLEN: Right.

7 THE COURT: I understand your argument. I'm
8 not sure that I yet understand your argument,
9 and we'll pursue that further, except that I
10 will tell you preliminarily I might view the
11 letters and editorial as different from the news
12 articles for the reasons I stated. I think you
13 see where I'm going. You really need to be
14 prepared to address that as we reconvene this
15 afternoon with that particular witness. But,
16 you know, to revisit and put a final point, or a
17 finer point on it as it relates to the articles
18 themselves, I would likely sustain an objection
19 as it relates to the articles even on the
20 effect, that's what we're having the reporters
21 come in for this afternoon. We're going to have
22 to see how that plays out.

23 MR. HARVEY: I understand, Your Honor.

24 THE COURT: I think the residual, I said

25 this yesterday, I believe this today, the

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1 residual exception under 807 entails fairness
2 to them, you know, if they have the opportunity
3 to have it at these reporters, and if you're
4 going to introduce them --

5 MR. HARVEY: Your Honor, we may do this to
6 preserve our record today, or we may decide to
7 call them another day after some of these issues
8 have been cleared up a little bit. Let me talk
9 to my counsel about that.

10 THE COURT: But what we have to determine
11 this afternoon as it relates to Mr. Benn if he
12 comes in here is are these reporters in the dock
13 on somebody's request that they be held in
14 contempt. Now, in the first instance it would
15 be you, but I intend to have a colloquy with the
16 reporters if necessary and ask them if they're
17 prepared to testify, and that assumes that
18 you're going to call them to testify. I don't
19 know what you want to do with that. It seems to
20 me that you ought to do that. I can't run your
21 case for you, but to --

22 MR. GILLEN: To get all wrapped up --

23 THE COURT: -- put the onus on the

24 defendants only and then you say well, we
25 don't know what we're going to do and they

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1 escape the blade from your standpoint, plus if
2 it goes up to the Third Circuit, and I don't
3 know that there's a distinction, but if it goes
4 up to the Third Circuit in depositions only
5 and doesn't go up to the Third Circuit on the
6 testimony of their case in chief, I think that's
7 a very incomplete issue for the Third Circuit to
8 rule on.

9 I might consider wrapping it up and putting
10 a ribbon on it and sending it out and we'll see
11 what the Third Circuit says at that point. Of
12 course you could otherwise turn, I noted that
13 this morning the lazy lawyers, I don't know if
14 that was directed at the plaintiffs or the
15 defendants in the York Daily Record, would not
16 establish in your case, I would not use that for
17 any of you. Did you see that? The York Daily
18 Record put out a statement indicating that there
19 were lazy lawyers in this case because you were
20 attempting to subpoena the reporters.

21 MR. WALCZAK: I thought I was nice to her
22 yesterday when I saw that.

23 THE COURT: All right. Then we'll recess

24 until 1:15 if that works for everybody, and
25 we'll meet in chambers at that time and then

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1 I'll rely on you all to get Mr. Benn in. All
2 right?

3 (Side bar concluded at 12:00 p.m.)

4 THE COURT: All right. The conversation at
5 side bar I'll note for the members of the public
6 and the press and the parties had to do with
7 scheduling, and we have this procedure that we
8 have agreed on, that we're going to recess at
9 this point for lunch. As has been noted we have
10 an issue that relates to the testimony of two
11 witnesses on behalf of the, called by the
12 plaintiffs.

13 The testimony would be on behalf of the
14 plaintiffs. We must resolve that preliminarily
15 this afternoon. I will meet with counsel in
16 chambers at 1:15 this afternoon in furtherance
17 of at least attempting to resolve that issue.
18 We'll not spend an extended period of time doing
19 that, but it could take a while. I would say
20 that we will go, we will come back into session
21 likely at approximately 1:45 this afternoon.
22 But that's an estimate.

23 I would say anywhere after 1:30 likely we
24 would reconvene for the afternoon session, and
25 we will resolve at least temporarily if not

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1 permanently the issue of the two witnesses, and
2 then we will proceed with the balance of the,
3 not the balance of but the next witness on
4 behalf of the plaintiffs this afternoon after
5 that matter is dealt with. Anything else from
6 counsel before we break?

7 MR. ROTHSCHILD: No, Your Honor.

8 MR. GILLEN: No, Your Honor.

9 THE COURT: All right. We'll see you all in
10 chambers, we'll see counsel in chambers at 1:15,
11 and we'll be in recess until then.

12 (End of Volume 1 at 12:02 p.m.)

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