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

TAMMY KITZMILLER, et al., : CASE NO.
Plaintiffs : 4:04-CV-02688
vs. :
DOVER SCHOOL DISTRICT, : Harrisburg, PA
Defendant : 3 November 2005
.....: 4:10 p.m.

TRANSCRIPT OF CIVIL BENCH TRIAL PROCEEDINGS
TRIAL DAY 21, AFTERNOON SESSION
CROSS EXAMINATION OF DR. MINNICH
BEFORE THE HONORABLE JOHN E. JONES, III
UNITED STATES DISTRICT JUDGE

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I N D E X

Kitzmiller vs. Dover Schools
4:04-CV-2688
Cross examination of Dr. Scott Minnich
4 November 2005

PROCEEDINGS

DEFENSE WITNESSES

P R O C E E D I N G S

CROSS EXAMINATION BY MR. HARVEY:

Q. Dr. Behe -- excuse me, that was a Freudian slip.

A. We're clones.

Q. I didn't, that was not on purpose, I assure you.

THE COURT: Obviously the flagellum has you mixed up.

Q. Dr. Minnich, did anyone help you prepare your expert report in this case?

A. No, actually I wrote this over a fairly short period of time, so it reflects I think some of that speed.

Q. Now, you and Dr. Behe both, or together, you make the same claim, the claim of irreducible complexity?

A. Correct.

Q. And essentially if I understand your contention, it is that an irreducibly complex system is one in which it cannot function unless all the parts are there, and you take away one part and the system ceases to function, correct?

A. Correct.

Q. And the point that you're trying make for

purposes of evolution is that irreducibly complex systems in your view cannot evolve?

A. I think it's a problem for evolution. In other words, for each intermediate part you have to have some selective advantage to that intermediate structure, and that hasn't been demonstrated. We know that if you remove one part you have no function, and then if you have no function you've got nothing to select.

Q. You didn't originate this idea of irreducible complexity as a problem for evolution, did you?

A. No. I think Mike Behe coined the term, but underlying is the basic argument of design is to account for these complex structures that we find in nature to have the appearance of design, is it real design or apparent.

Q. Well, and in support of your argument today you spent a certain amount of time with pictures of what you called motors. Did I understand that correctly?

A. Correct.

Q. And you told us that the bacterial flagellum was a true rotary engine, right?

A. By definition in the literature that's what

we find.

Q. And I wrote in my notes that you said it was incredible, is that correct?

A. Right.

Q. Do you remember that?

A. I used that.

Q. And you said it has all the components of a rotary engine?

A. Correct.

Q. I guess what I'm trying to say is you're really convinced that this looks a lot like a machine that a human would make?

A. Right, and I think the literature supports that.

Q. Now, Dr. Behe did not originate the concept of irreducible complexity, putting aside the word irreducible complexity, but the concept of irreducible complexity as a problem for evolution, did he?

A. I don't know, you know, the entomology of the phrase, so --

Q. Are you aware that that specific problem was posed in the creationist literature, the creation science literature, as a problem for evolution?

A. No, I'm not. I'm not aware of.

Q. Take a look at what's been marked as P-853.

A. 853.

Q. Please, and Matt, if you can bring it up.

A. Are these in order?

Q. It's towards the back. I can help you if you like.

THE COURT: You can approach.

A. I got it.

Q. Dr. Minnich, I'm showing you a publication of the *Creation Research Society Quarterly* from June of 1994. Do you see that?

A. I do.

Q. That's two years before Dr. Behe published *Darwin's Black Box*, isn't it?

A. I'll take your word for it.

Q. You don't know what year Dr. Behe published *Darwin's Black Box*?

A. `96, `97, I'm not --

Q. I'd like to -- have you ever seen this publication before?

A. No, I haven't.

Q. Well, I'd like you to go to pages, there's page numbers in the upper, in the corners, in the upper corners, and I'd like you to look at

pages 16 to 21. I'm not going to ask you to read it, but I'd just like you to look at it and see -- Matt, if you could page through beginning with page 16 to 21, we'll go through it, I'll invite you to read it if you'd like to, but if you see on page 16 there's a section that begins "bacterial motility"?

A. I see it.

Q. And then on the next page if you turn the page you'll see, Matt, if you can just highlight the language in the lower right-hand column? Yeah, right there, the words "bacterial flagellum," and it's a description of the bacterial flagellum in this piece of literature from this creation science organization, and then if you turn the page again to page 18, there's a description there of the bacterial flagella rotor. Can you highlight that lower paragraph there, Matt? And you'll see it says, "As resolved by electron microscopy, it consists of a series of flanges, grooves, and wheels, yes, wheels, mounted on an axil and turning on bearing surfaces with an efficiency that would be the pride of any industrial research and development operation." Do you see that?

A. I see it.

Q. And then if you'd just please turn the page one more time, there's a diagram, and it's actually Figure 9 in this, and Matt, if you could blow up Figure 9? You have to go to the next page. I'd like the language at the bottom, please. And then if you could, would it be possible to put up Dr. Minnich's slide 18?

(Brief pause.)

Q. And I'd like to ask you just to look at that. Do you see on the Figure 9 from this creation research society publication that there's a picture of the motor rotor complex of the bacterial flagellum?

A. Yes, I see.

Q. And that's very similar to the picture you put up of the bacterial flagellum, isn't that correct?

A. Well, I don't know in terms of the labeling of the parts. I haven't read the --

Q. Well, actually that's what I'd like you to look at for just a second. You'll see that you have labeled something called the universal joint on your, that's D-274, right?

A. Right, and again this is, this picture is

out of a biochemistry textbook, Voet and Voet.

Q. I understand.

A. Okay.

Q. I understand. But I just want to -- you have a picture of the universal joint?

A. Right.

Q. And then if you look to the picture that's in the creation research society publication, you'll see that there's, that that diagram has a universal joint as well. Do you see -- actually if you look at the bottom and the language at the bottom.

A. What's the letter designation?

Q. It's actually "H," letter designation "H".

A. Okay.

Q. It's called the connective hook universal joint.

A. Right.

Q. And that's the same as in your diagram?

A. Correct.

Q. And then if you look, there's in this Figure 9 from P-853 there's something that's designated "MR," and that's the motor ring?

A. Okay.

Q. And you have motor rings in yours as well,

is that right?

A. Okay.

Q. Do you agree?

A. I agree.

Q. And then there's something called, in this Plaintiff's Exhibit 853 there's something called a stationary ring, and in yours you have, also have something in that same place, except it's called an "S" ring, is that right?

A. Now we know that that's a single structure in the "S" ring.

Q. In this Plaintiff's Exhibit 853 there is something that's designated with "AX," and it's called the axil. Do you see that?

A. Correct.

Q. And in yours you have the same thing except it's called the drive shaft, right?

A. Right.

Q. You see that's the same function, right?

A. Right.

Q. Do I have that right? And of course they both have what's been marked as "F," which is the filament. Do you see that?

A. I see it.

Q. Now, and if you turn to page to the next

page of this publication, on page 20 -- Matt, can you bring this up? On the left-hand side of the page, about one-third of the way down there's a reference there to bacterial nanomachines. Do you see that?

A. I see it.

Q. And that's the same way you referred to the bacterial flagellum, isn't it?

A. I referred to it as a nanomachine or a macromolecular machine.

Q. A bacterial nanomachine?

A. Right. That's explained in the literature, right.

Q. And then here's where the claim of essentially what I believe is irreducible complexity comes in, if you look on the right-hand side of the page it says -- it's actually the first full sentence on the right-hand side underneath the diagram, it says, "However, it is clear from the details of their operation that nothing about them works unless every one of their complexly fashioned and integrated components are in place." Do you see where it says that?

A. I see it.

Q. And then finally, and I'll bring this to a close, if you go to the abstract on the page, page 13? Matt, if you could just highlight the second half of that, beginning with the word "in terms of biophysical complexity"? I'll read it to you, it says, "In terms of biophysical complexity, the bacterial rotor flagellum is without precedent in the living world. To the micromechanician of industrial research and development operations it has become an inspirational, albeit formidable challenge to best efforts of current technology, but one ripe with potential for profitable applications. To evolutionists the system presents an enigma. To creationists it offers clear and compelling evidence of purposeful intelligent design." Do you see that?

A. I see it.

Q. And I'd like you to agree with me, Dr. Behe, that that is essentially the same argument --

A. Minnich.

Q. I did it again, I'm sorry. I'll just ask the court reporter just when he hears that to just put in Minnich. I'd like you to agree with

me, to know whether you agree with me that that is the same argument that you have advanced here today in your direct testimony.

A. Right, I mean in terms of -- I don't have any problem with that statement. And I would add that Howard Berg at Harvard University refers to the bacterial flagellum as the most efficient machine known in the universe. So across the board whether, I don't -- what are we arguing here?

Q. I'm just, you're just confirming for me, and I think you just did, that what we have just reviewed in this Plaintiff's 853 is the, precisely the same argument that you advanced today in support of your, in your direct testimony, isn't that correct?

A. Yeah, in essence I mean I don't disagree with you. If you're trying to make a connection with creationism though I would disagree.

MR. HARVEY: Well, let's take a look at another exhibit. Could you please go in your binder to what's been marked as -- Your Honor, am I going to be able to run over for a few minutes? Because if not I might as well stop.

THE COURT: Why don't we -- Wes has been out

here a while, because we've had an extended second session this afternoon because we started early, so I think this would probably be a good time to break. We'll invoke the mercy rule for Wes's benefit because of a lot of complicated testimony this afternoon. All right, you're going to be able to wrap up obviously it would appear to me your cross and any redirect comfortably within the morning tomorrow?

MR. HARVEY: It's very much my intention to do so.

THE COURT: All right. Let's try to shoot for that. We'll reconvene for what appears to be our final day at 9:00 a.m. tomorrow. We will have all morning to complete this witness's testimony. My best guess is that we would reconvene after lunch and we'll have the evidentiary arguments as we spoke about yesterday, and then we will follow with the closing arguments by counsel in the afternoon.

MR. ROTHSCHILD: Your Honor, one question. What is your plan or assertation for the order of closing arguments?

THE COURT: Well, it's your burden.

MR. ROTHSCHILD: Right.

THE COURT: So --

MR. ROTHSCHILD: My view is that we would then go second if that's acceptable.

MR. THOMPSON: Your Honor, I believe the plaintiffs have always gone first.

THE COURT: Yeah, why would you go second if it's your burden?

MR. ROTHSCHILD: I think my understanding it was my burden, and I was not planning on rebuttal, but that I would go second.

THE COURT: No, I would allow you to reserve for rebuttal if you want, but the way I see it you'd go first and I'll allow you to reserve time for rebuttal. I think that's appropriate under the circumstances for the plaintiff to do that, but I think you ought to go first, I agree with Mr. Thompson in that regard, and then we'll hear from the defendant, defendants, and then if you want to carve out part of your time for suitable rebuttal, and you're aware of, if you're not Liz will tell you how much time you have left out of the hour that each side appropriated for your openings, closings, and in the case of the plaintiff the rebuttal, there will be one rebuttal as to the plaintiff. If we

didn't make that clear before, that's the way we should do it. All right? Anything further?

MR. HARVEY: No, Your Honor.

THE COURT: All right, we'll see you all at 9:00 a.m. tomorrow. We'll be in recess until then.

(Court was adjourned at 4:27 p.m.)

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Cross examination of Dr. Scott Minnich

4 November 2005

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

s/ Wesley J. Armstrong

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Wesley J. Armstrong

Registered Merit Reporter

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