

**Curriculum Controversies in Biology  
U.S. Commission on Civil Rights  
Hearing, August 21, 1998, Seattle, Washington**

Available online at <http://user.tninet.se/~rwp570o/civilright.html>

**Excerpt:**

**COMMISSIONER GEORGE:** Thank you, Madam Chair. As I understand the debate, there's a certain asymmetry here. Dr. Scott is taking the position not only that evolution must be taught in science curriculum in K through 12, but also that alternatives or criticisms of evolution must not be taught. Dr. Meyer by contrast, and here is the asymmetry, is not arguing that evolution may not be taught, but only arguing that criticisms of evolution must be taught along with evolution. Now, let me just pause here to ask whether I've represented both of your points of view accurately.

**MS. SCOTT:** I'm afraid not in my case.

**COMMISSIONER GEORGE:** Okay. Could you correct me.

**MS. SCOTT:** Alternatives to evolution can certainly be taught if they are, in the words of *Edwards v. Aguillard*, have a secular intent and are not religiously based. I mean, you have to teach secular alternatives to evolution, not religious alternatives. The problem is that Justice Brennan was a wonderful jurist, but he didn't know zip about science and there are no scientific alternatives to evolution that are recognized by scientists. Now, the whole history of the creation/evolution controversy from creation science to the recent alternatives to evolution intelligent design theory or varieties has always been, well, we're going to teach the evidence against evolution, and because evolution is not true, that means our position is true. I congratulate Steve and his colleagues because they are at least attempting to come up with some sort of positive arguments for intelligent design. My personal opinion and that of most others is that they haven't succeeded. They may yet. If they do succeed, then they have a right to be taught. But they have to earn their spurs so to speak within the body of scholarship that decides what is state of the art science.

I mean, we've all had papers rejected, right? I mean, we've all had our ideas, some are accepted, some aren't. I don't think that we should make a decision as to what to teach at the K-12 level until these issues have been decided at the level of scholarship which is most appropriate which is the college and professional level.

**COMMISSIONER GEORGE:** Then I'm not sure that I did misrepresent your position.

**MS. SCOTT:** Well, maybe I was just unclear on what you said.

**COMMISSIONER GEORGE:** Let me try again. You take the view that at least for now students may not be presented with any punitive reasons not to believe evolutionary theory.

**MS. SCOTT:** I think that students who are presented with these alternatives to evolution such as the ones discussed in my statement are receiving bad science. They may not be getting anything illegal, but it is definitely bad science. And if you look at the statements from the National Science Teachers Association and the National Association of Biology Teachers, they would agree with this.

As somebody who values scholarship and as a former academic, it pains me to rely upon authority for decision-making. This is not a comfortable feeling for me, but I think to some degree, we do. I mean, I don't know how many of you could tell me why perpetual motion machines don't work, but we all agree that we will not teach perpetual motion manufacture in the schools.

**COMMISSIONER GEORGE:** Surely, Dr. Scott, you believe that competing accounts of evolution such as those given by Gould, say, on the one hand or my old colleague at New College Oxford, Richard Dawkins.

**MS. SCOTT:** Dawkins?

**COMMISSIONER GEORGE:** Dawkins, ought to be taught although one side is plainly right and the other side plainly wrong.

**MS. SCOTT:** What you are talking about are debates about how evolution takes place. And I was saying before, if we were going to have debates among students as a critical thinking exercise, we should have them debating things that are validly considered --

**COMMISSIONER GEORGE:** But those are debates where there are minority and majority decisions.

**MS. SCOTT:** Those are debates about how evolution takes place, not whether.

**COMMISSIONER GEORGE:** Oh, I understand that. But It's a ferocious debate, is it not?

**MS. SCOTT:** uh-huh.

**COMMISSIONER GEORGE:** By which there have been claims of irrationality made by both sides against the other, and besides the fact that they're in minority and majority positions, you think it's a good thing to teach the conflict.

**MS. SCOTT:** Actually, I would be a little reluctant to have students engage in a who will be the Dawkins side and who'll be the Gould side debates, because they don't know enough about evolutionary theory to debate this issue.

**COMMISSIONER GEORGE:** Well, which do we teach them then? Do we teach them Dawkins' view or Gould's view?

**MS. SCOTT:** You know the irony of this is that students get so little evolution at all in school.

**COMMISSIONER GEORGE:** You're evading the question, Dr. Scott. Which would it be? Really, seriously, which should they be taught?

**MS. SCOTT:** How would you characterize Dawkins, view and Gould's view, because we may have a different understanding. The way I would look at it is they are both talking about natural selection, but they are both talking about difference of importance. The effect of natural selection in different kinds of contexts has different importance and explains different aspects of the fossil record.

**COMMISSIONER GEORGE:** Are we agreed that in speaking of evolution, we're speaking not only of descent from a common ancestor, but of a mechanism of random mutation and natural selection? Can we agree about that?

**MS. SCOTT:** And others, other mechanisms as well. The random mutation and natural selection is Darwinism. There are other mechanisms of evolution in addition.

**COMMISSIONER GEORGE:** In addition or as competing accounts in the mechanism?

**MS. SCOTT:** In addition.

**COMMISSIONER GEORGE:** All right.

**MS. SCOTT:** Because nobody says natural selection doesn't work. That's a double negative, but you know what I mean.

**COMMISSIONER GEORGE:** Let me follow that that nobody says natural selection --

**MS. SCOTT:** Everyone agrees evolution works. Everyone agrees natural selection is a major component.

**COMMISSIONER GEORGE:** Everybody who -- everybody who both believes evolutionary theory and -- well, that is just a tautology. People who believe in natural selection, believe in natural selection.

**MS. SCOTT:** No.

**COMMISSIONER GEORGE:** Or is it not true that there are some people who believe in descent from a common ancestor, but not in the mechanism of natural selection?

**MS. SCOTT:** I think there would be very few because natural selection -- what natural selection does is shape groups within -- shaped populations within species. That, coupled with the phenomenon of reproductive isolation and speciation mechanisms is what causes speciation.

Now, that basic picture is something I think you would find in all the textbooks and you'd get all the evolutionary biologists to agree with. Where these people square off and start arm wrestling

is over the presence or absence of other factors such as reorganizations of the genome to various genetic processes, developmental biological processes and these other --

**CHAIRPERSON BERRY:** Before you guys go too far afield from civil rights issues, let me just ask again, am I clear that you said that you didn't mind discussions of evolution and criticisms and different theories being presented so long as that they were not based on religion and so long as they were secular in nature. Did I understand you to say that, quoting Aguillard when you first began there? You said you didn't mind the definition in Aguillard. That was before you complained about Brennan not knowing anything about science. And you were asked whether you thought people shouldn't discuss criticisms of evolution or different theories, and you said something about so long as they had a secular purpose and they were not based on religion. Did I hear you right or not? If I didn't, then tell me.

**MS. SCOTT:** Criticisms of evolution based on religion are unacceptable.

**CHAIRPERSON BERRY:** That's what I mean. Is that what you said?

**MS. SCOTT:** If there are solid scientific criticisms of evolution, of course, they can be heard.

**CHAIRPERSON BERRY:** I'll give it back to Commissioner George.

**COMMISSIONER GEORGE:** Let me take it back in a civil rights angle. Did I hear Dr. Scott right to say that she would object to criticisms such as those offered by Berlinski and Behe and all these other -- Dembski and all these people, she would not object to those criticisms being presented on grounds that they were religious and therefore a violation or separation of church and state or something, but rather, that she would object to them on the grounds that they're bad science.

**MS. SCOTT:** You lumped a lot of people into the same hopper, Berlinski and Behe differ enormously in their attitude.

**COMMISSIONER GEORGE:** But they're critics of -

**MS. SCOTT:** The point is they're dealing with different matters completely.

**COMMISSIONER GEORGE:** But they're all critics of evolution.

**MS. SCOTT:** Yes. They're all critics of evolution.

**COMMISSIONER GEORGE:** And you wouldn't object to their views being presented on the grounds of separation of church and state or any constitution. You would object to their criticisms to -- they give reasons against believing at least certain theories of evolution.

**MS. SCOTT:** And some of these are religious reasons and some of these are secular reasons.

**COMMISSIONER GEORGE:** And say Berlinski's, you wouldn't object to Berlinski.

Berlinski's not a believer how are you going --

**MS. SCOTT:** Berlinski, if you read Berlinski's criticisms of evolution, he's just rehashing creation science except he leaves out the age of the earth. He talks about the second law of thermodynamics.

**COMMISSIONER GEORGE:** Does he get excluded then on religious grounds? Are you going to say now you can't have students exposed to that, that's not only bad science, that's religion?

**MS. SCOTT:** He would be excluded on the grounds of bad science.

**COMMISSIONER GEORGE:** But not religion. So we don't have a civil rights --

**MS. SCOTT:** He's pretty careful about not mentioning religion.

**COMMISSIONER GEORGE:** Is that a hint about his motive or

**MS. SCOTT:** Uh-huh.

**COMMISSIONER GEORGE:** So you're suggesting that his motive really is religious and therefore you're going to exclude him.

**MS. SCOTT:** No, no. I don't think either of us think David is religious. I have other reasons for thinking -- I think David is doing something different with this exercise.

**COMMISSIONER GEORGE:** But I want to get to the civil rights. In other words --

**MS. SCOTT:** It is a difficult issue because we are talking about civil rights and civil liberties. We're also talking -- and I at least part of the time am talking about tautological issues, what's good science and science literacy.

**COMMISSIONER GEORGE:** Okay. If we could just keep it -

**MS. SCOTT:** And we may have slipped back and forth.

**COMMISSIONER GEORGE:** And I appreciate that in your unusual position because you are both a scientist and an advocate, political advocate. But could we just stay on the civil rights dimension so that we could say that there are some people as much as you might object to them on scientific grounds and object on straight out school curricular grounds, you wouldn't object on civil rights/civil liberties grounds to their positions being presented in biology classes.

**MS. SCOTT:** I would not make a blanket statement.

**COMMISSIONER GEORGE:** Well, I'm not asking for a blanket statement. I'm not saying everybody. I'm saying there are some people like Berlinski's views.

**MS. SCOTT:** I don't know Berlinski's agenda. I think you're asking for a hypothetical that I'm reluctant to give you.

**COMMISSIONER GEORGE:** No. I'm asking for a specific. It's not a not hypothetical. You know Berlinski's view very well. Okay. If Berlinski's view is to be excluded, but not on the grounds that it's religious, but on some other civil rights/civil liberties grounds, what's the civil rights/civil liberties grounds for excluding --

**MS. SCOTT:** Berlinski's view is not unique to him.

**COMMISSIONER GEORGE:** So.

**MS. SCOTT:** I mean, the position Berlinski advocates has been advocated by those who on the purpose prong of Lemon are definitely intending for religious establishment.

**COMMISSIONER GEORGE:** People argue for civil rights on the basis of religion and on the basis of secular things. Were we going to say because some people work for civil rights on religious grounds and invoke God and the brotherhood of man, that any advocacy of civil rights was itself a violation of civil rights?

**MS. SCOTT:** If you are familiar with the arguments that are raised in the creation science the vast majority of them never mention God. A lot of them have to do with supporting ideas like the whole world being supported by things, inundated by a flood, by evidence that the world is actually young, an awful lot of the literature not the stuff --

**COMMISSIONER GEORGE:** But that's not Berlinski. If Berlinski's view were being presented to students, would there be anything objectionable on civil rights/civil liberties grounds?

**MS. SCOTT:** I would want to ask a lawyer.

**COMMISSIONER GEORGE:** Okay. Then, let me ask is it your position, Dr. Scott, that the evolution that you would like to see presented in schools without criticism, because none -- at least there's at the moment no criticism that would be sufficiently serious to put forward, okay, that you were presenting is a view that has no preconditions or premises that are not themselves empirically verifiable, in other words, it rests on no questionable metaphysical assumptions. That's your view?

**MS. SCOTT:** My view is that science should be -- evolution should be taught as science without metaphysical implications.

**COMMISSIONER GEORGE:** And that to believe in evolution with the mechanisms that we've discussed and perhaps additional mechanisms, say, natural selection, one can believe that without any nonempirical assumptions being made. In other words, to believe in that does not presuppose as people like Phillip Johnson claim it does, certain assumptions that are not themselves empirically variable, certain assumptions that are metaphysical rather than --

**MS. SCOTT:** I think Phillip Johnson is dead wrong in his depiction of evolution as a fundamentally naturalistic philosophical system. It is no more naturalistic than heliocentrism. Excuse me. It is no more philosophically naturalistic than heliocentrism.

**COMMISSIONER GEORGE:** Dr. Meyer, would you like to comment?

**MR. MEYER:** One of the -- let me first clarify my position and then come back. What we are advocating is teaching the controversy within the limits of the law. And there are legitimate scientific reasons for criticizing Darwinism. I started to point out Behe's molecular motor here. Some 50 book reviews have been written about Behe's book, many by scientists, most often conceded his point that there are no neo-Darwinian explanations for the origin of these motors. And so the grounds for exclusion, which is of his view has been again this convention of methodological naturalism, it's against the groundrules which we have decided --

**COMMISSIONER GEORGE:** Can I just interrupt?

**MR. MEYER:** Yes, sure.

**COMMISSIONER GEORGE:** When you say, his view, I take it his view being the denial of the neo-Darwinian mechanism --

**MR. MEYER:** Right.

**COMMISSIONER GEORGE:** -- not descent from a common ancestor because as I understand Behe's position, he does not deny a common ancestor.

**MR. MEYER:** He's either in favor of that or agnostic about that.

**MR. GEORGE:** Go ahead.

**MR. MEYER:** So my concern for science education has been rhetorically the same as Eugenie's. It's the bad science. We have a selective presentation of evidence going on. Its not fair to say that because you don't have a lot of people using the jargon, that there is not a significant scientific dispute here. Paleontology journals are full of discussions of the problem that the Cambrian explosion poses for the neo-Darwinian gradualistic model. Behe did a literature search in his book on systems like this and looked for neo-Darwinian explanations for their origin and found virtually none.

There is weighty evidence for this, and we want the evidence -- students to be exposed to the evidence that supports these other viewpoints.

**COMMISSIONER GEORGE:** Now, do you take the view, contrary to Dr. Scott's view, do you take the view that in fact some nonempirical assumption must be made either way?

**MR. MEYER:** Yes.

**COMMISSIONER GEORGE:** So that there are metaphysical hypotheses not themselves empirically verifiable which must be made prior to one's adoption of either the design theory or evolutionary theory.

**MR. MEYER:** Right. In the diagram, I show a two-way arrow between world view assumptions and theoretical viewpoints. The two can inform each other. And secondly, I think this is clearly the case by something that Eugenie has said already that she accepts the principle of methodological naturalism. That's not an empirical or empirically verifiable principle. That is a philosophical principle. It's something that is a ground rule if you will --

**MS. SCOTT:** On both sides.

**MR. MEYER:** -- which is not established by viewing nature. It's something which has I would say rather dubious philosophical arguments.

**COMMISSIONER GEORGE:** Doctors of all science may take that to mean --

**MS. SCOTT:** Not just of evolution, of all science.

**COMMISSIONER GEORGE:** -- that although it's a nonempirically verifiable assumption, it is nevertheless a noncontroversial one. I take it that your view over Dr. Meyer is that it cannot be made in a way that does not shade over into a more comprehensive naturalism.

**MR. MEYER:** Correct.

**COMMISSIONER GEORGE:** So it looks to me -- and then I'm going to let Dr. Scott come back and take a shot at me on it. It looks to me like your side has radicalized the discussion in such a way, radicalized meaning going to the root, in such a way as to drive the issue out of the realm of science precisely to the realm of philosophy where you make the orthodox scientists defend on philosophical grounds --

**MR. MEYER:** A latent philosophical principle of their whole enterprise, exactly.

**COMMISSIONER GEORGE:** Dr. Scott.

**MS. SCOTT:** I think the link between methodological naturalism and philosophical naturalism is faulty. One can be a methodological naturalist without being a philosophical naturalist.

**COMMISSIONER GEORGE:** Now, there you disagree --

**MS. SCOTT:** Absolutely.

**COMMISSIONER GEORGE:** -- not only with people like Dr. Meyer, but also with people like Dawkins and Lewontin.

**MS. SCOTT:** Dawkins and -- will provide and others of that particular persuasion, will admit that there are people who are methodological naturalists who are theists.

**COMMISSIONER GEORGE:** Oh that's a -- we know that. But don't they take the view, and I can tell you they do because I had this discussion with Dawkins, that if you understand, if you have a correct understanding of evolution, you realize that there's no possibility of theism.

**MS. SCOTT:** I don't agree with Dawkins either. Philosophically, I'm more similar to him than -  
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**COMMISSIONER GEORGE:** So if we talk Dawkins' view, this I guess is the point, if we talk Dawkins, view in school, we'd be committing a civil liberties violation.

**MS. SCOTT:** Oh, absolutely, yeah. I have discouraged that. In fact, Will Provine and I have gone back and forth on this on a number of occasions.

**COMMISSIONER GEORGE:** So the Blind Watchmaker or Provine's works really shouldn't be taught --

**MS. SCOTT:** No, no, no. The philosophical views that they have, Provine has done very good work in History of Science and, you know, there reason to --

**COMMISSIONER GEORGE:** Not all his works, but, I mean, look at the Blind Watchmaker. Look at Dawkins' book. In Dawkins, book it quite exclusively --

**MS. SCOTT:** It had --

**COMMISSIONER GEORGE:** -- adopts naturalist views so --

**MS. SCOTT:** It also presents a lot of straight science.

**COMMISSIONER GEORGE:** Well, yes, but I mean, are we going to permit it to be -- wouldn't that be --

**MS. SCOTT:** We should not be advocating the view that evolution or science equates with disbelief because it's false and it also is an establishment problem or free exercise problem.

**COMMISSIONER GEORGE:** Just to conclude my line of questioning. So you both agree that there shouldn't be a viewpoint discrimination, and Dr. Scott would say therefore Dawkins' Comprehensive Naturalism and Meyer's, Berlinski's and others design theory ought to both be excluded. It would be viewpoint discrimination to allow Dawkins, Comprehensive Naturalism a place, but not Meyer's design theory, but I take the real difference is that just Dr. Scott says there are no legitimate scientific reasons that can be presented at least for now against evolution and therefore viewpoint discrimination isn't a problem between evolution and nonevolutionary views, at least at the moment, because there's no plausible nonevolutionary view.

**MS. SCOTT:** And you have to distinguish between keeping out Dawkinzoid metaphysics and intelligent design or creationist metaphysics, and whether or not you teach science as methodologically naturalist.

**COMMISSIONER GEORGE:** And your position you're trying to make out here is that I've got a view and we, the orthodox scientists and biologists have a view that itself does not have any questionable metaphysical presuppositions.

**MS. SCOTT:** Not per se, although it certainly has implications. But it's clear that -- I mean, look at something -- look at an idea like natural selection. Natural selection was taken by Marx and modified to suit his agenda. It was taken by the Nazis and modified to suit their agenda. It was taken by the robber barons and modified to suit their agenda.

Now, you've got very, very different social and political ideas here, all claiming to be derived from natural selection. So clearly, I mean, I've often joked you could probably take photosynthesis and make a religion out of it if you wanted to. You should not confuse the philosophical implications or ideas people derived from a science with a science itself.

**COMMISSIONER GEORGE:** If something is random, it can't be directed, yes?

**MS. SCOTT:** Now, this is again a little bit of fancy foot work that goes on in this debate. When people who oppose evolution talk about randomness, they are generally using random in the sense that the man on the street is going to understand it, that there's nothing out there except just stuff falling into the place, and obviously you're not going to get a brick wall by all the bricks falling into their actual position, or the tornado that goes through the hangar and constructs the 727.

**COMMISSIONER GEORGE:** But on the other side, there's also Dawkins who says, yeah, random --

**MS. SCOTT:** But random as a concept important to evolution refers to the production of genetic variation, which is random in respect to the, quote, needs of the organism. Now, evolution is not a random process, particularly, if natural selection is the mechanism that directs it, which most of us accept. Natural selection is the opposite of randomness. This is why this matter becomes so very complicated. We can get bogged down real fast at school board levels, in the operations like this talking about very technical scientific elements.

What really matters I think is how do we decide what to teach in the curriculum. We can't make everybody happy. I suggest in an essay that I wrote two teachers ways that they could teach evolution without ruffling too many feathers. And I would encourage you to consider them when you make your report.

**COMMISSIONER GEORGE:** Thank you.