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Members and Ex-Officio Members of
The West Virginia State Board of Education
1900 Kanawha Boulevard, East
Building 6, Room 722
Charleston, WV 25305-0330

Re: Report of Professor Lawrence Lerner on West Virginia SCIENCE – POLICY
2520.3 Science and the Suggestions contained in our letter to Ms. Brenda West
dated January 6, 2003 regarding the Policy.

Ladies and Gentlemen,

We are pleased to have a response to our January 6, 2003 letter that focuses on its substance. Although it is heavily laced with unhelpful rhetoric and religious innuendo, the author addresses each of our five suggestions and exhibits not only complaint but also significant areas of agreement.

For example, Professor Lerner acknowledges that all but the very last seven words of suggestion 4. “describes what good teachers already do, not only in the biological sciences but in all sciences.”

“4. Add explicit provisions that will encourage teachers to (a) discuss origins science objectively and without philosophical, naturalistic or religious bias or assumption and (b) help students think critically about evolutionary theory and understand the full range of scientific views that exist regarding origins of life and why origins science may generate controversy.

Although the analysis complains about one suggestion under point 5, it has no apparent disagreement with the following suggestion:

Implementing Recommendations. Objectives that could be incorporated into the standards to achieve this result are as follows:

“SC 10.4.x.3 Understand that many explanations regarding the origin of life and the origin of the diversity of life are based in part on a naturalistic assumption that phenomena result only from natural causes and not by design. Understand the effect of this bias or assumption on the choice of data considered, the interpretation of data that is considered and the credibility of explanations that are provided.

Finally, under suggestion one, even though Dr. Lerner calls us “paranoid” about calling living things “objects,” he implicitly agrees with our concern by noting that the reference “*only*” occurs once in the Policy. In fact natural objects are referred to 27 times.

Thus, in substance, Professor Lerner’s report reveals no significant objection to our first suggestion or to principal aspects of our fourth and fifth suggestions.

Before turning to the key issues in contention, we also note that his evaluation omits any discussion of the constitutionality of the Policy. He either does not disagree with our conclusions or he has no basis for controverting them. This is briefly discussed at the end of this letter.

One final preliminary comment. We believe the Board should ask itself: “***Does Professor Lerner’s rating system accurately rate the educational quality of the Policy regarding origins science or does it merely rate the extent of the Policy’s compliance with a naturalistic ‘Evolution Only’ concept.***” We think it does only the latter. A recent poll conducted in your sister state of Ohio shows 91% of the public against an “Evolution Only” policy (<http://www.IntelligentDesignNetwork.org/Polls.pdf>). Under this poll a grade of “A” by Mr. Lerner would garner an “F” in the minds of your customers, the parents of public school children. “Evolution Only,” which allows assumptions and bias to dictate explanation rather than the weight of the evidence, would also be worthy of the grade of “F” against the standards of objectivity required by the scientific method and religious neutrality required under the First Amendment of the U.S. Constitution.

The Key Issue.

Unfortunately the key issue in this entire debate is one that makes the minds of most listeners wander. When we talk about Naturalism most would rather take a break and visit the water cooler than grapple with abstractions. However, please take a big swig of coffee and bear with us. This issue is key and unless it is understood, nothing else that is said will be make much sense.

Thankfully, Professor Lerner confronts the issue head on. He agrees with our principle concern that the Policy uses Naturalism at its very core. He just claims that the species of Naturalism that is being used is not the bad kind. We disagree. Any form of naturalistic, religious or philosophic assumption is problematic in historical origins science.¹ In any event, the species of Naturalism that is being used by the Policy is the kind that Prof. Lerner labels as bad. This reflects a major problem the Board should carefully consider.

Naturalism is sometimes called “scientific materialism” as does Professor Richard Lewontin. He refers to it as an unyielding “prior commitment...to material causes” (See page 6 of our Jan. 6 letter). Books are written about it. Philosophers will send you reeling when they discuss it. But essentially it can be summed up in one short phrase: Naturalism is the idea that nature is the product of only “natural” or “material causes” and not intelligent causes. Automobiles are designed for a purpose, but nature is not. Referring to living organisms as merely “objects” is consistent with a naturalistic view that allows only material causes. Material causes are those directed by the laws of physics and chemistry and chance. An intelligent cause is

one directed by a mind or some form of intelligence. All true designs are the product of an intelligent cause. A naturalistic world view holds that intelligent causes do not presently operate in nature and have not operated in the past.

The dictionary used by the Supreme Court of the United States defines Naturalism as “the doctrine that cause-and-effect laws (as of physics and chemistry) are adequate to account for all phenomena and that teleological² [design] conceptions of nature are invalid” (*Webster's Third New International Dictionary of the English Language, Unabridged, 1993*). The doctrine holds that we just “occur” by law and chance and not by design.

One species of Naturalism that Professor Lerner discusses is a doctrine. The other species is the same, except that the word “assumption” is substituted for “doctrine.” In either case, Naturalism is not a proven scientific fact. An abundance of evidence contradicts it. A number of scientists discuss some of that evidence in *Unlocking the Mystery of Life*. Naturalism is actually counter intuitive. For example, Professor Richard Dawkins, an atheist and ardent naturalist who denies design states that “Biology is the study of complicated things that *give the appearance of having been designed for a purpose.*”

We don't believe that Professor Lerner disagrees with this. He acknowledges that the Policy reflects a naturalistic view in its handling of origins. The question is whether this is appropriate in the context of public school instruction about where we come from. Why should West Virginia start and end that discussion with a doctrine or an *unstated* assumption that we result only from material causes?

So where do we and Professor Lerner disagree? Please take another sip of coffee. This is exceedingly important.

Professor Lerner explicitly agrees that the Policy should not promote Naturalism as a “doctrine:” He argues that it does not. We claim it does. He states his case:

[By using the word “naturalism”] “There is a deliberate conflation of **ontological naturalism** with **methodological naturalism**. The former is the view that nothing supernatural exists – a point which may engender heated debate among theologians and philosophers but is irrelevant to the pursuit of science.

Methodological naturalism is not a “doctrine”but ...a belie[f]... that natural laws and theories based on them will suffice to solve the problems attacked by scientists”³

According to Dr. Lerner Ontological naturalism is the species of Naturalism that is a “doctrine,” a “conclusion” or belief system. Methodological naturalism is the species of Naturalism that just *assumes* that only natural laws and material causes operate without design. Dr. Lerner argues that Naturalism denies the supernatural. Although it does, Naturalism is a broader concept. Naturalism goes beyond simply ruling out the “supernatural.” It rules out any intelligent cause, whether it be natural or supernatural. Naturalism effectively denies the evidence

of design simply because it supports a supernatural thesis - not because it requires it. Hence, Naturalism censors evidence because of its implications.

The distinction between Ontological Naturalism and Methodological Naturalism is discussed by an ardent evolutionist and atheist Massimo Pigliucci where he discusses the view of two other non theists, Eugenie Scott and Dr. William Provine. Ms. Scott is the director of the National Center for Science Education (NCSE) that commissioned Dr. Lerner's report. Mr. Pigliucci's essay takes the position that there really is no distinction between the Ontological and Methodological Naturalism. In discussing this view he describes the distinction drawn by Ms. Scott which is also the distinction that Dr. Lerner suggests:

“Scott espouses the view that there is a distinction between methodological and philosophical [ontological] naturalism. The first corresponds to what any practicing scientist would do. We *assume* that the world is made of matter (and energy), and if indeed there is something else out there, this is simply beyond the scope and reach of the scientific method. The position of philosophical naturalism, on the other hand, is rational, but not strictly speaking scientific. It *concludes* (albeit provisionally) that there is only matter out there, even though we cannot prove this beyond any doubt (Pigliucci 2000).”⁴

Thus, essentially, the only difference between Dr. Lerner's Ontological Naturalism and Methodological Naturalism is that one is a *conclusion* - a doctrine or belief system - while the other is just an *assumption*.

If there is one thing about this discussion that should be apparent, it is just this: the line is exceedingly fine between what we all agree is wrong in public origins science education - Philosophical Naturalism - and what Dr. Lerner claims to be OK - Methodological Naturalism. Indeed, the width of that line is barely discernable. The “conflation” that worries Dr. Lerner seems unavoidable regardless of which species of Naturalism one *intends*. If the distinction is hard for adults to understand, how can we expect children to grasp it, particularly if use of the assumption is not disclosed ?

Does the Policy Promote Ontological Naturalism?

Dr. Lerner's comments acknowledge that the Policy does promote Methodological Naturalism - the *assumption* that material causes are the only ones that operate in nature. Although he does not discuss the specifics of the Policy or the non disclosure of the claimed naturalistic assumption, he implies that the Policy does not promote Ontological Naturalism - a “*doctrine*” or conclusion that material causes are the only ones that operate in nature.

We disagree with Dr. Lerner's implicit assertion that the Policy does not promote Ontological Naturalism *for at least two reasons*. First, the statement of the Policy that explains that nature has no teleological or “design” aspect is not *provisional*. It is absolute. Second, if the policy only intended Methodological Naturalism rather than Philosophical Naturalism, it would seek to disclose the assumption rather non mention it. In disclosing it, the Policy would

need to explain to students that the assumption against “design” is merely an unproven *assumption* and that it is contradicted by intuitive inferences of design and other evidence gathered by a number of scientists.⁵ It is unclear how it could adequately disclose the assumption and not explain the extent of the evidence against it.

The policy promotes ontological naturalism through two mechanisms. One is through the use of dichotomies. The other is by not disclosing use of the Naturalistic underpinning of the Policy while choosing to teach only that evidence which supports a naturalistic view and not mentioning the competing design hypothesis that is “assumed” to not scientifically exist. Criticisms of chemical and Darwinian evolution and alternative theories in the area of origins science are not permitted. If they were, West Virginia would get an “F” according to Dr. Lerner’s grading system. The grading system itself promotes “Evolution Only” and ontological naturalism. It seems to have as its very goal an elimination of the provisional nature of true methodological naturalism.

The Dichotomies. A dichotomy is from the Greek “dicha” which means “apart” and “tomos” which means “cutting.” It is explained by the Encyclopedia Britannica as:

“a form of logical division consisting of the separation of a class into two subclasses, one of which has and the other has not a certain quality or **attribute**. Men thus may be divided into professional men and men who are not professionals; each of these may be subdivided similarly.”

Policy 2520.3 uses a dichotomy to remove the attribute of design from natural objects. The dichotomy is first introduced in the first grade where students are to required to learn to “distinguish between natural objects and man-made objects.” This teaching was drawn by West Virginia from the National Academy of Science National Science Education Content Standards. Those standards explain that the distinction to be drawn in response to the direction is design:

- “1. Some *objects occur* in nature; others have been **designed and made** by people **to solve human problems** and enhance the quality of life.
- “2. **Objects** can be categorized into two groups, **natural** and **designed.**”
(See <http://www.nap.edu/readingroom/books/nses/html/6c.html#csc4>)

This dichotomy sets up a group consisting of objects. The class is then divided into two classes: “**Objects** can be categorized into two groups, **natural** and **designed.**” The *attribute* that one class has and that the other does not have is “**designed.**” Natural objects are the class that lack this *attribute*.

The Policy also establishes groups consisting of “systems” and “worlds.” These two groups are each divided into two classes: “natural and designed systems” and the “natural and designed world.” The dichotomies all teach that the “*attribute*” that natural systems and the natural world do not have is “**designed.**” Recall the definition of Naturalism. That definition sets up exactly the same teaching as the dichotomies in the Policy - design does not inhere in

nature: “teleological [design] conceptions of nature are invalid.”

A synonym for design is create. Thus, the teaching is that natural objects and systems are not designed or created. The natural world is not designed or created. Natural systems, which include students, are not designed or created for a purpose. They just “**occur.**”

This teaching is not qualified. It is not provisional. It is absolute. It is not described as an assumption. If it were described as an assumption, the Policy would direct teachers to disclose the assumption to students. The word assumption appears only once in the Policy. That occurrence relates to advanced physics and not origins.⁶

The requirement to learn that design is the distinction between natural and man made objects occurs **27 times** in the Policy. The fact that design does not inhere in natural systems or the natural world are general “themes” of the Policy. The theme is reinforced by over **sixty occurrences** in the first and third “unifying themes” in Standard 3.

The issue is not what is intended by the policy. The issue is what is the *effect* of the policy. Does the policy have the effect of promoting ontological naturalism or the effect of only introducing children to the naturalistic concept as an assumption - an assumption that is not deemed to be true, but one that is contradicted by certain evidence, and one that is exceedingly controversial among scientists and philosophers?

Clearly the effect of the policy is to promote Naturalism as true - as a doctrine - and not just as an assumption. Otherwise, the dichotomies would not be used. Furthermore, if the effect of the policy was that of Methodological Naturalism, the Policy would see that students would be required to understand the nature and effect of that assumption on explanations provided. The Policy does not do that. Not only does the policy fail to disclose Naturalism as an uncertain assumption, it conspicuously ignores any discussion of the evidence or alternatives that would contradict the assumption. Naturalism and Evolution Only, are essentially synonymous. By scrupulously selecting the data to be considered, naturalism and evolution are promoted as doctrines - dogmas.

Thus, the Policy clearly has the *effect* of promoting naturalism as a doctrine or dogma, and this is regarded even by Professor Lerner as improper.

We had the same discussion in Ohio, except it was over a naturalistic definition of scientific knowledge. We argued that a definition that would only permit “natural explanations of natural phenomena” was improper. In a unanimous vote the Ohio board followed our suggestions and replaced the naturalistic definition with one grounded in logic and the scientific method.

At our meeting with the Department of Education on February 6 we offered a simple solution to the problem of the dichotomy. Simply change the word “designed” wherever it occurs to “human-made.” Then students would not be led to believe that the world and all life in it was not designed or created. A search and replace could be accomplished in an instant.

The other cure, which Dr. Lerner does not seem to object to is our suggested objective SC 10.4 x.3 that would require a disclosure of the naturalistic assumption.

“SC 10.4.x.3 Understand that many explanations regarding the origin of life and the origin of the diversity of life are based in part on a naturalistic assumption that phenomena result only from natural causes and not by design. Understand the effect of this bias or assumption on the choice of data considered, the interpretation of data that is considered and the credibility of explanations that are provided.

The disclosure is necessary even after a neutralization of the dichotomy because the “unwritten” “assumption” of Naturalism actually inheres in the Policy and is in fact used by science and most, if not all, recognized textbooks. Evolution and origins science explanations simply can not be reasonably understood without knowledge of the assumptions and bias that drive them.

In Ohio, the Board unanimously adopted a learning objective that may implicitly encourage disclosure and at the same time remove the “Evolution Only” paradigm that presently inheres in the Policy:

“Students should understand how scientists continue to investigate and critically analyze aspects of evolutionary theory (The intent of this objective does not mandate the teaching or testing of intelligent design).”

This Ohio provision is also essentially consistent with the portion of our fourth suggestion that Professor Lerner described as “what good teachers already do, not only in the biological sciences but in all sciences:”

“4. Add explicit provisions that will encourage teachers to (a) discuss origins science objectively and without philosophical, naturalistic or religious bias or assumption and (b) help students think critically about evolutionary theory and understand the full range of scientific views that exist regarding origins of life”

Our Other Suggestions

This letter has already surpassed a desirable length. Accordingly, we will be brief as to the other substantive points in Professor Lerner’s reply.

It should be apparent to any adult that evolution and origins science is an exceedingly complex and controversial subject, particularly when it is grounded in assumptions and philosophies that even the most erudite find hard to define. This alone should suggest that the third grade is too early to start teaching about adaptation. Professor Lerner seems to argue on the one hand that the third grade objectives regarding adaptation really do not teach evolution even though adaptation is central to the theory. He states:

“Adaptation per se does *not* imply evolution, though practicing biologists would certainly attribute the adaptations observed in living things to the process of evolution.”

We disagree. Robert Wesson discusses the centrality of adaptation to evolution as follows:

"The important point is that there can be nothing purposive or teleological in evolution; any notion of inherent purpose would make nature less amendable to objective analysis. For a biologist to call another a teleologist is an insult. Even orthogenesis, is disliked. ***The sole force for change must be adaptation.***" [Robert Wesson, *Beyond Natural Selection*, 10 (1991)]

Why should we seek to teach a fundamental tenet of evolution and Naturalism beginning with the third grade? What purpose is to be served by teaching such a controversial subject at a time that minds of children are not equipped with the ability to challenge or understand underlying precepts? There is no question that life has changed over time. However, there is major scientific dispute over HOW it has changed and whether natural processes and material causes alone are adequate to explain that change.

Does the Policy Pass Muster with the US Constitution?

It should be noted that Dr. Lerner does not take issue with the following statement in our Jan 6 letter:

“When a public school chooses to discuss with children the question “***Where do we come from?***” the school has chosen to engage in a discussion that unavoidably impacts religion.”

We have found no one who disagrees with this conclusion. Even the ACLU agrees.

Although, Dr. Lerner is quick to discuss the bible, he fails to address the critical issue of neutrality toward religion. Dr. Lerner is perfectly comfortable teaching that life is not created. Indeed the State will garner an “A” grade if it successfully keeps children from observing scientific evidence that may allow “**a Divine Foot in the door.**” (emphasis added) [Richard Lewontin, *Billions and Billions of Demons*, (*The New York Review*, January 9, 1997, p. 31)]

However, how will the Supreme Court grade a governmental policy that achieves this goal? That is the real question. Is the state being neutral toward religion if it seeks to teach children, beginning in the first grade, that they do not possess the *attribute* of design - that they are living systems that are not designed? We think not. Under the Lemon test, the Policy gets an “F.”

This is discussed in our letter in more depth and in the referenced materials.

Disclosing The Historical Character of Origins Science

We suggested the following change which Dr. Lerner claims will “do much damage across all the sciences.”

“SC 10.4.x.4 Differentiate between historical sciences such as evolutionary biology and experimental sciences like physics and chemistry, understand methods used by scientists to test the credibility of historical hypotheses, understand the limitations of those methods to confirm historical explanations provided and understand how *bias* and the “*choice of what data to consider in the first place,*” may affect historical explanations.”

One wonders how this will do damage to all sciences? There clearly is a major difference between evolutionary biology and physics and chemistry. The renowned evolutionary biologist Dr. Ernst Mayr states it this way:

“...Darwin introduced historicity into science. Evolutionary biology, in contrast with physics and chemistry, is a historical science -- the evolutionist attempts to explain events and processes that have already taken place. **Laws and experiments are inappropriate techniques for the explication of such events and processes.** Instead **one constructs a historical narrative**, consisting of a tentative reconstruction of the particular scenario that led to the events one is trying to explain.”
(emphasis added) ⁷

The distinction is exceedingly important. Dr. Mayr states very explicitly that evolutionary theory may not be tested by experiment, while the explanations of physics and chemistry can. Pro-Darwinists like Dr. Lerner are heard frequently comparing evolution to something akin to the law of gravity. The law of gravity has been tested and confirmed by experiment. Evolution has not. The law of gravity is a “law.” Evolution is an “historical narrative” that has not been tested by experiment. How has it been tested? What do the tests say? Are they credible? Do the tests rule out all reasonable competing hypotheses on the basis of the relevant evidence? How does a scientist reliably test a hypothesis about the cause of an unobserved historical event that occurs in the distant past? Shouldn’t students of evolutionary theory have answers to these questions?

Unless the state is seeking to imbue students in a “belief” in evolution and thereby subscribe to ontological naturalism, the State should level with students in the same way that Dr. Mayr leveled with the public and the scientific community in his article that appeared in Scientific American a couple of years ago.

Rhetoric

We believe that rhetoric is not useful in this debate. Our arguments must rise and fall on their substance. We have tried to avoid it, perhaps without complete success.

Religion

Professor Lerner and our opponents seek to convince you that we have a hidden agenda to promote the genesis account contained in the bible in public school classrooms. That is categorically not our cause. We seek to uncover hidden agendas in origins science rather than to promote them. Our cause is scientific objectivity in origins science. We believe that will lead not only to better scientific explanations of where we come from, but also to religious neutrality regarding a question that unavoidably impacts religion. That is a secular cause.

You will note that the image displayed prominently on our web site shows a scales. It has “X’s” drawn through both religious and naturalistic assumptions. Let the scientific method and the evidence rather than doctrine or assumption help us reach a best current scientific explanation of where we come from. In our minds this achieves not only good science, but “*neutrality* ... between *religion and nonreligion*,” as discussed in *Epperson v. Arkansas*.

Our suggestions have been fashioned to achieve these goals.

Thank you for considering our views.

Very truly yours

A handwritten signature in black ink, appearing to read "William S. Harris".

William S. Harris, Ph.D.
Managing Director

A handwritten signature in blue ink, appearing to read "John H. Calvert".

John H. Calvert, J.D.
Managing Director

NOTES

1. While Dr. Lerner agrees that ontological naturalism is not permissible he argues that methodological naturalism is the justified because of its outstanding scientific successes in experimental sciences. One wonders whether these successes are more attributable to the use of the scientific method than a naturalistic assumption that for the most part has no utility in the lab where explanations can be confirmed with experiment. He does not discuss the utility of the assumption when we are asking the question what is the origin of life and its diversity - where do we come from? When the Naturalism is used to answer that question you may as well not ask the question at all. The assumption provides the answer in advance. It destroys scientific objectivity and effectively protects evolutionary theory from testing by ruling out a reasonable competing hypothesis on non-evidentiary grounds. We know of no utility for using methodological naturalism in origins science.
2. Teleology is “the study of the evidences of design or purpose in nature,” [Random House Webster’s Unabridged Dictionary (1999)].
3. The full quotation is: “Methodological naturalism is not a “doctrine” but an essential aspect of the methodology of science, the study of the natural universe. If one believes that natural laws and theories based on them will not suffice to solve the problems attacked by scientists – that supernatural and thus nonscientific principles must be invoked from time to time – then one cannot have the confidence in scientific methodology that is prerequisite to doing science.” Most of this discussion is more of a defense of its use than a clear definition of the term.
4. Massimo Pigliucci, Undated Essay: “Methodological or Philosophical naturalism, or why we should be skeptical of religion.” http://fp.bio.utk.edu/skeptic/Essays/methodological_naturalism.htm. Design detection is not beyond the scope of the scientific method. It is used in a number of sciences, including archaeology, forensics, cryptanalysis and the search for extraterrestrial intelligence.
5. Many discussions of this subject are premised on the conclusion that there is no evidence of design. That is not the case. The evidence is abundant and becomes more compelling the more we learn about the complexity of biological systems and the universe.
6. AP.4.26 describe Einstein’s special theory of relativity and its basic development through assumptions and logical consequences.
7. Ernst Mayr, “*Darwin’s Influence on Modern Thought*,” p. 80, (July 2000, Scientific American). Dr. Mayr is described in the biographical sketch that accompanies the article at page 83 as “one of the towering figures in the history of evolutionary biology.”