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Darby School Board  
209 School Drive  
Darby, MT 59829

Re. Darby School District - Science Curriculum

Ladies and Gentlemen,

I understand you recently took action to inform students about evolutionary theory through the adoption of an Objective Origins Science Policy (the "Policy") that simply "encourages" teachers "to help students to analyze the strengths and weaknesses of ..... the theory of evolution."<sup>1</sup>

Although this policy appears unquestionably appropriate on its face, it has been criticized by three attorneys per letters dated January 15, 2004 (D. James McCubbin), January 25, 2004 (Elizabeth A. Kaleva) and February 3, 2004 (George R. Corn). I will refer to these collectively as the "Letters." I have reviewed the Letters and thought you may be interested in a somewhat different perspective on the matter.

I graduated from the University of Missouri School of Law at Columbia in 1968 as a member of the *Order of the Coif*. I actively practiced with Lathrop & Gage L.C. in Kansas City for the next 32 years, primarily in the area of business litigation and corporate finance. I also have a degree in Geology and have managed a number of legal engagements involving issues of geology. As a consequence, I have a deep interest in science and have studied structural geology and paleontology as I have traveled around the world. I became interested in origins science about 25 years ago after reading an article about the genetic code and DNA. I noticed that the genetic code appears quite similar in form and function to that of the Morse Code, an invention of Samuel Morse. In 1999 I became interested in the debate in Kansas over science standards and wound up co-founding a non-profit organization called Intelligent Design network, inc. Since then I have taken leave of Lathrop & Gage to concentrate on Constitutionally appropriate ways to teach origins science in public schools. Accordingly, my area of interest has shifted from corporation finance to Constitutional Law. Although I am not licensed to practice in Montana, I am licensed to provide advice with respect to Federal law and I have practiced with local counsel in a number of states throughout the country. For the past four years I have advised both state and local school boards on policies regarding the teaching of biological origins and have reviewed and provided comments on policies in Kansas, Missouri, Ohio, West Virginia, North Carolina,

Georgia, New Mexico, Nebraska, Iowa and Minnesota. I have also written<sup>2</sup> and lectured extensively on both the legal and non legal aspects of the subject. Accordingly, I believe I am qualified to comment on your policy from the standpoint of Federal law and offer perhaps helpful insights with respect to various Montana sources mentioned in the Letters.

You may consider me an advocate for “objective origins science,” the mission of the organization I presently manage. Objective origins science seeks an investigation into the origin of life and its diversity without *official* religious or naturalistic bias or assumption. Hence, we are opposed to both religious and philosophic assumptions driving scientific explanation about the religiously charged issue concerning our origins. Any answer to the question – “*Where do we come from?*” – will unavoidably impact theistic and non-theistic religion. It is our view that an objective investigation per the scientific method will produce both the best scientific explanation in terms of accuracy and credibility, but also one that is religiously neutral, consistent with the First Amendment rights of parents and students. The Policy is very consistent with this goal and I applaud it.

The central argument advanced by the Letters is that the Policy will insert Intelligent Design into the curriculum. According to the Letters, this is problematic. Hence, they urge rescission of the Policy. This is a rather interesting claim because the Policy says nothing explicit about Intelligent Design. It simply encourages teachers to “analyze the strengths and weaknesses” of evolution. This is an objective approach that causes the state to not take sides on a controversial issue by advocating only a single perspective. This idea of neutrality that avoids the advancement of an ideology is discussed in the attachment to this letter published by the National Assessment Governing Board. Consistent with that advice, the Policy promotes “critical analysis” or “higher level thinking skills” promoted by No Child Left Behind. What then is the source of the claim in the Letters that this approach, which seems so immanently reasonable, will import intelligent design?

The answer lies in the fact that any discussion of evolution necessarily involves a usually unstated premise about intelligent design. The core claim of modern evolutionary theory is that life is not designed. This is explained by a leading evolutionary biologist Richard Dawkins: “Biology is the study of complicated things that *give the appearance* of having been *designed for a purpose*.”<sup>3</sup> According to Dawkins and modern evolutionary theory, the apparent design that we all intuitively observe in nature is merely an illusion.<sup>4</sup> The issue is discussed at length in a new book by a highly regarded philosopher of science, Michael Ruse.<sup>5</sup> According to this claim, we and Gene Myers, a leading scientist on the Human Genome project are deluding ourselves when we embrace our intuition that life is designed for a purpose. A couple of years ago Myers explained to a reporter for the *San Francisco Chronicle* that he was astounded by “the architecture of life.....The system is extremely complex. It's like it was designed.....There's a huge intelligence there. I don't see that as being unscientific. Others may, but not me.”<sup>6</sup>

Accordingly, any substantive objective analysis of evolution necessarily requires an analysis of its core claim that life is not designed. Is this claim true or false? What objective evidence is available that will answer this question? The reason the Letters argue against an in-depth analysis of evolution as called for by the Policy is because it may lead to a discussion of the very heart of evolutionary theory and the ultimate question that it addresses. The Letters urge you not to go there - just take it for granted that life is not designed and be done with it.

However, before following their advice, we must ask ourselves whether it is legitimate for both science and government to suppress an objective analysis of evolution, take its claim of no-design for granted and thereby prejudge the answer to this ultimate question? Is it appropriate from a scientific standpoint to make an exception for evolution from the fundamental scientific tenet that all scientific theories are tentative and must be subject to critical analysis? Even if that may be acceptable in some scientific circles, is it appropriate for government itself to embrace that strategy and suppress that discussion when it seeks to inform and educate students about the origin of life and its diversity?

This debate causes major confusion in the minds of the public and many in science. We have all been led to think that science is the epitome of objectivity. So, why does science seem to shed this cloak of impartiality when the discussion turns to historical questions about the origin of life and its diversity? The reason, *and this is key to this discussion*, is that many in modern science subscribe to a doctrine called “methodological naturalism” or scientific materialism. According to John Rennie, the Editor of *Scientific American*, “a *central tenet* of modern science is *methodological naturalism*.”<sup>7</sup> This doctrine or philosophy holds that all natural phenomena may be adequately explained by the laws of chemistry and physics and chance “*and that design conceptions of nature are invalid*.”<sup>8</sup> Methodological naturalism, prejudges the core question posed by evolution. It requires that we believe that life is not designed and by that doctrine excludes that issue from discussion.

In this context the objections to Intelligent Design that are mentioned in the Letters make logical sense. If students are allowed to assess the strengths and weaknesses of evolution, they may actually learn that evolution is a claim against design and that the efficacy of this claim is dependent more on the doctrine than on the evidence. They may start asking troubling questions that are not allowed by the *central tenet*. They may necessarily learn too much about evolution. They may learn things that undercut the *central tenet* of “modern science.” Hence, to effectively protect the *central tenet* and its claim of no-design, enormous efforts have been made to suppress not only the idea of design, but criticisms of evolution, whose core claim is that design is just an illusion. If evolution can be criticized, then the first question is how a mechanistic and random process like natural selection can better explain the origin of the genetic code,<sup>9</sup> complex biochemical systems and irreducibly complex biochemical machines, motors, intracellular transportation systems, biological clocks and information processors, all of which really look like they have been designed.

The question then is whether it is appropriate for science and government to use the doctrine of Methodological Naturalism to suppress both substantive criticisms of evolutionary theory and evidence that tends to support the scientific disagreement with Darwin’s claim of no-design. As discussed in a memoranda and legal opinion that I delivered to a local school board in 2001,<sup>10</sup> I believe that governmental use of this doctrine to suppress an objective analysis of the naturalistic claims of evolutionary biology is both scientifically and legally problematic.

There are a number of fundamental reasons why methodological naturalism is inconsistent with good origins science. The following discusses two primary concerns.

First, all scientific theories must be subject to criticism. When science adopts an official policy to suppress the criticisms of a particular theory like evolution, then it essentially has

removed that theory from the realm of science. The theory loses its theoretical status and becomes a dogma or ideology. According to Thomas Huxley, “Science commits suicide when it adopts a creed.” The Letters, knowingly or unknowingly, simply seek to implement this naturalistic doctrine to censor or suppress criticisms of what is supposed to be a theory. Implementation of the doctrine thereby converts evolution from a “theory” into an ideology. One often hears the objection that “evolution is taught as fact.” The objection is both true and valid. The objection is true because evolution is taught as fact because of the undisclosed use of methodological naturalism that does not harbor criticisms of the “theory” or any objective consideration of the competing claim. The objection is valid because it is inappropriate to teach evolution as fact because it is not a fact. As indicated below, it is merely a speculative historical hypothesis masquerading as a fact due to the use of an unstated doctrine that requires that conclusion.

If one could actually show that the Darwinian claim of no-design is a fact, then perhaps this teaching would be justified. However, the claim of no design is inherently different from the claim that the earth is round and not flat. Through experiment and observation we can presently measure the curvature of the earth. The claim of a round Earth is a claim about a present observable pattern and not a claim about the cause of a past unobserved event. In experimental sciences like chemistry and physics, we can test hypotheses with controlled experiments. However, the science that seeks to explain the cause of singular past events like the origin of life and the sudden appearance of major life forms in the fossil record during the Cambrian Explosion is an historical science. The recapitulation of this history can not be presently observed and explicated with experiments. As stated by the eminent evolutionary biologist Ernst Mayr, “laws and experiments are inappropriate for the explanation of such events and processes.”<sup>11</sup> In addition to evolutionary biology, anthropology, archaeology, and many aspects of geology and paleontology are historical. In historical sciences the scientific “historian” uses an approach similar to that used in forensic sciences.<sup>12</sup> An evolutionary biologist is a detective who develops “historical narratives” based on clues that appear in the fossil record and in analyses of present life forms. Logical inference and imagination use the clues to develop “plausible” narratives to explain a massive amount of missing information. Since experiments are not available, the only way to approximate a test of these explanations is to subject them to the test of competing hypotheses. If the evidence for the theory in question does not both support that theory and *also* rule out the competing theory, it remains nothing more than a speculation.<sup>13</sup>

Thus, any historical claim regarding the origin of life and its diversity will necessarily be subjective and speculative and can never be equated to a “fact.” Furthermore, unless the historical claim can marshal evidence that rules out the competing claim it can be nothing more than a speculation. The difficulty with using methodological naturalism in evolutionary biology, is that it rules out evolution’s competitor – the claim of design – not on the evidence, but by rule. This leaves evolution’s claim of no-design a speculation that can not effectively be contradicted. This paradigm essentially converts evolution into an ideology or dogma that has no true scientific credibility or reliability. A perfect example is evolution’s claim that it is proved by homologous or similar body plans among different species. If design is not allowed, this is a valid argument. However, if the argument for the competing claim of design is considered, then the evidence of similarity is consistent with both theories and proves neither. The game of *Clue* tells us that when more than one person is in the house at the time of a murder, then none can be proved the cause of that event until all the other suspects are ruled out by the evidence. The same is true for

evolution. Mechanistic causes alone can not explain the *historical* cause of life and its diversity until design has been ruled out on the evidence.

Anyone who relies on predictions that are based on an unproven speculative historical assumption is traveling a road that will likely be filled with many surprises. For years evolutionary biologists have predicted that the 97% of the human genome that does not code for proteins is just evolutionary junk that has accumulated from unsuccessful mutations over time. Now scientists are finding that this prediction is both wrong and counter productive. If science had approached the subject with the idea that the genome might be designed, then members of the scientific community would have looked for function in the so-called “junk heap” and may have found it long ago.<sup>14</sup>

In summary, the application of methodological naturalism to origins science is scientifically problematic because it effectively precludes the testing of evolutionary theory, causes science to prejudge the answer to an ultimate question and thereby converts it from a scientific theory into a speculative dogma or ideology.

This brings us to the question of why methodological naturalism is applied to the question of “*Where do we come from?*” What is the *purpose* of that doctrine? Why must some in science require us to assume that life is not designed? Why must we accept this speculative dogma as true? The answer that scientists typically give is that science does not allow for consideration of the “supernatural,” also known as “God.” Hence, to avoid God, science chooses to suppress not only evidence of design that supports a notion of God, but also evidence that is critical of the naturalistic claim that there is no God that intervenes in the natural world. Not only does this produce bad science, it is also a construct that is antagonistic to most theistic religions and very supportive of non-theistic religions and belief systems such as secular humanism, atheism and agnosticism.

It is one thing for some scientists to personally treat all natural phenomena as occurrences and not designs. However, it seems Constitutionally and statutorily problematic when government embraces that doctrine in an ostensible effort of fully informing or educating children about their origins. This is especially the case where parents seek to exercise their constitutionally protected right to instill in them the idea that they have been created for a purpose and are not mere accidental occurrences of nature. The Board’s implementation of the advice in the Letters, whether intended or not, will significantly interfere with those protected parental rights. The Letters effectively seek to keep the school district on a track that will not “inform” students about evolution, but rather one that will lead them to believe that its speculative naturalistic thesis is true or a “fact.” They will be shown only evidence that supports the idea that there is no God, Gods, supernatural or other intelligent entities active in the natural world other than humans. The Letters urge you to not permit criticisms of the claim of no-design to ensure that there will be no showing of positive evidence of design.

This is legally problematic because the law requires that government educational services and materials be “secular, neutral and nonideological.” This is a phrase that was added to a number of provisions in the No Child Left Behind Act in 2001.<sup>15</sup> It was also added to the statutory framework that provides for the National Assessment of Educational Progress.<sup>16</sup>

Suppressing evidence because of its theistic implications and showing only naturalistic evidence that supports non-theistic beliefs is a purpose that pertains directly to religion. It is not secular. Naturalism pertains not only to science, but also to religion. It holds, not as an evidentiary matter, but as a statement of faith, that no supernatural entity or any form of intelligence has intervened in the development of life and its diversity. As articulated by the Supreme Court, “religion” includes not only traditional theistic religions, but also non-theistic religions such as “Buddhism, Taoism, Ethical Culture, Secular Humanism and others.”<sup>17</sup> Naturalism not only “pertains to,” but is the fundamental basis for the religion of Secular Humanism. This is evident from *Smith v. Board of School Commissioners of Mobile County* where Secular Humanism is described as “..a **creed** or world view which holds that we have no reason to believe in a creator, that the world is self existing, that there is no transcendent power at work in the world, that **we should not turn to traditional religion for wisdom; rather that we should develop a new ethics** and a new method of moral order **founded upon the teachings of modern naturalism and physical science.**”<sup>18</sup>

The requirement that educational services be secular, neutral and nonideological generally summarizes Supreme Court holdings on the issue. In *Epperson v. Arkansas*,<sup>19</sup> a state suppressed one of multiple theories of human origins – evolution. The court invalidated the statute because the purpose of the suppression was not secular, but rather was motivated by religion. It also held that suppression of the idea was also not neutral as between religion and nonreligion.<sup>20</sup> Instead of suppressing all discussion of origins the statute suppressed only one perspective. The same situation prevailed in the famous case of *Edwards v. Aguillard*.<sup>21</sup> There evolution would be suppressed unless the Genesis account of origins was also discussed. In *Edwards* the Court noted that “If the Louisiana Legislature's purpose was solely to maximize the comprehensiveness and effectiveness of science instruction, **it would have encouraged the teaching of all scientific theories about the origins of humankind.** But under the Act's requirements, teachers who were once free to teach any and all facets of this subject are now unable to do so.”<sup>22</sup>

According to *Edwards* the most effective way to teach origins is to allow a discussion of all scientific theories of origins. The use of methodological naturalism to suppress criticisms of evolution and positive evidence of design is in principle no different than the suppression declared unconstitutional in *Epperson* and *Edwards*. In both cases the Court invalidated suppression of evidence to promote religious or ideological ideas. It seems that the Darby Policy does exactly what is prescribed by *Epperson* and *Edwards* - it encourages objectivity rather than a “single perspective” “Evolution Only” approach that effectively promotes the non-theistic friendly ideology of Naturalism.

As mentioned, legislation providing for the National Assessment of Educational Progress was recently amended to require that the assessment be “secular, neutral and nonideological.” In interpreting this phrase, the National Assessment Governing Board has held that it precludes the showing of only one perspective on a controversial topic. The NAGB policy which reflects this interpretation is attached to this letter.

The legislative history of No Child Left Behind also makes it clear that Congress considers evolution to be a controversial theory that should be taught objectively.<sup>23</sup> This is evident from the Report of the House and Senate Conferees in recommending passage of NCLB. In that Report the Conferees recognized that “a quality science education should prepare students to distinguish

the data and testable theories of science from religious or philosophical claims that are made in the name of science. Where topics are taught that may generate controversy (such as biological evolution), the curriculum should help students to understand **the full range of scientific views that exist, why such topics may generate controversy, and how scientific discoveries can profoundly affect society.**<sup>24</sup> Clearly an official policy that censors or downplays scientific criticisms of “biological evolution” and that does not permit discussion of alternative scientific views is contradictory to this advice and the statutory requirement that materials and services be secular, neutral and nonideological.

Your Policy that is criticized by the Letters specifically “encourages” the comprehensive approach urged by *Epperson, Edwards, No Child Left Behind, the NAGB*, and even Darwin himself. In the conclusion of the *Origin of the Species*, Darwin recognized that his argument against design would be controversial. In that vein he looked “with confidence to the future – to young and rising naturalists, who will be able to view both sides of the question with impartiality.”<sup>25</sup> The Letters would urge you to ignore both reason and the advice of all of these authorities. Thus, the advice provided in the Letters, would seem to create rather than solve a problem for the Board. If that advice is followed and the Board rescinds a policy designed to allow an objective discussion of evolution, then it will be effectively embracing methodological naturalism, an atheistic friendly ideology that is not secular, neutral and nonideological.

One erroneous argument that has propagated methodological naturalism is the claim that design theory is “*creation science*” or “creationism” that has been banned from public schools by the Supreme Court. This is not the case. *Creation science*, like Naturalism, is premised on an assumption. Its assumption is that the a literal interpretation of the biblical account of origins is correct. The courts have held that when schools teach *creation science* they are effectively promoting a particular religious doctrine. Design theory is simply a disagreement with the Naturalistic claim of Darwin that natural phenomena are not designed. It argues that based on observed levels of biological complexity, the fossil record, and logical analysis and inference, that design *may be* a better current explanation than natural selection. Like evolution (unsupported by Methodological Naturalism) it is a theory based on observation, inference and logical analysis. Unlike Naturalism, which essentially is based on faith, design theory is not based on faith. If we were required to accept design, as many would require us to accept Naturalism and evolution, design theory would be a faith based ideology. So long as design and evolutionary theory are both kept theoretical and allowed to test each other’s claims on a level playing field we can have a very interesting scientific competition. As soon as one of the claims is required to be accepted we leave science and enter the realm of religion. The Darby Policy seeks to keep evolution theoretical rather than dogmatic. Hence, it not only passes Constitutional muster, it promotes good constitutional values.

Interestingly, the Darby policy does not even mandate objectivity. It merely “encourages” it, thereby promoting rather than suppressing the academic freedom of its teachers. This is the formula for enhancing creativity among teachers and producing an “informed” student rather than one who has been spoon-fed a particular ideology.

In my mind nothing contained in the Letters seems to merit a rescission of the Policy. The Letters do not really address the policy. Rather they assume that curriculum that is developed pursuant to the policy may be inconsistent with State science standards. That is nothing more

than pure speculation. The policy does not “require” anything. It merely “encourages” teachers to be open and objective. It does not on its face require the development of any new curriculum. Furthermore, until a policy is stated, there will be little guidance for any curriculum. The idea of developing curriculum before the development of a policy for curriculum would seem to be putting the cart before the horse.

It is also presumptuous to think that a policy which urges a disclosure of the strengths and weaknesses of evolutionary theory will necessarily require a teaching of design theory. Modern design theory is in an early stage and standard curriculum is not available. Those in the Intelligent Design movement have therefore not advocated any required teaching of design theory at the present time.

It has been argued that the Policy may conflict with State Accreditation Standards. I have reviewed the *Montana School Accreditation Standards and Procedure Manual*, dated June, 2001, and find that it requires schools to adopt an academic freedom policy. The Darby Board has done that, presumably without objection from the State Board of Public Education. Furthermore, the Policy is clearly consistent with that Academic Freedom Policy. There is no apparent inconsistency. Also, the Letters do not identify any particular provision of that Policy or the *Accreditation Standards* that would seem to conflict with the Policy. In this regard, I note that most of the language that makes the Darby Policy objective has been taken directly from the *Montana School Accreditation Standards*. Rather than being inconsistent with those standards, the Policy would seem to actually favorably implement them.

In summary, the Letters seem to be an over reaction to a very appropriate policy. Simply because those advocating objectivity embrace a theistic religion does not mean that their goal of scientific objectivity that will lead to religious neutrality is improper. Indeed the Supreme Court has held that the quest for governmental neutrality is a secular rather than a religious motive. The issue is important to parents who are theists because Naturalism/scientific materialism is corrosive to those religious beliefs. They are not seeking scientific objectivity to promote *Genesis*, rather they are seeking it to promote religious neutrality - to end a form of state sponsored discrimination against theists. Achieving that goal will not only enhance the scientific credibility of “historical narratives” about our origins, it will also see that the state is being neutral as between theistic and non-theistic religions and belief systems. Those seeking objectivity in origins science are essentially motivated by the same anti-discriminatory considerations that motivated the civil rights movement over the past 50 years. The hidden agenda in this debate is not theistic religion, it is naturalism, the central tenet of non-theistic religions and belief systems like secular humanism, scientism, atheism and agnosticism.

The letters also urge that adoption of this policy will expose the board to litigation. In today’s society that is fraught with frivolous legal claims, school boards are always open to that possibility. However, in my mind the Board faces greater true legal exposure by officially adopting a policy to not allow criticisms of evolutionary theory and thereby effectively promoting the anti-theistic ideology of Naturalism. An official endorsement of Naturalism will be the message sent to teachers, students and parents if the Objective Origins Science Policy is rescinded. Such an endorsement is inconsistent with the First Amendment rights of parents and students.

I understand that the Alliance Defense Fund has offered to defend the Policy. I attended an ADF litigation academy last June and I can attest to the professionalism and dedication of that organization. If I was on the Board I would welcome their assistance.

Before I leave the issue of the ADF, I understand that since that legal organization specializes in religious freedom, some have complained that it might somehow be disqualified to represent the school board for its adoption of a policy that promotes that very notion. Such a complaint would seem frivolous on its face. One must keep in mind that origins science *unavoidably* impacts theistic and non-theistic religious beliefs. The impact of evolutionary theory on religion and world views was recently described by Michael Shermer, a regular columnist for *Scientific American*:

**“First, cosmology and evolutionary theory ask the ultimate origin questions that have traditionally been the province of religion and theology. Scientism is courageously proffering naturalistic answers that supplant supernaturalistic ones and in the process is providing spiritual sustenance for those whose needs are not being met by these ancient cultural traditions.”**<sup>26</sup> (emphasis added)

Leading students to believe “naturalistic answers” that promote non-theistic beliefs and that denigrate theistic beliefs by showing them only the strengths and not the weaknesses of this naturalistic “theory” is a direct and significant infringement of the religious freedom of parents and students who are theists. The Policy, recognizing this difficulty, provides a scientifically objective approach that is neutral in effect. This converts evolution into a scientific theory rather than an ideology, and produces not only good science, but religious neutrality that respects the religious rights of both parents and students. The ADF is particularly qualified in experience and training to defend the Darby Policy that promotes those rights.

Thank you for your kind consideration of this matter.

Very truly yours,



John H. Calvert, Esq.

cc: George H. Corn, Esq.  
D. James McCubbin, Esq.  
Elizabeth A. Kaleva, Esq.

enclosure<sup>27</sup>

## NOTES

1. ***“Science is an inquiry process used to investigate natural phenomena, resulting in the formation of theories verified by direct observations. These theories are challengeable and changeable. Historically, there have been new developments that demonstrate scientific knowledge is subject to change as new evidence becomes available. Therefore, the results of a scientific investigation are always open to revision by further experiments. Teachers in the Darby School District are encouraged to help students assess evidence for and against theories, to analyze the scientific strengths and weaknesses of existing scientific theories, including the Theory of Evolution, by giving examples of scientific innovation or discovery challenging commonly held perceptions.”*** \* *Bold/italics indicates language from Montana Content and Performance Standards*

2. John H. Calvert, J.D., and William S. Harris, Ph.D., *Teaching Origins Science in Public Schools, Memorandum and Opinion* (Intelligent Design network, inc. 2001), *Intelligent Design: The Scientific Alternative to Evolution* (National Catholic Bioethics Quarterly, Autumn 2003); and, Daniel Schwabauer and John H. Calvert, *The Rule: A One Act Play About the Trial of a Biology Teacher* (Intelligent Design network, inc.).
3. Richard Dawkins, *The Blind Watchmaker: Why The Evidence of Evolution Reveals A Universe Without Design*” p. 1, (W.W. Norton & Company, 1996).
4. “Natural Selection is the blind watchmaker, blind because it does not see ahead, does not plan consequences, **has no purpose in view**. Yet the living results of natural selection **overwhelming impress us with the appearance of design** as if by a master watchmaker, impress us with the **illusion of design** and planning. The purpose of this book is to resolve this paradox to the satisfaction of the reader, and the purpose of this chapter is further to impress the reader with the power of the **illusion of design**.” Richard Dawkins, *The Blind Watchmaker: Why The Evidence of Evolution Reveals A Universe Without Design*” p. 21, (W.W. Norton & Company, 1996).
5. Michael Ruse, *Darwin and Design: Does evolution have a purpose?* p. 279 (Harvard, 2003)
6. Tom Abate, “*Human Genome Map Has Scientists Talking About the Divine. Surprisingly Low Number of Genes Raises Big Questions*,” [San Francisco Chronicle (February 19, 2001)]. The quote reflects an interview of Dr. Gene Myers, a lead scientist on the human genome project after his team announced the mapping of the human genome. The quote reflects a report of the dialogue between Dr. Myers and Tom Abate, a reporter for the San Francisco Chronicle.
7. “A central **tenet** of modern science is methodological naturalism.” John Rennie, Editor in Chief of Scientific American, *15 Answers to Creationist Nonsense*, p. 84 (Scientific American, July 2002).
8. Naturalism is “the doctrine that cause-and-effect laws (as of physics and chemistry) are adequate to account for all phenomena and that teleological [design] conceptions of nature are invalid” (*Webster’s Third New International Dictionary of the English Language, Unabridged*, 1993). It has been argued that methodological naturalism is not a doctrine, but rather just a method of science. Regardless of any technical distinction, in practice and effect methodological naturalism is synonymous with Naturalism because this method is generally not disclosed and it requires acceptance.
9. “*Eerie perfection*.” A 1998 study found the code to be the most optimal of one million possible codes that were analyzed. [S.J. Freeland and L.D. Hurst, *The genetic code is one in a million*, pp. 238-248 (*Journal of Molecular Evolution*, Vol 47, 1998)]. Simon Conway Morris, a highly regarded paleontologist, refers to this as “Eerie perfection” [*Life’s Solution: Inevitable Humans in a Lonely Universe*, pp.13-19 (Cambridge University Press, 2003)].
10. See Note 2.
11. Evolutionary biology and other historical sciences are not susceptible to testing and confirmation via experiment. This was acknowledged by Dr. Ernst Mayr: “.....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) [Ernst Mayr, “*Darwin’s Influence on Modern Thought*,” p. 80, (July 2000, Scientific American)].

Historical hypotheses, which are not susceptible to confirmation by experiment, are tested by seeking to rule out competing hypotheses on the basis of the available evidence. Thus, historical sciences seek to find a “best explanation.”[Carol Cleland, *Historical Science, Experimental Science and the Scientific Method*, Vol 29 No. 11, 987-990 (Geology, November 2001)]. According to Cleland, the failure to rule

out or to seek to rule out a competing historical hypothesis leaves the hypothesis to be tested nothing more than a speculation or a “dreaded just-so story.” Methodological naturalism rules out the competing hypothesis by assumption rather than by the evidence. This would appear to leave evolution untested and nothing more than a speculation – a “dreaded just-so story.” To be a credible theory, evolutionary biology must be tested against the competing claims of the design hypothesis that challenge evolutionary theory by voicing scientific disagreement with its claim of no design. Methodological Naturalism exempts evolution from having to deal with these challenges and would seem to deprive it of the status of “scientific knowledge” as defined by the Court in *Daubert v. Merrill Dow Corporation Pharmaceuticals, Inc.*, 509 U.S. 579, 590 (1993) and its progeny. According to *Daubert* for an inference or assertion to qualify as scientific knowledge, it must be derived by the scientific method. As shown above, that is not the case with either Methodological Naturalism or, because of Methodological Naturalism, evolution. An expert that cannot rule out a competing hypotheses has not been allowed to advance an opinion as to the cause of an historical event. *Kumho Tire Co., Ltd., Et al. v. Carmichael Et al.* 119 S.Ct. 1167 (1999) (where an expert that could not rule out other hypotheses was not allowed to opine that a tire failed due to design defect. See Arvid V. Zuber, J.D., Ph.D., *Daubert & Scientific Methodology – Science Made Easy, Supplement For The Defense*, p 19 (Defense Research Institute, November 1999).

12. Kenneth Miller notes that: “Unfortunately there is a school of thought that rejects the very idea that any theory about the past can be scientific.” According to this theory “Science is based on experiment and direct, testable observation...” and is therefore limited to laboratory sciences. Kenneth Miller, *Finding Darwin’s God*, (Cliff Street Books, 1999), pp. 22-23. See also, Carol Cleland (*Historical Science, Experimental Science and the Scientific Method*, (Geology, November 2001, Vol 29 No. 11, 987-990)]. Both Miller and Cleland argue that historical sciences are science because they are amenable to forensic techniques that essentially seek to develop evidence that not only rules in a particular hypothesis, but also rules out the competing hypotheses. The failure to consider a relevant competing hypothesis precludes confirmation of the hypothesis in question and renders it nothing more than a “dreaded just-so story.” (Cleland, at p. 990). Kenneth Miller, an ardent opponent of ID, also recognizes that the way one confirms an historical hypothesis like evolution is the same method used by the police department in their forensic investigations:

“Is scientific inquiry restricted to what we can actually bring into the laboratory and see happening right in front of us? Is there really any scientific way that we can know *anything* about the past at all? There is indeed a way to do this, and the process is so ordinary that most of us take it for granted. ....**The simple fact is that we can learn about the past by applying good, old fashioned detective work to the clues that have been left behind.** The same rules applies to science. We may not be able to witness the past directly, but we can reach out and analyze it for the simple reason that the past left something behind.....” (Miller, p. 22-23)

Miller is correct about the method, but the investigation ceases to be one when the investigator ignores “clues” because they do not fit a preconceived notion of the cause of the crime. In that case there really is no true investigation at all, but only an exercise to find evidence that will promote a particular view. That is the case with the doctrine that natural phenomena are not designed. Using this doctrine the investigators ignore relevant evidence of the cause of the past event and therefore wind up with nothing more than a speculation – a just so story that has not been objectively tested or confirmed.

13. See preceding notes. The problem was recently lamented by Franklin Harold, a Colorado State University biochemist, in *The Way of the Cell* (Oxford University Press, 2001) “We should reject, *as a matter of principle*, the substitution of intelligent design for the dialogue of chance and necessity; *but we must concede* that there are presently no detailed Darwinian accounts of the evolution of any biochemical system, *only a variety of wishful speculations.*”
14. “It will take years, perhaps decades, to construct a detailed theory that explains how DNA, RNA and the epigenetic machinery all fit into an interlocking, self-regulating system. But there is no longer any doubt that a new theory is needed to replace the central dogma that has been the foundation of molecular genetics and biotechnology since the 1950s.”\*\* The sequences of so-called noncoding DNA “were

immediately assumed to be evolutionary junk.” “That assumption was too hasty.” “Increasingly we are realizing that there is a large collection of genes that are clearly functional even though they do not code for any protein..” \*\* “I think this will come to be a classic story of orthodoxy derailing objective analysis of the facts, in this case for a quarter of a century,” Mattick says. “The failure to recognize the full implications of this – particularly the possibility that the intervening noncoding sequences may be transmitting parallel information in the form of RNA molecules — may will go down as one of the biggest mistakes in the history of molecular biology.” \*\* “Beaker’s group started hunting for riboswitches in the wild and soon found them hiding in intergenic DNA [the so called noncoding portions previously thought of as junk]. These precision genetic switches have been extracted now from species in all three kingdoms of life. “‘This implies that they were probably present in the last common ancestor,’ not long after the dawn of evolution, Beaker argues.” W. Wayt Gibbs, *The Unseen Genome - Gems among the Junk*, *Scientific American*, p 46-53 Vol 289, No. 5 (November 2003).

15. A number of provisions in NCLB indicate that it is inappropriate for States to adopt or implement educational standards that fail to be secular, neutral and nonideological. Sections 1116(b) and 1116(e)(5)(D), relating to School Improvement, require schools which have failed to make adequate yearly progress to provide supplemental educational services from outside providers. The instructional content of the services and materials provided must be consistent with state standards and also be “secular, neutral and nonideological.” Similarly, services and materials provided by the State to private school students and teachers and certain immigrants under the Act are required to be “secular, neutral and nonideological.” (See sections 1120(a)(1), 3245 (a)(7)(A), 9501 (a)(2); Section 5142(a)(1). This would seem to effectively require that State standards themselves be “secular, neutral and nonideological. The Act also requires that all items selected for use in the National Assessment of Educational Progress “are **free from racial, cultural, gender, or regional bias and are secular, neutral and nonideological.**” (See amended Section 412 (e)(4) of the National Education Statistics Act of 1994). These requirements merely reflect the holdings of the Supreme Court in a number of cases. See John H. Calvert, *Are we designs or occurrences? Should science and government prejudge the question?* pp 24 -32 (Intelligent Design network, inc. 2003) at [www.IntelligentDesignNetwork.org/Designsoroccurrences111003.pdf](http://www.IntelligentDesignNetwork.org/Designsoroccurrences111003.pdf). The concept of neutrality effectively proscribes government from taking an official position on any form of **orthodoxy** affecting a variety of beliefs. "If there is any fixed star in our constitutional constellation, it is that **no official, high or petty, can prescribe what shall be orthodox** in politics, nationalism, religion, or other matters of opinion or force citizens to confess by word or act their faith therein." *West Virginia Board of Education v. Barnette*, 319 U.S. 624, 642 (1943); *Board of Education. v. Pico*, 457 U.S. 853, 879 (1982); *Keyishian v. Board of Regents*, 385 U.S. 589, 603 (1967)
16. *Id.*
17. *Welsh v. United States*, 398 U.S. 333, concurring opinion, note 8 (1970): “This Court has taken notice of the fact that recognized ‘religions’ exist that ‘do not teach what would generally be considered a belief in the existence of God,’ *Torcaso v. Watkins*, 367 U.S. 488, 495 n. 11, e. g., ‘Buddhism, Taoism, Ethical Culture, Secular Humanism and others.’ .... See also *Washington Ethical Society v. District of Columbia*, 101 U.S. App. D.C. 371, 249 F.2d 127 (1957); 2 *Encyclopedia of the Social Sciences* 293; J. Archer, *Faiths Men Live By* 120-138, 254-313 (2d ed. revised by Puritan 1958); Stokes & Pfeffer, supra, n. 3, at 560.” See also *Smith v. Board of School Commissioners of Mobile County*, 655 F. Supp. 939, (SD Ala 1987, holding that Secular Humanism is a religion) rev’d on other grounds 827 F2d 684 (11th Cir 1987).
18. *Smith v. Board of School Commissioners of Mobile County*, 655 F. Supp. 939, (SD Ala 1987, holding that Secular Humanism is a religion), rev’d on other grounds, 827 F2d 684 (11th Cir 1987). On appeal the 11th Circuit did not disagree with the lower Court’s holding that Secular Humanism was a religion. It merely held that certain textbooks did not promote that religion.
19. *Epperson v. Arkansas*, 393 U.S. 97 (1968)
20. *Id.*, at 103-106 In this respect the Court said: “Government in our democracy, state and nation, must be neutral in matters of religious theory, doctrine, and practice. **It may not be hostile to any religion** or to the advocacy of no-religion; and it may not aid, or foster or promote one religion or religious theory

against another or even against the militant opposite. ***The First Amendment mandates government neutrality*** between religion and religion, and ***between religion and nonreligion***. \*\*\* “.....the State may not adopt programs or practices in its public schools or colleges which ‘aid or oppose’ any religion. Id. at 225. This prohibition is absolute. ***It forbids*** alike the preference of a religious doctrine or ***the prohibition of theory which is deemed antagonistic to a particular dogma***.” (emphasis added)

21. Edwards v. Aguillard, 482 U.S. 578, 588-9 (1987). The case involved a “creation science” statute that promoted a biblical account of origins and not a scientific counter-argument to the “not designed” claim of Darwinian evolution.
22. *Id.*
23. No Child Left Behind Act of 2001, *Conference Report to Accompany H.R. 1*, page 703, (December 13, 2001, House Report No. 107-334)
24. *Id.*
25. Charles Darwin, *The origin of the Species by Means of Natural Selection or the Preservation of Favored Races in the Struggle for Life*, p. 639 in the “Conclusion” (The Modern Library 1998)
26. Michael Shermer, *The Shamans of Scientism*, Scientific American, p.35 (June 2002). The religious impact of evolution is also described by the author of a prominent college text on evolutionary biology, Douglas Futuyma: “Darwin’s immeasurably important contribution to science was to show how mechanistic causes could also explain all biological phenomena, despite their apparent evidence of design and purpose. By coupling undirected, purposeless variation to the blind, uncaring process of natural selection, Darwin made theological or spiritual explanations of the life processes superfluous.” Douglas J. Futuyma, *Evolutionary Biology, Third Edition*, p.5 (Sinauer Associates, Inc. 1998). The impact of evolution’s naturalistic theory of origins on religion is discussed in more detail in William S. Harris and John Calvert, *Intelligent Design: The Scientific Alternative to Evolution*, p 533-42 (National Catholic Bioethics Quarterly, Vol. 3 No. 3, Autumn 2003).
27. National Assessment Governing Board, *Collection and Reporting of Background Data by the National Assessment of Educational Progress Policy Statement, Appendix A, Definitions of Secular, Neutral, and Non-ideological: Item Review Criteria* (NAGB, May 18, 2003). A copy of the appendix is attached to this letter

# APPENDIX A

## Definitions of Secular, Neutral, and Non-ideological Item Review Criteria

*From Governing Board Policy on NAEP Item Development and Review—5/18/02*

Items shall be secular, neutral, and non-ideological. Neither NAEP nor its questions shall advocate a particular religious belief or political stance. Where appropriate, NAEP questions may deal with religious and political issues in a fair and objective way. The following definitions shall apply to the review of all NAEP test questions, reading passages, and supplementary materials used in the assessment:

**Secular** — NAEP questions will not contain language that advocates or opposes any particular religious views or beliefs, nor will items compare one religion unfavorably to another. However, items may contain references to religions, religious symbolism, or members of religious groups where appropriate.

Examples: The following phrases would be acceptable: “shaped like a Christmas tree,” “religious tolerance is one of the key aspects of a free society,” “Dr. Martin Luther King, Jr. was a Baptist minister,” or “Hinduism is the predominant religion in India.”

**Neutral and Non-ideological** — **Items will not advocate for** a particular political party or partisan issue, for any specific legislative or electoral result, or for **a single perspective on a controversial issue**. **An item may ask students to explain both sides of a debate, or it may ask them to analyze an issue, or to explain the arguments of proponents or opponents, without requiring students to endorse personally the position they are describing.** Item writers should have the flexibility to develop questions that measure important knowledge and skills without requiring both pro and con responses to every item. **(Emphasis not contained in Appendix issued by NAGB)**

Examples: Students may be asked to compare and contrast positions on states rights, based on excerpts from speeches by X and Y; to analyze the themes of Franklin D. Roosevelt’s first and second inaugural addresses; to identify the purpose of the Monroe Doctrine; or to select a position on the issue of suburban growth and cite evidence to support this position. Or, students may be asked to provide arguments either for or against Woodrow Wilson’s decision to enter World War I. A NAEP question could ask students to summarize the dissenting opinion in a landmark Supreme Court case.

The criteria of neutral and non-ideological also pertain to decisions about the pool of test questions in a subject area, taken as a whole. The Board shall review the entire item pool for a subject area to ensure that it is balanced in terms of the perspectives and issues presented.