

A Lawyer's Take on Michael Behe's Latest Book, *Darwin Devolves: The New Science about DNA that Challenges Evolution*

By John Calvert
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I've known Dr. Behe for the last 20 years. We met when I switched my legal specialty from stock fraud to the Constitutional rights of parents and students in K-12 public education. I'm also a geologist and former "Secular" Humanist who has no qualms with an old age of the Earth. I buried my former materialistic view of life after I read an article 40 years ago about how DNA uses a code to store the functionally complex information that accounts for the origin, development and operation of living systems.

It struck me that the genetic code resembles the Morse code, developed by the mind of Samuel Morse. Both use a set of symbols to convert information into something else. For the Morse code the something else is words, numbers and punctuation marks. For the genetic code the something else are strings of amino acids that fold into integrated proteins that make, repair, regulate and replicate life.

I didn't see how physics, chemistry and chance alone could explain the code or its incomprehensibly sophisticated coded "messages" that define life. So, in 1982 I began a somewhat haphazard research project about how science accounts for the origin of life and its diversity. In that search I learned that modern evolutionary theory – origins science – is based on a doctrine that does not permit consideration of the idea that the kind of foresight necessary to make the Morse code might be needed to construct the genetic code.

The doctrine is called *methodological naturalism*. I refer to it as the "Orthodoxy." The Orthodoxy requires that scientific explanations of the history of the universe and life on earth be purely materialistic. Everything has to be explained by physics, chemistry and chance alone. The doctrine seemed quite odd to me, since we know of no instance of a code arising by physics, chemistry and chance without the activity of a mind. Also, physics and chemistry do not explain the *sequence* of the bases that comprise the messages of life *as the sequences are aperiodic*. The four nucleotide bases can be arranged in any order just as the letters of the alphabet in a sentence. In human experience we know of no code ever produced by chance, and the odds of chance producing the lengthy sequences needed for first life are off the chart. So, it seemed odd that the foundation of modern origins science is an orthodoxy, not evidence.

In 1999 I was introduced to science standards for teaching evolution/origins science to impressionable children in K-12 public schools. Due to the use of the Orthodoxy, the standards presented a history of the universe and life on earth as due only to chance and necessity (physics and chemistry). In the 4th grade children were to learn that life is merely an "occurrence," not a creation made for a purpose. The issue is important as all religions are built on the foundational

questions about the cause and nature of life. Non-theists believe it happened by chance and necessity without purpose, while theists posit that a mind or minds made it for a purpose.

In 2005 I called Dr. Behe as one of 23 experts (18 of which were PhDs) to testify at a six day hearing about K-12 origins science standards for Kansas public schools. Eight members of a state appointed writing committee were urging the adoption of changes that would put aside the Orthodoxy and thereby enable students to examine evolutionary theory objectively. Dr. Behe's testimony related to a paper he and David Snoke had published in *Protein Science* in 2004. The paper explained the results of tests by simulation of the likelihood of the chance formation of a new molecular binding site through random mutations to a duplicate gene. He discusses that paper, its findings and its critical examination in Chapter 9 of *Darwin Devolves* at pp 238-9. Like in the book, he testified that a molecular binding site requiring two mutations would be exceedingly unlikely and that one requiring six or more would be next to impossible within the time available on earth.

Interestingly, Behe's testimony, and that of the 22 other experts, went unchallenged at the hearing. This is because the opposing science establishment chose to boycott it. It chose not to call a single opposing expert to publicly defend the Orthodoxy and the idea that life reduces to a series of materially caused accidents. Perhaps one reason was that their experts would have been subject to a rigorous cross examination. In addition the testimony would have been before news crews and journalists from all over the world. So, instead of addressing the substance of the issue in public, the "scientific" establishment employed a media relations strategy designed to ridicule and demean the knowledgeable, professional, and convincing witnesses who were laying their jobs and reputations on the line to even appear.

Thankfully, Dr. Behe is a rule breaker. He ignores the edict of the Orthodoxy in the three books he has published over the last 24 years. Otherwise, we would not have them. They bring us understanding, logic, and an objectively thorough critical analysis of Darwin's dangerous idea (unguided evolution by common descent). Eventually, I expect their influence will eclipse that of Darwin's *On the Origin of the Species*.

As I read through the book the first time, I made short notes of my impressions on the blank pages and empty spaces found at the beginning of the book. The first note is a quote: "The real reason why we study evolution is that [it answers a religious question as] we want to know where we come from.'132." Others include: "methodical," "profound," "coherent," "comprehensive – covers history well," "the level of intelligence [of a mind] is [assessed] by observing its effects 263," "comprehensive," "uses plain English," "logical," "rational – a champion of reason."

There are others, but these reflect some of my impressions as I plowed through an exceedingly important work, perhaps the most important in the last two decades.

Bottom line, *Darwin Devolves* makes a coherent and comprehensible case. It shows that during the 23 years since *Darwin's Black Box*, the materialistic science establishment has failed to put forward any evidence that random mutation and natural selection ("RM & NS") can plausibly account for irreducibly complex macro-evolutionary innovations of life. Behe also shows that the experiments and investigations that have been conducted during this period show that RM & NS

can explain micro-evolutionary changes within the level of species and genera that have allowed them to adapt to particular environments. However, he also shows that those changes come at a cost – the loss of biological information that degrades pre-existing functions. As a consequence he shows that RM & NS can account for adaptations at the micro-evolutionary level, but primarily by degrading and modifying information rather than by generating new information.

Because RM & NS work primarily by degrading existing functional information, it is a weak mechanism that cannot be reasonably extrapolated to materialistically explain otherwise unexplained incredibly sophisticated macro-evolutionary innovations. These innovations include: the origin of the genetic code, first life, the lengthy coded messages necessary for first life, sophisticated eukaryotic cells that make up all plants and animals, multicellular organisms, all major animal phyla that suddenly arose during the Cambrian Explosion, eyes, and animal and human minds.

Dr. Behe started the publication of his work about a guided or teleological view of life in 1996 with *Darwin's Black Box* (“DBB”). He claimed that RM & NS lacked the capacity to account for irreducibly complex molecular machines such as outboard motors (flagella) that propel the oldest known form of life – the single-celled bacterium. Absent any substantive experimental or observational evidence to defeat the claim, materialists have relied on speculative just-so stories and concerted suppression of dissent from other scientists to counter Behe’s evidence-based conclusion that the construction of a sophisticated 100,000 rpm outboard motor in the earliest form of life is best explained by a mind, rather than a chance-based unguided process,

I believe there are at least two key reasons why the just-so stories have been effective within the scientific and public communities. One is that phenotypic and genotypic similarities (similar body plans and gene sequences) in all forms of life do lend some support to the hypothesis that gradual random mutations naturally selected account for all the diversity of life. However, that is true only if one does not consider the fact that the very same evidence is consistent with the competing idea that the process was guided by a mind or minds. That idea does not arise from the Bible, rather it arises from the observation of everyone, including atheist Richard Dawkins, that living systems give the appearance of having been brilliantly designed for a purpose.

Thus, common ancestry is consistent with both a guided and unguided process. Furthermore, it can be strongly argued the evidence for the guided hypothesis (teleology) currently outweighs the evidence for materialistic causation.

The evidence for the teleological alternative includes: (1) a universe and its physics and chemistry “fine-tuned” (designed) for life; (2) a universal genetic code and the complex coded functional information needed to start replicating life and new biological innovations such as the origin of eukaryotes and all the major animal phyla during the Cambrian Explosion, none of which have been explained materialistically; (3) a fossil record that in many respects weighs more heavily for the guided hypothesis as it shows long periods of stasis and then abrupt appearances of new innovations of astonishing sophistication without transitional forms; and (4) similar inventions, such as eyes, popping up repeatedly in organisms not closely related. So the similarities one finds in living systems arguably weigh more heavily for the guided hypothesis – common design rather than common ancestry.

An analogy that comes to mind is that a husband's fingerprints on the gun that ended the life of his wife does not inculcate the husband if the gun also displays the prints of a burglar. Additional evidence such as the absence of the husband from the house at the time of death and the presence of the burglar tends to rule out the husband, while ruling in the burglar.

This brings us to the second and key reason the unguided hypothesis has been generally accepted. In the example above, what if the burglar hypothesis is simply not allowed, as the burglar happens to be the son of an unethical judge? Similarly, the guided hypothesis is not allowed because (a) the Orthodoxy bans it even though its evidence is arguably weightier, and (b) because the use and effect of use of the Orthodoxy is typically concealed by misleading claims that evolution is supported by overwhelming evidence and accepted by all true scientists. Any scientist that fails to adhere to the mandate of the Orthodoxy simply cannot get published in a mainstream scientific journal or keep a job at a mainstream university. Thus, because of the Orthodoxy's ban and the fact that its use is not adequately explained, the public as well as many scientists come to accept unguided evolution as a fact.

Dr. Behe challenges the Orthodoxy's ban on guided evolution, by detailing the fact that intelligence/mind is ubiquitous in the natural world. He starts with his own mind. He knows from introspection that he has a mind that has the capacity to arrange patterns of disparate parts for a purpose.

Since Dr. Behe knows he has a mind, he then asks how he can know that other minds exist. He explains that by using our own minds we may rationally and logically infer the existence of other minds by observing purposeful patterns left behind by the others. When we observe others arranging patterns of disparate parts for a purpose we can reasonably conclude that they too have minds.

We may also reasonably infer the existence of minds we can't observe by studying patterns of disparate parts that reflect a purpose, such as the text in a book, an outboard motor that propels a boat, or drawings on the wall of a cave. We live in homes that reflect the effects of the minds of architects, engineers, manufacturers and construction workers. We can also observe the effects of the mind of a bird who arranges disparate pieces of straw, and twigs and mud to produce a nest for the incubation of eggs. Behe discusses the work of biologist James Shapiro, who argues that even cells have a sentient capacity to reengineer their own genome to adapt to a new environment.

Since minds are ubiquitous to the natural world, then it is not unreasonable to posit a mind or minds for the functionally complex systems that comprise life. Behe also explains that the idea of a guiding mind does not necessarily entail a God, as there are atheists who reject a materialistic view of life. Furthermore, if we think about it, human minds are now in the process of developing artificial intelligence and Francis Crick and others have suggested that perhaps life arose from alien minds that seeded the earth. Thus, the origin of life on earth does not entail an unembodied divine mind. Since minds are real phenomena that produce complex coded information, it is not unreasonable to posit mind as an alternative to RM & NS for the genetic code and the coded messages that define life.

Dr. Behe relies entirely on his own work, the work of scientists before Darwin, and Darwinists for his conclusions. One will not find a citation in support of his hypothesis to any intelligent design (ID) advocate, other than to his own work and a reference to a book by Michael Denton that caused him to question the adequacy of RM & NS. Behe reminds me of a defense attorney who goes into court and shreds the prosecutors “overwhelming” case entirely through the insightful and effective cross examination of opposing witnesses. He forces them to show how a random mechanism can produce the symphony of life. When they counter with standard just-so stories, he asks for the evidence that supports them. Do your experiments – do they show that RM & NS typically arrange disparate parts purposefully, or do they show the mechanism primarily degrades the unexplained functionally complex existing systems and functional information that runs them?

A human example of how a loss of information can be somewhat beneficial and therefore selectable would be the mutation or error in a verbal message to a group directing that assistance be given to Jan. The speaker slurs his words and the listener incorrectly hears an “o” instead of an “a” and gives help to *Jon* instead of *Jan*. Although Jon may not need help, he might enjoy receiving the assistance which Jan is seeking.

Essentially, the case for a materialistic explanation for life is based on a huge sleight of hand supported by a scientific establishment that has become religiously materialistic due to the Orthodoxy’s enforced ban on any guided cause. Behe very artfully exposes it. The question is whether the science enterprise will listen and develop an OES (objective evolutionary synthesis) rather than an EES (extended evolutionary synthesis).

One final comment on *Darwin Devolves*. There are two elephants in the room that Dr. Behe does not explicitly address.

The first elephant is the fact that evolution is *historical* rather than *experimental* science. In historical science like the evolution of eukaryotes 2 billion years ago, experimentation and observation are not available to empirically test *a single hypothesis*. Instead historical sciences posit *multiple competing hypotheses* for an unobserved cause of a past event. They then seek to collect a set of traces or clues that will collectively rule in one of the alternatives *and also* rule out the others. What is being sought is an inference to the best of the competing explanations using a form of reasoning called *abduction*. The testing is accomplished by weighing all the available evidence in a metaphorical balance scale. The problem is that the Orthodoxy bans consideration of the evidence-based teleological alternative and therefore the collection and weighing of the evidence that supports that alternative. That omission reduces the materialistic narrative to nothing more than a required explanation, rather than an explanation tested by the respective weights of all the relevant evidence for the competing alternatives.

Many scientists have objected that historical sciences like historical geology, evolutionary biology, and anthropology do not qualify as “science” as they lack empirical grounding. Philosopher of science Carol Cleland argues they do qualify, *but only if* the investigating scientists objectively consider all the alternatives. Cleland explains that a failure to give consideration to an evidence-based alternative results in a “dreaded just-so-story” rather than a

tested scientific hypothesis. [Carol Cleland, *Historical Science, Experimental Science, and the Scientific Method*, GEOLOGY, Nov. 2000, at 987, 990]

Accordingly, the use of the Orthodoxy to suppress consideration of the evidence that supports the competing teleological alternative results in materialistic evolution being rooted in nothing more than a chain of dreaded just-so stories that support the required materialistic worldview.

The second elephant in the room is the fact that the guided and unguided competing alternatives *both* provide the foundation for competing theistic and non-theistic religious worldviews. The materialistic idea that the evolution of life is unguided supports Atheism, Agnosticism, “Secular” Humanism, Buddhism, and others. In direct opposition, the idea that it’s guided supports Christianity, Judaism and Islam. Thus, the effect of the hidden use of the Orthodoxy to suppress the guided view, regardless of the strength of its evidence, causes origins, social and behavioral sciences to endorse nontheistic religion rather than objective science.

Behe touches briefly on the second elephant in a quotation from Eors Szathmary and John Maynard Smith from their highly regarded 1995 review article *The Major Evolutionary Transitions*. He explains that “[t]he authors stated what should be obvious to everyone: ‘The real reason why we study [evolution] is that we are interested in origins. We want to know where we come from.’” “Where do we come from?” is the ultimate question that all theistic and non-theistic religions address. A second question is: “What is the nature and purpose of life?” For a theist, we are creations made for a purpose. For a non-theist we are merely occurrences that lack inherent purpose. Based on these answers religions ask and answer a third question: “How should life be lived morally and ethically?” This issue is also addressed by behavioral and social sciences.

Science claims to be not religious in addressing ultimate questions. However, by using the Orthodoxy that permits only the materialistic alternative in this subjective historical science, it in fact addresses religious questions and then furnishes answers that support only the non-theistic religious worldviews.

The only way origins science/evolution can be undertaken by science in a non-religious manner is to replace the Orthodoxy with scrupulous objectivity, so that scientists with competing views may pursue the investigation competitively and let the evidence rather than a pre-ordained doctrine lead the investigation. Otherwise, the enterprises of origins, behavioral and social sciences will be ones that will indoctrinate their patrons with a particular religious view rather than inferences to the best of the evidence-based competing explanations.

Another fundamental reason why this objectivity is needed is that the debate about our origin, unlike a murder investigation, is continuing and may never be closed.

Given the incredible importance of the issue and the present use of the Orthodoxy to permit only one view, it will be interesting to see how mainstream science responds to Dr. Behe’s work. Will science continue to suppress the evidence-based non-materialistic alternatives though hidden use of the Orthodoxy, or will it shift the inquiry back to the objectivity that it claims to, but does not in fact, currently use.

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