

Darwinists still trying to refute Behe and still failing

Darwin Devolves: The new science about DNA that challenges evolution

Michael Behe

HarperOne, New York, 2019

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Professor Michael Behe (figure 1) introduces his work by noting that virtually everyone, including scientists, at least in the West, accepted the fact of Intelligent Design (ID) in the natural world until Darwin's work popularized evolution theory, largely replacing ID.

One of the most well-known exceptions was David Hume (1711–1776), who rejected ID because “in order to think that our world [and life] was designed, we would need to have much experience examining [life on] other worlds that have been designed” (p. 4).

We now have a great deal of experience examining other worlds,

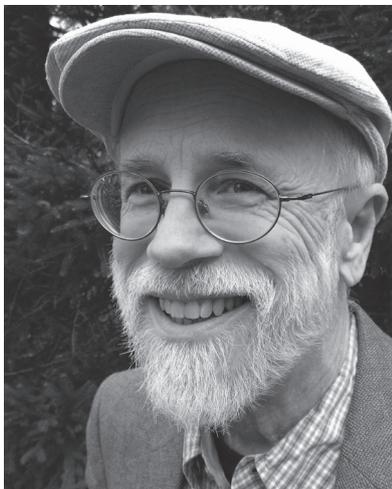


Figure 1. Michael Behe, Tenured Professor of Biochemistry at Lehigh University who documents numerous lethal problems with Darwinism.

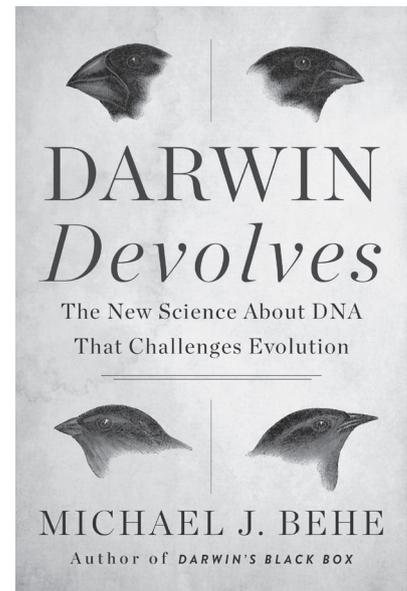
namely the seven planets and over 100 planetary satellites in our solar system. We know from these comparisons that, in contrast to every other planet in our solar system, we clearly live in a world specifically designed for life. And from recent research on stellar systems outside of our own, we know that this is true for most of the universe that we have been able to explore by technology from Earth.

Even after Darwin, “most biologists of his day were skeptical of Darwin’s proposed mechanism of evolution”, natural selection, for decades (p. 4).

Some background on Behe

Behe relates that in his K–12 Catholic education, Sister Marie taught her class that “the best evidence these days shows that evolution is correct” (p. 6). He studied chemistry in college because he “wanted to know how the world *worked*” and ended up in biochemistry, the chemistry of life. Along the way he also studied evolution (p. 7). After completing a Ph.D. at the University of Pennsylvania, he did a postdoc at the National Institutes of Health (NIH). All during this time he accepted evolution as the only explanation for all life on Earth.

This brief introduction was designed by Behe to deal with the common misperception that those who reject Darwinism are mostly religious fundamentalists, indoctrinated in creationism by their church. Furthermore, the common belief is that they are not only ignorant, but dangerously evil. He illustrates this claim of irrational hatred against someone who has the audacity to question Darwinism with several examples. One, in an article published in the journal *Biology & Philosophy* authored by Duke University



Philosophy Professor Rosenberg places Behe in the same category as some of the most evil persons who have ever walked the surface of the earth, Stalin (figure 2) and Osama bin Laden (p. 5).

Behe’s personal path from never questioning evolution to being an insistent questioner resulted from becoming angry when he realized that none of his professors had ever critiqued Darwin’s theory, even once, but naively accepted the Darwinian worldview without bothering to examine it in any detail. Behe’s turn-around came after he read Michael Denton’s book, *Evolution: A theory in crisis*, and realized that serious problems existed with the theory. He then began his current quest to research and study the data for himself to determine what the evidence actually shows (p. 8). Although Denton’s childhood exposure to creation probably influenced him to not completely buy into the party line on this subject, Denton was not trying to push a religious agenda in his chapter, only explaining the well-documented scientific problems for evolution.¹

Once his Darwinian glasses were taken off, Behe, as a biochemist, was able to discern quite easily that the molecular foundation of life was elegantly designed and that an

unintelligent, undirected process cannot account for the origin and design of life (p. 9). The main point of Behe's book is to document this fact, adding that rather than building life, "mutation easily *breaks* or *degrades* genes, which, counterintuitively, can sometimes *help* an organism to survive, so the damaged genes are hastily spread by natural selection" (p. 10). In short, "Darwinian evolution proceeds mainly by 'damaging' or 'breaking' genes, which, counterintuitively, sometimes helps survival" (p. 46). Thus, "Darwin's mechanism works chiefly by squandering genetic information for short term gain" (p. 48).

Comparing evolution with economics, Behe noted if economists' ideas are wrong, many people could suffer and, as a result, people will become angry for good reason. But evolutionary stories, such as fish that grow legs and walk on land, and dog-like mammals that once walked on land lose their legs and evolve into whales, "get so much uncritical gee-whiz-that's-neat media attention that it can be hard for readers to spot serious problems lurking just below the surface" (p. 22). In addition, tearing apart evolution's just-so-stories can bring the charge of 'creationist' or worse, causing career difficulties or even ending of a career.

Furthermore, many people, scientists and journalists alike, logically or illogically tend to plant the word evolution everywhere they can. An example Behe gives is the simple statement "Humans have evolved a sense of self that is unparalleled in its complexity" (p. 23). The same statement "Humans have a sense of self that is unparalleled in its complexity" is, in contrast to the former statement, incontrovertible. The evolution of the complexity of life from simple molecules by mutations is accepted, not because we have any clear empirical evidence, but because evolutionary claims saturate our culture, especially in the mass media, including in textbooks, popular books, novels,

magazines, and even movies and fiction literature (p. 24).

Although, Behe stresses, evolution claims are ubiquitous, they are claims only, not evidence. An example is the theme of my latest book on the claims of poor design.² (A common example is the false claim that humans have back problems because we evolved from quadrupedal creatures who evolved to walk on all four appendages, and humans were forced to 'make do' with a design that did not evolve to walk on two feet, but rather on four.)

Most critics of Behe carelessly confuse evidence for common descent for Darwin's mechanism. Many critics cite "millions of years prove ..." or "the fossil record shows ..." as proof of their position, but virtually all of these arguments can, at best, only show evidence for common descent, such as the many modern dog breeds created by breeders throughout history, but say nothing about the *mechanism*, which is the key argument of Behe's book (p. 289). Specifically, he reviews the scientific evidence that shows what random mutation plus natural selection can actually achieve.

Behe argues it is not evidence that causes people to believe that evolution does all kinds of wonderful things, like turning dumb apes into intelligent men, but rather what is called in sociology *groupthink*, which has mesmerized the public and scientists alike. Attach the name 'science' onto some claim and it implies the claim is fact. Behe gives three nutrition examples that have been pushed for decades and are still widely believed, but which have turned out to be incorrect. These are, consuming foods high in fat, cholesterol, and salt are major contributors to heart disease, strokes, and cancer. We now realize these nutrients "may not significantly ... increase the risk of heart disease: but high levels of sugar can" (p. 27).

As Behe notes, if nutritionists "can't easily determine how one particular diet factor affects modern humans," in spite of leading academics

spending hundreds of millions of dollars researching this question using millions of intelligent subjects, often doctors and nurses, then the claim that evolutionists "know which—if any—of countless environmental factors drove evolutionary change in innumerable organisms in the distant past is ludicrous" (p. 28).

The poor design claim

Chapter 2 covers the poor design argument, the belief that certain parts of our body are poorly designed, such as the eye's retina, which Behe disproves by noting that each cone cell has its own dedicated fibre-optic cable attached to it, which efficiently channels the specific wavelengths of light to the cones that are sensitive to that wavelength (p. 50). Furthermore, lack of what someone judges as some ideal concept of perfection does not disprove design. Requiring perfection does not negate evidence for design. My Apple computer and my Jeep Cherokee are not perfect machines and have what I judge as minor design flaws, but such does not disprove the fact that they are designed (p. 49).

Other examples in this chapter include magnetotactic bacteria that use magnets to navigate their environment, bacteria that traverse their world by rotating tractor-like treads, mobile bacteria that move around by centipede-like legs, and other bacteria that move by using oars to paddle their way around their watery world (pp. 51–58). Also covered are irreducibly complex systems, such as *regulatory DNA* discovered by Jacob and Monod, and *alternative splicing*, whereby a single 'gene' can produce hundreds of different transcripts, thus coding for hundreds of different proteins by employing a spliceosome (pp. 58–63). Lastly, *protein scaffolding* and *insulators* are covered, all mechanisms that advanced biochemistry students study. In chapters 3, 4, and 5 Behe documents the evolutionary attempts to explain the origin of the machinery,



Figure 2. Duke University Philosophy Professor Rosenberg places Behe in the same category as one of the most evil persons who have ever lived, Joseph Stalin (pictured here at age 23). Ironically, this is because of Behe documenting the problems with what is actually the core of Stalin's worldview, Darwinism.

motors, and complex systems discussed in chapter 2, all of which explanations fail.

Chapter 4 reviews the amazing progress made in sequencing genomes of a wide assortment of life kinds. Because the sequencing results are published online, a new breed of scientists can make a living by analyzing this data from their home. Some of these genetic analyzers have concluded “in no uncertain terms ... their work shows Darwin was dead wrong ... about his image of the tree of life” (p. 103). Behe also does an excellent job reviewing the many major problems with the *multiverse*, and *self-organization* theories (pp. 114–115).

Principle of Comparative Difficulty Concept

The Comparative Difficulty Concept idea is, if a task that requires a small amount of effort is too difficult to accomplish by natural laws alone, such as the origin of the spliceosome, then a task that requires more effort, such as the origin of mitochondria, is also too difficult to achieve by natural laws alone (p. 28). Unable to explain

the origin of the simpler building blocks for evolutionary change, such as the origin of many critical polypeptides, many Darwinists jump to over-arching explanations for what they *believe must* have happened in evolution in order to obtain the many life forms existing today, but if

“... modeling even minor evolutionary effects is quite problematic, then the types of studies done by Stuart Kauffman, Andreas Wagner, and many others—which hope to account for massive evolutionary changes that occur over lengthy time frames—are simply pushing mathematical tools far past what they already labor unsuccessfully to explain. Mathematical models can’t explain greater evolutionary changes if they can’t account for lesser ones. They yield only a pretense of knowledge” (pp. 113–114).

Chapter 5 likewise covers why the ideas created to save Darwinism, including extended evolutionary synthesis, evo-devo, neutral evolution, facilitated variation, inclusive inheritance, niche construction, developmental plasticity, natural genetic engineering, and game theory, have all failed (pp. 115–137). The existence of these theories clearly demonstrates the failure of neo-Darwinism and illustrates the quandary molecules-to-man evolution faces today.

Behe does not cover the problems with dating, but assumes that the conventional time used by evolutionists is correct—possibly because he has not studied this area in the depth he has studied biochemistry.

In chapter 6, Behe cites numerous detailed studies designed by evolutionists to prove evolution, but which actually do the opposite. For example, the Galápagos finch research by the Princeton husband and wife researchers, Peter and Rosemary Grant, who spent decades measuring and observing the behaviour of thousands of individual finches (p. 144). The severe droughts on one island tended to cause most plants to become dormant, or

at least produce fewer seeds, or stop producing seeds altogether. The seeds remaining tended to be larger and tougher, which is the plants’ response to survive drought conditions.

The finches that survived the drought tended to be larger both in body and beak size in order to break the larger and tougher seeds. Most finches could not survive these conditions, and consequently 85% of the medium ground finches died. The Grants found, as expected, on average the finch offspring had larger bodies and beaks, as did the offspring’s offspring. According to Darwinists’ estimates, the founding birds arrived two million years ago and soon split into several species (p. 146). In short, extrapolating from this finding by the Grants, by comparing the variety of finches on the islands that supposedly descended from the original population of a few finches, leads a person to conclude that if the speciation the Grants observed had actually “been going on for about a million generations ... involving a cumulative total of billions of birds”, the results were only very minor variations in body length and beak size, “and not much else” (pp. 146–147). The beak size variation the Grants found was about 5–6%, a very small amount of the tiny finch beak. All of the descendants of these few birds after the claimed millions of years “remain recognizable finches”, most which can interbreed, producing hybrid finches, some of which, the Grants reported, are more vigorous than the parent populations. Furthermore, interbreeding has been so frequent that at least one breed has disappeared from the islands.

Behe cites a report that the observed six species of ground finches are actually one species. Thus, rather than 14 total species, there are far fewer, possibly even one (p. 147)! Furthermore, this study, one of the most detailed evolutionary studies ever completed, found that millions of generations and billions of birds produced only minor swings of a few

traits, and no new trait. In Behe's words,

"If millions of years of such intense selection on finches as documented by Peter and Rosemary Grant can't produce anything other than a finch, then what reason ... is there to suppose it could produce significant new variations on a preexisting flagellum?" (p. 290).

Natural selection

Behe concludes that natural selection operates very differently than has heretofore been theorized. It powerfully helps to narrow and focus traits to a current environmental niche regardless of what might actually be in the best long-term interest of the species. Evolution is unguided, has no goals, and can't plan for the future, but its putative power results from eliminating useless and/or wasteful traits. Once these changes are fixed in the gene pool, mostly due to having lost prior genetic information, the species is now often less able to adapt to major environmental changes because the animals' ability to handle major changes is now narrower than earlier.

What was culled from the genome is likely lost forever, and random mutations will rarely, if ever, be able to reverse/undo what was lost because "selection fits a system more and more closely to its current biological task, ... but that makes it more and more difficult to adjust to other potential functions." (p. 227). Furthermore, what Behe calls the First Rule of Adaptive Evolution is as follows:

"The amazing but, in retrospect, unsurprising fact established by the diligent work of many investigators in laboratory evolution over decades is that the great majority of even beneficial positively selected mutations damage an organism's genetic information—either degrading or outright destroying functional coded elements" (p. 183).

If any version of evolution causes changes above the genus level,

it must do so at the biomolecular level. And, Behe points out, due to major genetic innovations over the past few decades such as gene sequencing, we can now finally peer into this black box and determine what exactly is occurring at the biomolecular level. Behe's summation of the problems irreducible complexity (IC) poses to Darwin's mechanism include pointing out that irreducibly complex

"... systems are quite resistant to gradual construction by an unguided process such as Darwin's mechanism, and since there is no plausible evidence to show that they can be so constructed, it is reasonable to conclude ... that random mutation and natural selection did not produce the molecular machines of the cell. ... When we leave imaginative scenarios behind, in the real world Darwin's mechanism has profound problems even with biological features that are much simpler than a mousetrap" (p. 233).

This fact is what actually makes the double-edged sword of natural selection far more powerful and operational far faster than previously thought. And this is what renders its oft-ignored twin blade (mutation) very limited in what it can actually do, in the long run, to evolve a species. Many ways exist to damage a complex machine, but very few ways to improve it. And since mutations are mostly random (though often occurring more frequently in so-called 'hotspots') they are far more likely to mess up or degrade the biomolecular machine than they are to occur in the very few possible places in the genome that could be changed to improve it:

"... it's not so much the rarity of constructive mutations that undermines Darwinian evolution—it's the frequency of damaging but helpful ones. Degradative but adaptive loss-of-FCT [Functional Coded element] or modification-of-function mutations appear quickly even on short time scales, even in small populations. They don't need large

numbers or long times to occur. Thus they will always be present everywhere in life much more quickly and in far greater numbers than constructive gain-of-FCT mutations. Damaging yet beneficial mutations will rapidly be selected when nothing else is available and compete fiercely with any gain-of-FCT mutations that might eventually arrive on the scene" (p. 186).

A 'gain-of-FCT' adaptive *mutation* is one that produces a specific, new, functional coded element while at the same time aiding adaptation of the organism to its environment. This includes construction by *mutation* of a new promoter, intron/exon splice site, and protein processing site.³

Many of the arguments against Behe include the claim that his ideas are creationist rhetoric, not science, by claiming he is arguing that "God did it". Ironically, many reputable scientists use the same argument, only reverse it, claiming "God wouldn't have done it that way", basing their "conclusions almost completely on a sort of reverse theology. What God would or would not do is not within the competency of science to inquire" (p. 290).

In chapter 9 Behe expands on the IC concept with the 'comprehensively complex' systems and 'Mini-IC'. The basic idea is that, as one moves research analysis closer to the biomolecular level, many of the IC systems Behe discussed in his first book are actually made up of many Mini-IC systems. Not only are the parts IC, but so also are the mechanisms that must identify and supply the proper raw components in the right proportions at the right locations at the proper time in the proper order to function.

All of the key concepts of this book are, of course, interwoven and expanded on. None of these systems could have been produced one step at a time even in the case where each step was an improvement that was useful enough to be retained in the genome. This task was much easier in Darwin's day when the details of the complexity

of the many cell organelles, molecular machines such as ATP synthase, and various motors including kinesin, were largely unknown. The lack of knowledge of the cell's workings was the theme of Behe's first book, appropriately titled *Darwin's Black Box*. In short,

"The appropriate straightforward criterion is this: if there are good physical reasons to think Darwinian routes wouldn't work, and if after a diligent search no evidence is found that they do, then the [evolution] theory has failed" (p. 232).

Richard Lenski's research

Lenski's over three-decades-long lab experiments dealt with tracking genetic changes in 12 initially identical populations of asexual *Escherichia coli* bacteria since 1988. The populations reached the milestone of 50,000 generations in 2010. The purpose is to show what random mutations, plus unguided natural selection, can achieve.

The results show that, after tens of thousands of generations and multibillions of bacteria, they are all still the same species, identical in most ways. Few, if any, substantive changes have occurred. As shown by the latest technology used to compare genomes, virtually all of the changes, even those that appear to add new functionality, occur by subtracting existing genetic information, not by the addition of new information. Thus no 'gain-of-*FCT*' occurred. The Darwinian mechanism does not occur in the direction so many people have assumed since Darwin's *Origin of Species* was published.

Behe also points out other examples that found the same result as the Lenski research, such as the African cichlid population whose time in their natural lake home was supposedly 500 times longer than Lenski's bacteria were observed, i.e. 15,000 years. After all that time, all the cichlid varieties are still in the same family. Behe also cited the Lake Malawi cichlid study that produced a few million estimated

years of random mutation and natural selection, and the Lake Tanganyika study that produced an estimated 10 million years, or about 333,000 times longer than Lenski's in-lab results. These studies, contrary to the goals of each study, have provided no support for any type of evolutionary change beyond the genus level.

If nobody can point to contrary biomolecular evidence, then Behe's argument stands. As he explains, the reality today, at least for the short term, is that the facts boil down to who can tell the best story, or who has the most power to control what is presented and taught as truth in the universities and in the media; actual truth be damned.

The appendix, one of the most important sections of the book

In the appendix to *Darwin Devolves*, Behe documents that his irreducible complexity concept, first introduced in *Darwin's Black Box* (figure 3), has not been refuted, even slightly, in the two

decades since his book was published. He reviews details of the attempts to refute it, then does a masterful job responding to the claims, writing:

"Twenty years on, there has been a grand total of zero serious attempts to show how the elegant molecular machine [the bacterial flagellum] might have been produced by random processes and natural selection" (p. 287).

Many critics have 'refuted Behe' by using lots of words, but anyone can 'refute' by declaring 'that just ain't so'. A scientific refutation requires more than just imagination and typing. One example Behe cites is the blood-clotting system.

The blood-clotting claim of irreducible complexity refuted?

After several articles were published in the scientific literature claiming the IC claim for the blood-clotting cascade mechanism had been refuted, Behe observed that the system must control where and when coagulation occurs, and prevent clotting from occurring too easily, causing heart attack, stroke, or pulmonary embolism, to name the more common results or not clotting rapidly enough, causing internal or external hemorrhaging (p. 295). Furthermore, the clot must be removed soon after its role has been served, and not before. Behe proposed that if one part of the system is removed, this finely tuned cascade will break down, causing failure of its complex function, and thus catastrophe. In response to Behe's claim, the then leading expert in blood clotting, Professor Doolittle, announced that the mechanism was not IC and that "parts of the clotting mechanism could be removed from mice with no ill effects" (p. 295). In short, when one protein is disabled, namely plasminogen, mice have one set of problems, and when fibrinogen is disabled, another problem results. But if *both* are removed mice are normal, indicating that the mice do not need the genes making the protein set, thus the

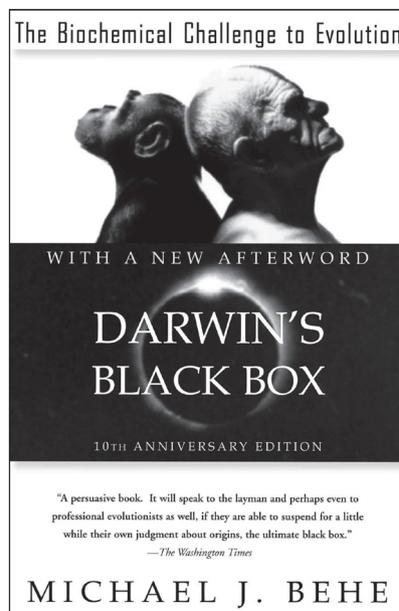


Figure 3. Behe's first book, that opened the door to the next two books he authored: the one reviewed here, and *The Edge of Evolution: The search for the limits of Darwinism*. All three of his books were commercial successes, although hotly opposed by atheists and orthodox evolutionists.

blood-clotting mechanism is not IC, a conclusion repeatedly stated in articles attempting to disprove Behe.

But it turns out Doolittle misread the paper in question. The mice missing both proteins are *not* normal, but have the same problem that the mice deficient only in fibrinogen had: their blood does not clot properly, and they hemorrhage. The result is females die during pregnancy and, when injured, the mice bleed to death (pp. 296–297). This is a good example of reading into the text what one believes, not what the actual words say. Behe is correct: the blood-clotting system that Behe originally identified as IC is indeed IC.

Conclusion

Behe’s *Black Box* book set off an uproar that included “scathing editorials and court trials as well as denunciations by scientific societies, national governments, and even a committee of the Council of Europe” (p. 284). In retrospect, the explicit proposal of Intelligent Design was more the problem than was Behe’s criticism of Darwin’s theory, or the IC concept itself. Many “scientists and others are viscerally opposed, in principle, to a design-for-life conclusion, and some were spurred to action by it” (p. 284). Behe’s latest book will no doubt likewise be opposed for the same reason, even though he has done a masterful job of defending his position, relying heavily on peer-reviewed literature published by leading scientific journals. Each point he makes is unassailable, consequently his conclusion is supported.

References

1. See Denton, M., *Uncommon Dissent: Intellectuals who find Darwinism unconvincing*, ISI Books, Wilmington, DE, chap. 9, pp. 133–152, 2004.
2. Bergman, J., *The ‘Poor Design’ Argument Against Intelligent Design Falsified*, Bartlett Publishing, Tulsa, OK, 2019.
3. Behe, M., ‘Experimental evolution, loss-of-function mutations, and ‘the first rule of adaptive evolution’, *The Quarterly Review of Biology* 85(4):419–445, 2010.