

A New Challenge to Darwin

D. J. MULLAN

Darwin's Black Box, by Michael J.

Behe, *New York: The Free Press, 1996.*
336 pp.

THIS IS A REMARKABLE BOOK. It goes right to the heart of Darwinian evolution and challenges the central claim of that theory, namely, that biological features come into existence as a result of *numerous, successive, slight* modifications of pre-existing structures. The adjectives here are crucial: Darwin himself admitted that "if it could be demonstrated that any complex organ existed which could not possibly have been formed by *numerous, successive, and slight* modifications, my theory would absolutely break down."¹ Michael J. Behe points out that organs of great complexity *do* exist in nature, and in order to prove his point, he conducts his challenge of Darwin's claim at the level where it really occurs in nature: the molecular level. Behe's text abounds in details, and this makes the reading a refreshing change from the hand-waving statements which are often the stock-in-trade of discussions of evolution.

Of course the word "evolution" has different meanings in different contexts. For example, when the first superhighway was introduced in Northern Ireland, and there were no speed limits, I remember seeing lots of dead crows along the road during the first year or so, but later on, the evidence of road-kill diminished,

as the surviving crows reacted more promptly to high-speed cars. As another example, Americans are now several inches taller on average than they were in colonial times. Do such changes qualify for the title "evolution"? Perhaps. But Behe's draws attention to more complicated topics: e.g., could the ability to see, or the ability to clot blood, have evolved from simpler functions?

Behe devotes most of his book to describing what the combined efforts of many scientists have discovered about the chemistry of living material. In the language of scientific chauvinism, I think of this part of the book as the "objective" side of the picture. But then Behe goes on to describe a more "subjective" side of the picture: how do scientists deal with the conclusions which emerge from their discoveries? The answer is disturbing, and gives little comfort to those who espouse the ideal of the "objective scientist."

Almost one half of the book is taken up with discussion of the "objective" evidence that living material involves mechanisms which are inherently complex. The presentation of the material in these sections of the book is outstanding. In order to appreciate the concept of complexity, it helps to consider first what a simple machine does. An example of a simple machine is a lever balanced on a fulcrum; if one starts off with a poorly placed fulcrum, it is certainly possible to improve the efficiency of the lever by "numerous slight successive modifications" of the fulcrum. Therefore, if a biological structure were to depend on such a machine, such as a bird using a stick in its beak to pry open an insect's burrow, that structure *could* evolve in the Darwinian sense. But on the other hand, certain machines are (in Behe's words) *irreducibly complex*: all of the pieces of the machine are interlinked in such a way that if one of the pieces is missing, the machine does not operate at all.

D. J. MULLAN is an astronomer at the Bartol Research Institute located on the University of Delaware campus in Newark, Delaware.

As a non-biological example of irreducible complexity, Behe cites a mousetrap, where five interlocking components are essential. Suppose one were not aware of the irreducibly complex nature of the mousetrap: then one might predict that if (say) one or two of the five components were missing, the mousetrap might operate with 80 or 60 percent efficiency. Of course the correct conclusion is quite different: if even one of the pieces is missing, or if the relative strengths of the components are not correct, the efficiency falls to precisely zero. The only way for a mousetrap to function is for the parts *to be designed* with the correct relative strengths and then have them put together so as to interlock in the correct way: the idea that a mousetrap might just have “evolved” out of pieces of equipment in his garage is described by Behe in a hilarious paragraph on page 96.

In a series of fascinating chapters, Behe details several examples of irreducibly complex machines in biochemistry where the levels of complexity are far in excess of that in a mousetrap: how cells move, how blood clots, how material is moved from one part of a cell to another, and how cells defend themselves. Blood clotting, for example, depends on a cascade of at least a dozen complicated molecules with interlocking actions and feedback. These chapters are not easy reading. In the chapter about blood clotting, I found myself reading and re-reading certain paragraphs in an attempt to digest the flood of information about topics (such as thrombin and fibrinogen) which I have never previously seen in articles about evolution. Behe recognizes that these details make for heavy reading, but it is well-nigh impossible to avoid the heavy reading entirely, because (as Behe is at pains to point out), it is precisely in the details that the existence of irreducible complexity is proven.

Once it is realized that irreducible complexity is at work in a biological sys-

tem, the conclusion is inevitable: blood clotting (or any of the other biological operations described in the book) ceases to function properly if even one of the dozen components is missing, or if even one of the components does not interlock correctly with its neighbors in the cascade. Depending on which component is missing from the blood-clotting cascade, the organism will either bleed to death, or else its blood will clot so much that circulation becomes impossible.

In view of this irreducible complexity, the difficulties for Darwinian evolution of (say) blood clotting appear insuperable. As Behe points out, it does little good for one (or a few) of the dozen molecules to appear by chance in the primeval soup: by the time the other molecules show up because of *numerous, successive, slight* modifications of other chemicals, the forces of natural selection will have swept away the earlier arrivals (if Darwinian evolution is at work at all). Blood clotting clearly satisfies the criteria which Darwin himself admitted would prove that his ideas “absolutely break down.”

Behe carries the argument right into the enemy camp by asking: How do evolutionists explain the origin of the blood-clotting cascade? Out of thousands of articles devoted to evolution in the technical journals, Behe finds only one article which addresses the issue of evolution of blood clotting, but it is so speculative as to have no scientific value. Based on the complexity in blood clotting and other biochemical cascades of reactions, Behe argues convincingly that only intelligent design could have led to such cascades.

In the later chapters of the book Behe takes up the “subjective” topic, and the fact that Behe dares to address this problem in print sets his book in a class of its own. Behe puzzles over the question: why are scientists so lacking in interest in the evidence for intelligent design? He

thinks that, in a realistic sense, scientists should rejoice to be living at a time equivalent to that of Copernicus and Galileo when a revolutionary new insight into the workings of the world has emerged from the data. But such rejoicing is nowhere to be seen. Behe wonders if it is simply reluctance on the part of scientists to confront the possibility not of *design* but of the *designer*. This raises the intriguing question of religious belief and unbelief among scientists. Behe opines that this can hardly be a problem: "scientists who believe in God...are much more common than popular media stories lead one to believe—there is no reason to think that the figure of 90 percent of the general population that believes in God is much different for scientists."

Here, I regret to say that Behe is mistakenly optimistic in his opinion of faith-filled scientists. A survey of about 1000 American scientists appeared in 1997 indicating that only about 40 percent of the scientists who responded to the survey believe in God.² When the survey was repeated among "greater scientists" (those with membership in the prestigious National Academy), the percentage of believers was found to be even smaller: only 7 percent.³

Behe's book raises the possibility that there is perhaps more of a "subjective" aspect to scientists than the popular image pretends. Certainly, a number of quotations which Behe gives are striking evidence of bad faith on the part of certain prominent evolutionists, one of whom, for instance, "compares religious believers to wild animals who may have to be caged...parents should be prevented from misinforming their children about the truth of evolution."⁴ This, and other quotations in a similar vein cited by Behe, makes for embarrassing reading. What sort of people are these writers who make comments like this?

This is not to say that Behe espouses the cause of creationism, at least not the

cause of what might be called "young-Earth creationism." There are too many independent lines of astrophysical evidence that the universe is billions of years old to avoid the conclusion that the "days" of creation in Genesis cannot be interpreted in the way we humans interpret them. This is in keeping with the operational approach of modern physics; after all, reference to an interval of time is meaningful only if there is an observer to measure something which changes. What observer was there during the "days" of creation? Certainly not a human one, and so the case for human interpretation of the "days" is absent. The only "observer" who comes to mind is God, and the divine interpretation of the word "day" is quite different from the human interpretation (Psalm 90: 4).

Nothing in Behe's book suggests that we need deny certain "coincidences" which have emerged between physics, biology, and *Genesis*. For example, the discovery in 1965 of the microwave radiation which is a relic of the Big Bang indicates that the physical universe was once dominated by radiation (*i.e.*, light) long before the Sun began to shine (consistent with *Genesis* 1:3 and 1:16). Moreover, in the biological world, the order in which species are created in *Genesis* (first in the ocean, then the birds, then the land animals, and last of all man) is strikingly consistent with that proposed by evolutionists. Moses and Darwin had more in common than pop-science would have us believe.

Behe invites his readers to take a critical look at certain processes of life, and to examine them in the only way where we have hope of eventually drawing some firm conclusions, namely, at the molecular level. He invites us to put aside the prejudices of faith as we attempt to answer the question, Could the living systems we see have occurred by chance? Behe makes a convincing case that at least in blood clotting and several other

cellular operations, Darwinian evolution cannot be the only process at work. Scientists who allow their "faith" in evolution to blind them to the biochemical data run the risk of walking in the footsteps of the ecclesiastical authorities in the time of Galileo.

When the poet John Keats first read a certain translation of Homer, Keats was so impressed that he composed a sonnet ("On First Looking into Chapman's Homer"). To describe his reaction, Keats used an astronomical analogy: "Then felt I like some watcher of the skies / When a new planet swims into his ken...." Keats's reaction to Chapman's Homer parallels my own reaction to Behe's book. A new light has been focussed on discussions of evolution.

1. Cited by Behe, 39; my emphasis added. 2. *Nature*, April 3, 1997. 3. *Nature*, July 23, 1998, p. 313. 4. See John C. Caiazza, "A Hyper-Darwinian Enterprise," *Modern Age: A Quarterly Review* (Winter 1997), 52-56.

Belief and the Public Square

DERMOT QUINN

Heart of the World, Center of the Church: *Communio*, Ecclesiology, Liberalism, and Liberation, by David Schindler, *Grand Rapids, Mich.: Eerdmans, 1996. xvii+ 322 pp.*

QUEEN VICTORIA'S FIRST prime minister, William Lamb, Viscount Melbourne, cultivated an elegant indifference to matters of the soul. "Things have come to a pretty

DERMOT QUINN is Associate Professor of History at Seton Hall University. He is the author of *Patronage and Piety: The Politics of English Roman Catholicism, 1850-1900* and an Advisory Editor of *The Chesterton Review*.

pass," he once remarked, "when religion is permitted to invade the sphere of private life." The Gospel as good form, the Nicene Creed as social nicety: he missed the point, it seems, with magnificent insouciance. The God of Lamb was not the Lamb of God. Before we compliment ourselves on superior insight, however, we should reflect, perhaps, on a curious inversion. In America, at the end of this century, another pretty pass has been reached: religion is allowed to enter the sphere of private life and there, in the name of erastianism, or the First Amendment, or embarrassed *politesse*, it is required to remain. Should it venture into the public square it must cloak itself in apology, the better not to contravene the delicate forms of our enlightened and resolutely pluralist social order. Its utterances must not offend multifarious modern sensibilities. There should be no privileging of truth-claims, and strict separation of Church and State must be observed at all times. In private, genuflection is permitted before an altar. In public, it must be done before the Supreme Court. Those are the rules, binding on believer and unbeliever alike. Whoever dissents is free to leave or make the case for something better. Thus, little by little, a secular religion establishes itself, indifferent to belief but exquisitely sensitive to form. Lord Melbourne might feel curiously at home.

Religion, then, seems to experience a form of house arrest in modern America. And yet—a counter-argument might run—this problem is surely more apparent than real. After all, believers claim for themselves those freedoms guaranteed by the secular order and are more secure in belief for them. Churches cannot seek special status in liberal democracies, but they can enter and expand the public square. They give voice to the voiceless. They shame the shameless. They call a fallen world to a higher purpose. They embrace the city of Man to promote the