

Review: DE360

A SUMMARY CRITIQUE

COUNTING THE SPOONS IN EVOLUTIONARY BIOLOGY

a book review of

Darwin and Design: Does Evolution Have a Purpose?

by Michael Ruse

(University Press, 2003)

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Samuel Johnson, the great eighteenth-century English essayist and lexicographer, had an unmatched gift for deflating fashionable humbug. When told that a Scottish author claimed that there was “no distinction between virtue and vice,” Johnson replied, “If he does really think that there is no distinction...when he leaves our houses let us count our spoons.”¹

When a person makes the doubtful moral claim that there is no difference between virtue and vice, we need to check our silver to make sure we haven’t been robbed. When Michael Ruse, a philosopher and historian of science, makes the doubtful philosophical claim that evolutionary biology views the diversity of life strictly through natural laws, we need to also “count the spoons” by checking classic evolutionary texts, such as Charles Darwin’s *On the Origin of Species* (1859), Stephen Jay Gould’s *The Panda’s Thumb* (1980), and George Williams’s *The Pony Fishes Glow* (1987). Key passages in each of these texts, in fact, tell a different story: the authors make unmistakably *theological* arguments, and those arguments undergird their case for naturalistic evolution.

This theology, moreover, has entered biology textbooks, where it plays an important role in how the science of evolution is currently taught. With Darwin and the Darwinian revolution, biology did not rid itself of a Creator or God; rather, biologists simply changed the way they *talked about* God. Theology itself never went away, and claims that it did are misleading at best. If ever we needed to count the spoons in science, it is now.

Ruse is Lucy Werkmeister Professor of Philosophy at Florida State, and *Darwin and Design* is his latest effort. It is, by most measures, an excellent book: highly readable, historically rich and insightful, and — most puzzling of all — carefully attuned to the subtle interplay of theology, philosophy, and even aesthetics in scientific reasoning. Puzzling, I say, because when Ruse comes to the question of the nature of science itself and how evolutionary theory actually works, his judgment seems to fail.

Before we consider that failure, however, we should review Ruse’s main theme. He argues that there is a critical distinction between the *argument to adaptive complexity* and the *argument to design*. “Adaptive complexity,” or simply “complexity” (with “adaptive” assumed), is apparent in the manifold objects and patterns of biology: the bird’s wing, the fly’s eye, the bacterium’s motor, and the human’s brain — all those features of the living world whose origin cries for explanation. The argument to adaptive complexity asserts that such objects exist and that their existence “requires some kind of special explanation” (p. 16). The argument to design, however, asserts that this biological complexity can be explained only as being caused by “a designer [mind or intelligence] of some sort” (16) and not by any nonintelligent natural cause.

The history of the design argument in biology can then be seen as a long debate between those who deny any necessary connection between adaptive complexity and design (as a cause) and those who contend that such complexity can be explained only by intelligent design. The question that concerns Ruse is “whether, having made the move to complexity, one is committed to making the subsequent move to design” (16).

Ruse begins with the ancient Greek debates over design. Adaptive complexity, or the purposefulness of living things, was evident even to philosophical naturalists such as the atomists; while the atomists explained complexity by natural causes (chance events), both Plato and Aristotle regarded such explanations as hopeless. Plato held that organisms were products of mind, that is, intelligence. Aristotle held that organisms were not so much the direct products of a designing mind as they were purposeful entities whose features reflect the requirements of the living state itself. This internal teleology (or end-directedness) constituted the essence of organisms. With the rise of Christianity, both Plato’s and Aristotle’s teleological inferences, made originally in a pre- (i.e., non-) Christian context, became background knowledge in the Christian West and were accepted by most natural philosophers (“scientists,” as they came to be known in the late-nineteenth century) until the time of Darwin.

The fortunes of the design argument then began to shift. What was common sense for Newton, Boyle, Ray, Linnaeus, and the other founders of Western science — namely, that biological design (adaptive complexity, in Ruse’s terminology) implies a biological designer — became problematic with the introduction of Darwin’s theory of evolution by natural selection. Before Darwin, skeptics such as David Hume had attacked the design argument on various grounds, but their attacks fell short of the mark because they provided no alternative *mechanism* (or cause) for building adaptive complexity. Ruse argues that Darwin “changed the argument to design forever” (128) by providing a physical (i.e., nonintelligent) cause for adaptive complexity in the process of differential survival and reproduction within species. Those organisms that are better equipped to solve life’s problems will leave more offspring than others not equally equipped. The randomly arising variations that enable survival will be preferentially passed on; and, given enough time, this process will modify the traits of organisms in a way that *mimics* the action of an intelligent designer. In short, the origin of biological design, said Darwin, does not require a designing mind.

Is this true? Ruse thinks it is and argues that any current attempt to reconsider the idea of design (as a cause employed in scientific explanation) must come to grips with Darwin’s revolution. Indeed, throughout *Darwin and Design*, Ruse makes two broad claims that he says have forever altered the landscape on which the idea of design must be evaluated:

- (1) “Evolution has been proven true, and is widely accepted as such” (333). No matter how one wishes to interpret the theory, the common ancestry of life on earth by natural causes must be taken as established. “The Darwinian revolution is over, and Darwin won” (330). Evolution is a fact.
- (2) Intelligent design as a cause “is simply not acceptable in science” (48). When science explains anything, it does so by appealing to natural laws, not mind, teleology, or design. God-talk and design-talk may be acceptable elsewhere, but in science proper, genuine explanations and theories are rendered strictly in terms of impersonal laws and mechanisms.

Ruse is right, of course, that any reconsideration of design must come to grips with Darwin, particularly with the claims noted above, but not in the way he imagines. One can come to grips with a theory by evaluating and rejecting it. Nothing compels one to accept naturalistic evolution as fact when that theory’s main problems remain unsolved. Darwin did bring about a revolution, but its character was, and is, mainly philosophical and theological, not scientific. This has been the central theme of George Hunter’s excellent books (see my review, “Charles Darwin — Theologian,” *Christian Research Journal* 26, 2 [2003]:53–54), and I want to develop that critique further here.

Let me start with Ruse’s second broad claim that science (for our purposes, historical biology in particular) explains “through the agency of law” (112). This seems right: we explain why the stone falls by the law of gravitational attraction — a physical regularity; we explain the spread of SARS via the physical transmission of a disease-causing virus — a biological mechanism; and so forth.

Consider, however, this passage from the *Encyclopedia Britannica* entry on “Evolution,” where geneticist Francisco Ayala summarizes the main lines of evidence for evolution: “From a purely practical point of view, it is incomprehensible that a turtle should swim, a horse run, a person write, and a bird or bat fly with structures built of the same bones. *An engineer could design better limbs in each case.* But if it is accepted that all of these skeletons inherited their structures from a common ancestor and became modified only as they adapted to different ways of life, the similarity of their structures makes sense”² (emphasis added).

What is the natural law or physical mechanism at work that is being explained here? Ayala argues that “an engineer could design better limbs in each case” — meaning that if God Himself had constructed the limbs of turtles, horses, humans, birds, and bats, He would have produced better structures than those we actually observe. Ayala thus concludes, these limbs were not intelligently designed: their imperfection provides sufficient evidence for that negative conclusion; rather, they evolved naturally from a common ancestor — a positive inference to naturalistic evolution.

This is not, with deference to Ruse, a scientific explanation strictly grounded in any natural law or physical mechanism (although a hypothesis of material heredity via descent is presupposed as the contrasting cause to intelligent design); rather, Ayala, like Charles Darwin and evolutionists before and since, argues for evolution *theologically*. Beginning with an unstated, but necessary, theological premise about the designer’s (i.e., God’s) likely actions as an optimizing designer — He would design perfect creatures — Ayala claims that existing anatomical structures are suboptimal or imperfect. Such imperfection is inconsistent with an optimizing designer; therefore, the structures evolved via natural causes.

In Ayala’s encyclopedia article, the designer is unnamed, but his identity is implicit. Biology textbooks, however, are rarely as circumspect. Consider the same argument, as formulated by the late Harvard paleontologist Stephen Jay Gould, with his coauthors Salvador Luria and Sam Singer (both biologists): “Why would God have used the same building blocks, and distorted and twisted them in such odd ways, if He had simply set out to make the best swimming, running, and flying machines?...Evolution is proved by its imperfections.”³ This sort of God-talk in the midst of a biology textbook, essential to the logic of the authors’ overall case for evolution, is not unusual. Ruse notes that the same pattern of reasoning pervades Darwin’s own understanding of nature: “We have seen that Darwin became an evolutionist as much because of his religious beliefs as despite them....He stressed that his conception of the Creator was superior to that of the naive theist, and he meant this. Theologically speaking, creation through law was superior to creation through miracle, and pragmatically or scientifically speaking it explained much that was otherwise inexplicable — as well as letting God off the hook for much that is distasteful about the world of life” (124–25).

If, however, Darwin’s “conception of the Creator” *explains* biological facts that are “otherwise inexplicable,” then its active role throughout the *Origin of Species* (as well as in Darwin’s other writings, such as his book on orchids) violates Ruse’s claim that theology has no place in science. As George Hunter has persuasively argued, naturalistic evolutionists seem to know a great deal about God as Creator (or Designer). No wise and benevolent designer, they say, would have constructed the panda’s thumb (Gould, 1980), the vertebrate retina (Dawkins, 1986), or the human urogenital tract (Williams, 1987). The engineering flaws exhibited by these and many other biological systems cannot be reconciled with the direct intent of a “sensible God,” in Gould’s memorable phrase. Only evolution, in the blind process of natural selection, explains their origin.

We should note here an important distinction between *descriptive* and *normative* claims. Ruse might be simply describing scientific practice — that is, saying “Here is what scientists *actually* do and publish in the literature” — without passing any judgment on the merits of those practices, or the published content, as genuine knowledge. In this case, Ruse would be making a *descriptive* claim. On the other hand, Ruse might be saying, “Here is what scientists *should* do when they act and publish in the name of science — whether they actually do so or not.” This would be a *normative* claim, invoking standards of practice and content that “scientific” statements must meet to qualify as genuine knowledge.

Let us bracket the factual question of whether these biological systems are indeed known to be suboptimal or badly engineered. If Ruse means for his “no theology in science” claim to be *descriptive*, then very large tracts of evolutionary theory are not “science” at all, but theology. Saying what God as Designer would *not* have done is every bit as much a theological assertion as saying what He would have done; nor does evolutionary theory fare any better if we read Ruse’s “no theology” claim as *normative*. Biologists since Darwin’s time have ignored strictures forbidding God-talk in scientific explanation. On this point, Darwin himself was a rule-breaker of the first rank. If Ruse is right, therefore, when Gould says “a sensible God” would not have designed the panda’s thumb (and thus it evolved naturally), he should be standing in a pulpit and not a classroom or lab.

Gould, however, issued his theological judgments from his famous office within the Museum of Comparative Zoology at Harvard. The judgments were published in books, and proclaimed in lectures that, by any reasonable external criteria, were meant to be “scientific.” (On the many occasions when I heard Gould speak about how imperfection proves evolution, the settings were university or professional science lectures. In fact, I first retrieved his book *The Panda’s Thumb* in the science library from the heart of the QH section, the location in the Library of Congress classification system given to evolutionary biology.) Read descriptively, therefore, Ruse’s second broad claim — that theology has no place in science — is false. Read normatively, Ruse’s claim would consign wide swaths of *The Origin of Species* and thousands of other publications in evolutionary theory to theology, where the authors never intended their work to reside. Is that plausible? Or is it more likely that Ruse has tidied up the face of evolution, despite the historical (and current) realities? From its inception, evolutionary theory has been soaked in theology. Bad theology, to be sure, but theology nonetheless.

That fact gives us good reason to doubt Ruse’s first broad claim, that “evolution has been proven true.” The weight or rational gravity (in terms of its putative “must be accepted” status) that we assign to evolution may look entirely different when, before putting the theory on the scale, we let it dry out on the porch for a few days. A theory saturated to its core by bad theology wants desiccation, so to speak. Let the questionable theology evaporate, as it should: *now* how much does evolution weigh? Stephen Gould knew evolution was true, he said, because the panda’s thumb seemed to him a jerry-rigged kludge unworthy of a wise Creator; therefore, the panda must have evolved. “Hold on a moment,” we should reply. *Whose* “wise Creator”? *Whose* standards of biological perfection? Assessed how? What do we really know here, and what has third-rate natural theology borrowed illicitly from the early nineteenth century, via Darwin?

Despite his many insights into the relationship of theology and science, Ruse does not answer these questions. For him, evolution is a fact. For the skeptic of evolution, however, Ruse’s book provides good evidence that the “factual” status of evolution rests on theological assumptions. *Darwin and Design* is worth reading, but the reader should keep Dr. Johnson’s sensible attitude in mind. The author tells us one thing; reality tells us another; let’s check the spoon drawer, just to be safe.

— reviewed by Paul A. Nelson

NOTES

1. Samuel Johnson, from James Boswell’s *Life of Johnson*, quoted in *The Oxford Dictionary of Quotations* (Oxford: Oxford University Press, 1941), 207.
2. Francisco Ayala, *Encyclopedia Britannica*, 15th ed., s.v. “Evolution, The Theory of.”
3. Salvador Luria, Stephen Jay Gould, and Sam Singer, *A View of Life* (Menlo Park, CA: Benjamin/Cummings, 1981), 581.