Feature

Random Acts of Design

Francis Collins Sees Evidence That God Made the Cosmos—But Life Is Another Matter

by **Jonathan Witt**

Francis Collins is the head of the Human Genome Project, the monumental and successful effort to map the 3.1 billion letters of the human genetic code and, surprisingly in a world where "leading scientist" is assumed to mean "hardboiled agnostic," a serious Christian. In his new bestseller, *The Language of God: A Scientist Presents Evidence for Belief,* he draws upon his training as a geneticist and physician to make a case to a popular audience for both Darwinian evolution and a transcendent Creator.

The evolution he argues for involves no direct intelligent input after the origin of the universe until the origin of humans, and yet he also makes a case for a specifically Christian theism, arguing not only for a Creator but also for the possibility of miracles, the deity of Christ, and a literal resurrection. He insists that a scientist can believe these articles of Christian doctrine without checking his brain at the door.

The mainstream media have emphasized two aspects of the book: Its insistence that Darwinism is no threat to Christianity, and its argument that Darwinism better explains a range of physical evidence than either creationism or intelligent design. What has gone begging for ink, how-ever, is a feature of the book hidden in plain sight: Francis Collins makes a scientific case for intelligent design.

According to the theory of intelligent design, which extends from the origin of matter to the origin of mind, *an intelligent cause is the best explanation for certain features of the natural world*. In chapter nine Collins argues against intelligent design in biology, and this the media have picked up. But in chapter three, "The Origins of the Universe," he argues that *an intelligent cause is the best explanation for certain features of the natural world,* in this case, features that existed before the origin of life.

Collins's Case

He begins this part of the book by reviewing twentieth-century discoveries in physics and cosmology, many of which reinforce Christian teaching. For example, whereas scientists of

the nineteenth century generally believed that the universe was eternal, a growing body of evidence in the twentieth century convinced them that the universe began about 14 billion years ago, a theory, Collins notes, nicely in harmony with the biblical doctrine of creation *ex nihilo,* that is, creation out of nothing.

Next, he summarizes the fine-tuning problem, the growing body of evidence suggesting that the physical constants of nature (gravity, electromagnetism, and the mass of the universe, among many others) are exquisitely calibrated to allow for complex and even advanced life. A very tiny difference in *any* of these and life as we know it would be impossible.

Collins then describes the three live explanations for fine tuning among the international community of physicists, chemists, astronomers, and cosmologists: (1) There are a multitude of universes in addition to our own, perhaps an infinite number, and at least one was bound to have the right physical constants for advanced life; (2) we're just incredibly lucky; and (3) the physical constants look fine-tuned because they were fine-tuned. That is, they were designed.

He does not wrap up the chapter by saying, "I prefer option 3 because it confirms my prior religious commitments." Instead, he makes an evidence-based argument, coupled to an appeal to standard methods of reasoning, to argue that the design hypothesis best explains the physical evidence in question.

His conclusion is clear, though his language is guarded. He says of the two non-design options: "On the basis of probability, option 2 is the least plausible. That then leaves us with option 1 and option 3. The first is logically defensible, but this near-infinite number of unobservable universes strains credulity. It certainly fails Occam's Razor."

Even this quotation undersells how much he guides the reader toward the third option in the course of the chapter, but his guarded language makes this difficult to demonstrate briefly. For example, after this quotation he deals effectively, if less than forcefully, with the objection that introducing a supernatural designer violates Occam's razor, too, and notes that "it could be argued, however, that the Big Bang *itself* seems to point strongly toward a Creator."

His appeal to the Big Bang and the fine-tuned cosmos form two of his key design arguments. (The third, discussed below, looks at the moral law found across cultures and the fact of human altruism, features that Darwinism fails to explain but which are explained well by the claim that humans were created in the image of God.)

In our present intellectual climate, where scientists have been harassed and even fired for advocating intelligent design, and the idea is routinely attacked in news stories and the popular books of writers like Richard Dawkins and Daniel Dennett, the fact that the head of the Human Genome Project makes a scientific case for intelligent design should stand out before all the others.

Collins's Flaw

Why hasn't it? Because Collins accepts as a standard talking point the misleading description of intelligent design employed by its critics. According to them, intelligent design, or ID, is a purely negative argument against Darwinism coupled with a God-of-the-gaps theology.

They claim that design theorists poke holes in Darwinism and then insist that the holes prove that God designed life. More broadly, they claim that ID proponents supposedly argue from our present ignorance of any adequate material cause for certain natural phenomena directly

to intelligent design.

But this is not the case. Design theorists in biology do offer an extensive critique of Darwinian theory, but they also offer *positive* evidence for intelligent design. They argue from our growing knowledge of the natural world, including the cellular realm with which Collins deals, and from our knowledge of the only kind of cause ever shown to produce information or irreducibly complex machines (both found at the cellular level): intelligent agents.

Take two examples from chapter three. First, he refers to the "backward wiring" of the vertebrate eye—an apparently inefficient structure that forces light to pass through the nerves and blood vessels on its way to the eye's light sensors—and argues that this is evidence for neo-Darwinism and against the idea that a wise designer played a direct role in the evolution of this organism. "The design of the eye does not appear on close inspection to be completely ideal," he writes, and its imperfection seems "to many anatomists to defy the existence of truly intelligent planning of the human form."

This is a favorite argument of Dawkins's, and of Darwinists generally. However, geneticist and physician Michael Denton has demonstrated that the wiring improves oxygen flow, an important advantage not achievable by the tidier approach demanded by Darwinism. Design theorists have called attention to this point repeatedly, but Collins shows no evidence that he is aware of it. He neither addresses it nor mentions it. (Dawkins and other Darwinists generally avoid discussing it.)

Collins's Flagellum

A second instance where Collins betrays his lack of familiarity with the work of leading design theorists is his handling of the scientific controversy surrounding a micro-scopic rotary engine called the bacterial flagellum. The flagellum is a favorite of design theorists because they are convinced that attempts to explain its origin apart from design are manifestly inadequate, and because images of the flagellum practically scream design.

In his book *Darwin's Black Box,* Lehigh University biochemist Michael Behe made this sophisticated molecular machine famous by arguing that it was "irreducibly complex" and therefore evidence of design. He used the simple mechanism of a mousetrap as an example of irreducible complexity. If any part of the mousetrap is missing (the base, spring, hammer, holding bar, or catch), the trap cannot work. Even with four of the five parts in place, it is utterly useless. The mousetrap, then, is irreducibly complex. It is either complete, or it is not a mousetrap.

In the same way, the bacterial flagellum, composed of more than 40 distinct kinds of protein machinery, needs every one in place to function. If it has only 39 proteins, it will not work.

What does irreducible complexity have to do with Darwinian evolution? A conscious designer can pull together several dysfunctional parts and assemble them into a functional whole, but Darwinian evolution—which denies the possibility of intelligent guidance—must progress by one slight, functional mutational improvement at a time. So how can the Darwinian mechanism build an irreducibly complex motor one part at a time, if the motor cannot propel at all until all of its parts are in place?

Using the arguments of leading Darwin defender Kenneth Miller and others, Collins argues that nature could have co-opted simpler molecular machines to create the bacterial flagellum, and points to the "type three secretory apparatus" as evidence of such an indirect pathway. But design theorists have noted three crucial problems with this explanation.

One, the micro-syringe at best accounts for only ten proteins, leaving thirty or more unaccounted for, and these other thirty proteins are not found in any other living system. Second, as a wider body of literature suggests, the system probably developed after the more complicated flagellum, not the other way around.

Finally, even if nature had on hand all the right protein parts to make a bacterial flagellum, something would still need to assemble them in precise temporal order, the way cars are assembled in factories. How is such a task presently accomplished? As biologist Scott Minnich and philosopher Stephen Meyer explain, "To choreograph the assembly of the parts of the flagellar motor, present-day bacteria need an elaborate system of genetic instructions as well as many other protein machines to time the expression of those assembly instructions."

Collins never mentions any of this. In these and other instances—the question of testability, for example, and the claim that intelligent design makes no predictions, and his error-prone history of the modern intelligent design movement (he ignores the work of the scientists and philosophers who founded intelligent design in the 1980s, incorrectly dating its beginning to 1991)—he comes across as a superb experimental biologist who, nevertheless, simply has never engaged the best arguments for intelligent design in biology.

The Naturalist

In the same chapter, he invokes a rule called methodological materialism (also called methodological naturalism) to argue that biologists should not give up looking for a material (meaning Darwinian) cause for particular biological structures just because scientists have yet to discover it.

This forms part of his argument against intelligent design. "ID is a 'God of the gaps' theory, inserting a supposition of the need for supernatural intervention in places that its proponents claim science cannot explain," he writes, and its "proponents have made the mistake of confusing the unknown with the unknowable, or the unsolved with the unsolvable."

The suggestion here is that design theorists are hobbled by a failure of the imagination, an inability to imagine how the Darwinian mechanism could have achieved anything as sophisticated as the flagellar motor. But it is the Darwinists who have been unable to imagine, much less demonstrate in the laboratory, a credible Darwinian pathway to the flagellum.

The situation suggests two possibilities: Either (1) there is an unguided evolutionary pathway and scientists will eventually discover it; or (2) there is no evolutionary pathway apart from one guided by intelligence. By refusing to consider the second option, Collins commits the fallacy of begging the question.

Imagine a boy who tells a girl he could climb to Mars because a natural ladder stretches from one planet to the other. The girl points out that nobody on earth has ever found such a ladder and there is reason to believe it doesn't exist—because of the constantly changing distance between the planets, the sun getting between them, etc. The boy shakes his head at her and patiently explains, "That's an argument from ignorance. Scientists are finding all sorts of new things in our solar system all the time. Look at the moon. It's one step along the way. You see, everything is falling into place."

Collins's suggestion that we are sure to find a Darwinian pathway for the bacterial flagellum isn't this outlandish, of course, but it employs the same reasoning. He combines the assumption that the Darwinian pathway certainly exists with the charge that any scientist

skeptical that we'll ever find it is simply giving up—is, in other words, failing as a scientist.

Following Behe

But here is the odd thing, the thing that makes *The Language of God* such an interesting study. As seen earlier, Collins does not always commit this error. For instance, in his arguments for design from the origin and fine-tuning of the universe, Collins makes the same kind of argument for design that Behe makes, inferring design as the best explanation of the current evidence. In each case a critic could note that Collins has himself violated the rule of methodological materialism he has invoked against intelligent design theory.

This same criticism could be leveled against his other design argument, in which he appeals to the moral law in the human heart as evidence of design. Collins critiques the other leading explanation for the moral law—that what we think of as the moral law is only an aggregation of survival instincts instilled by Darwinian evolution—and argues that a better explanation is that we are not just matter but also spirit.

To this, the thoroughly consistent methodological materialist could respond, "But Dr. Collins, just because we're ignorant of a detailed Darwinian pathway to things like human altruism doesn't mean we won't ever find the pathway. You're arguing from ignorance to design, and you can't do that."

Collins was right to ignore this line of thinking in inferring design from the origin of the universe, cosmic fine-tuning, and the moral law within. The objection that he only argued to design from our ignorance of an adequate material cause assumes ahead of the evidence that such a cause actually exists. The truly scientific approach is to do what historical scientists routinely do: compare the available evidence, make an inference to the best explanation, and then see how that inference holds up in light of subsequent discoveries.

By insisting on that right in the realms of cosmology and human experience, one of the world's leading geneticists has nudged us a step closer to the day when such an approach will be taken for granted, whether the subject be the first singularity or the first cell.

Collins's Theology

Collins does offer a theological argument for his selective application of methodological materialism and his belief that Darwinism is no threat to Christianity. He suggests that God fine-tuned the initial conditions of the universe so perfectly that no further intervention was needed until he was ready to raise up one form, *hominine*, by investing it with an immortal soul that evolution could not instill. Collins contends that "humans are also unique in ways that defy evolutionary explanation and point to our spiritual nature."

On this view, God acted directly in the origin of the universe and in the origin and history of humanity, but his perfect wisdom meant that nature required no additional guidance or direction (or design) during the intervening 14 billion years. Collins suggests that anything less than such a "fully gifted creation" (I am borrowing physicist Howard van Till's term) is unworthy of a God who is both omnipotent and omniscient.

As Collins puts it:

> ID portrays the Almighty as a clumsy Creator, having to intervene at regular intervals to fix the inadequacies of His own initial plan for generating the complexity of life. For a believer who stands in awe of the almost unimaginable intelligence and creative genius of God, this is a very unsatisfactory image.

Thus, between the origin of matter and man, he suggests, we have a good theological reason to consistently apply the principle of methodological materialism.

But in making this argument, Collins treats God's relationship to time in a manner inconsistent with his treatment of this subject in chapter three. There he notes that the God of Christianity invented and transcends time, both past, present, and future. He makes this point to explain how God could exist before the Big Bang and how he could know that his finely tuned new universe would one day lead to the evolution of planet Earth and human beings.

But this theological point has an implication he overlooks when he criticizes intelligent design theory for positing a God who can't get the design right the first time (at the origin of a "fully gifted" universe). If the I Am is outside of time, if he stands over past, present, and future, then those interventions occurred in the eternal present of the "I Am" whether they occurred "all at once" 14 billion years ago or at different points throughout the history of the universe.

Also notice how blithely Collins equates the designer's ongoing involvement in creation with incompetence. (Miller, whose book *Finding Darwin's God* he recommends, told the *Philadelphia Inquirer* that the God of intelligent design theorists "is like a kid who is not a very good mechanic and has to keep lifting the hood and tinkering with the engine.")

Why? What if the creator likes to stay involved? What if he doesn't want to wind up the watch of the cosmos and simply leave it to crank out everything from supernovas to sunflowers? What if his relationship to the cosmos is also like a gardener to his garden? What if he wants to get his hands dirty?

God's Chances

Collins's synthesis possesses another crucial shortcoming. It undercuts either God's sovereignty or the random element at the heart of Darwinian theory. The relevant passage is in chapter ten, in which he asks, "How could God take such chances? If evolution is random, how could He really be in charge, and how could He be certain of an outcome that included intelligent beings at all?" The answer, he continues,

> is actually readily at hand, once one ceases to apply human limitations to God. If God is outside of nature, then He is outside of space and time. In that context, God could in the moment of creation of the universe also know every detail of the future. That could include the formation of the stars, planets, and galaxies, all of the chemistry, physics, geology, and biology that led to the formation of life on earth, and the evolution of humans, right to the moment of your reading this book—and beyond.

This being the case, we who are "limited . . . by the tyranny of linear time" would think evolution "driven by chance, but from God's perspective the outcome would be entirely specified."

If God merely knew about future events like the origin of humans, while granting an element of random play to the unfolding of the universe, Darwinian randomness might be preserved. But then God would not have specified the various outcomes as Collins suggests. If, on the other hand, God did not grant the evolutionary process an element of random play, then we are no longer talking about Darwinian evolution, and Collins's admission that the outcome was entirely specified by God is as good as saying that it was intelligently designed by God, albeit through the use of secondary causes.

In an earlier chapter Collins blamed Darwinian evolution for supposed bad design (like the backward wiring of the eye), but if every physical event unfolded according to a plan hard-wired into the universe from the beginning, then God is every bit as responsible for the backward wiring of the eye as if he had designed it directly. Christian theologians through the ages have defended a similarly strong role for Providence, but Collins cannot invoke Providence to explain the evolution of life while at the same time suggesting that a random process rather than God was responsible for supposed evolutionary problems and failures.

High Tradition

In *The Language of God,* Collins has made a sincere but unsuccessful effort to synthesize Darwinism and orthodox Christianity. But he has also done something very important for a man of his stature in the scientific world. In some cases, happily, he violated the rules of methodological materialism by allowing himself to consider design as the best explanation for the origin of the universe, the fine-tuning of the physical constants, and the moral law within the human heart.

In granting himself this freedom, Collins is returning to the origins of the scientific revolution. Modern science was born of the twin convictions that the universe was the rational product of a rational mind, and that this maker was not bound at every turn by the deductive syllogisms of an earlier age, meaning that the best way for a scientist to determine how the Creator had done things was to turn to nature and carefully scrutinize it.

At his best, Francis Collins engages the natural world in this same high tradition, refusing to be bound by a question-begging methodological rule and, instead, following the evidence where it leads.

SOURCES: Denton, "The Inverted Retina" (www.arn.org/docs/odesign/od192/invertedretina192.htm); Minnich and Meyer, "Genetic analysis of coordinate flagellar and type III regulatory circuits in pathogenic bacteria" in Proceedings of the Second International Conference on Design and Nature *(September 1, 2004), see also William Dembski's "Still Spinning Just Fine: A Response to Kenneth Miller" (www.designinference.com/documents/2003.02.Miller_Response.htm); Miller, "Evangelicals divided over evolution,"* The Philadelphia Inquirer *(May 30, 2005).*

Who's Serious?

At one point in *The Language of God,* Francis Collins echoes a favorite assertion of the most outspoken defenders of Darwinism: "No serious biologist today doubts the theory of evolution to explain the marvelous complexity and diversity of life," with the context making clear that he means Darwinian evolution. But a recent poll conducted by HCD Research, Inc., in conjunction with the Finkelstein Institute found that a large percentage of Collins's fellow doctors reject Darwinism.

Additionally, scores of biologists have signed a public list of more than 600 Ph.D. scientists skeptical about Darwinian evolution. Biologists make up the largest group on the list, a group that includes evolutionary biologist and textbook author Stanley Salthe; American Association for the Advancement of Science Fellow Lyle Jensen; Richard Sternberg, a Smithsonian Institution evolutionary biologist and a researcher at the National Institutes of Health's

National Center for Biotechnology Information; Giuseppe Sermonti, the editor of *Rivista di Biologia,* one of the oldest currently published biology journals in the world; and Russian Academy of Natural Sciences embryologist Lev Beloussov.

Are none of these biologists serious? If not, how does one qualify as "serious"? By accepting neo-Darwinism? If so, Collins's assertion is a mere tautology: *No adherent of the theory of evolution doubts the theory of evolution*.

— Jonathan Witt

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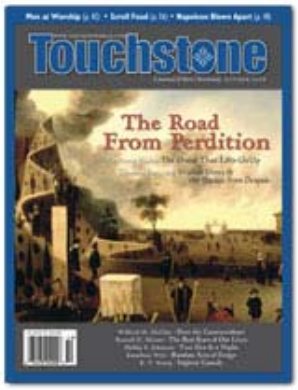

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