



Falconer

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THE ACCIDENTAL CREATIONIST

Why Stephen Jay Gould is bad for evolution.

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FOUR months ago, when the Kansas Board of Education voted to cut evolution from the mandatory science curriculum, few people were more outraged than Stephen Jay Gould. Teaching biology without evolution is "like teaching English but making grammar optional," Gould said. The Kansas decision reeked of "absurdity" and "ignorance" and was a national embarrassment. The question of whether to teach evolution "only comes up in this crazy country," he told an audience at the University of Kansas after the decision.

All of this is more or less true. But it's also true that, over the years, Gould himself has lent real strength to the creationist movement. Not intentionally, of course. Gould's politics are secular left, the opposite of creationist politics, and his outrage toward creationists is genuine. Yet, in spite of this stance—and, oddly, in some ways because of it—he has wound up aiding and abetting their cause.

This indictment of Gould will no doubt surprise his large reading public. After all, in addition to being America's unofficial evolutionist laureate, Gould is a scientist of sterling credentials—a Harvard paleontologist and, currently, the president of the American Association for the Advancement of Science. In what more capable hands could the defense of science rest?

Over the past three decades, in essays, books, and technical papers, Gould has advanced a distinctive view of evolution. He stresses its flukier aspects—freak environmental catastrophes and the like—and downplays natural selection's power to design complex life forms. In fact, if you really pay attention to what he is saying, and accept it, you might start to wonder how evolution could have created anything as intricate as a human being.

As it happens, creationists have been wondering the very same thing, and they're delighted to have a Harvard paleontologist who will nourish their doubts. Gould is a particular godsend to the more intellectual anti-evolutionists, who mount the sustained (and ostensibly secular) critiques that give creationism a veneer of legitimacy.

Gould also performs a more subtle service for creationists. Having bolstered their caricature of Darwinism as implausible, he bolsters their caricature of it as an atheist plot. He depicts evolution as something that can't possibly reflect a higher purpose, and thus can't provide the sort of spiritual consolation most people are after. Even Gould's recent book "Rocks of Ages," which claims to reconcile science and religion, draws this moral from the story of evolution: we live in a universe that is "indifferent to our suffering."

All the favors that Gould unwittingly performs for creationists can be traced to his thinking on the fundamental issue of "directionality," or "progressivism"—that is, how inclined evolution is (if at all) to build more complex and intelligent animals over time,

To explain what he means by "random," Gould uses the metaphor of "the drunkard's walk." A drunk is heading down a sidewalk that runs east-west. Skirting the sidewalk's south side is a

brick wall, and on the north side is a curb and a street. Will the drunk eventually veer off the curb, into the street? Probably. Does this mean he has a "northerly directional tendency"? No. He's just as likely to veer south as north. But when he veers south the wall bounces him back to the north. He is taking "a random walk" that just seems to have a directional tendency.

To take the metaphor a bit further, if you get enough drunks and give them enough time, one of them may eventually get all the way to the other side of the street. That's us: the lucky species that, through millions of years of random motion, happened to get to the far north, the land of great complexity. But we didn't get there because north is an inherently valuable place to be. If it weren't for the brick wall—that is, the fact that no species can have less than zero complexity—there would be just as many drunks south of the sidewalk as north of it, and the randomness of all their paths would be obvious. Gould writes, "The vaunted progress of life is really *random motion away from simple beginnings, not directed impetus toward inherently advantageous complexity.*"

The evolution of human intelligence has the earmarks of positive feedback. To the extent that we can judge from an imperfect fossil record, the growth in brain size—from *Australopithecus africanus* through *Homo habilis*, *Homo erectus*, and early *Homo sapiens* to modern *Homo sapiens*—is fairly brisk, with no signs of backtracking and little in the way of pauses. This suggests three million years of pretty persistent brain expansion.

In Gould's world view, the only way to explain this trend is as a long series of lucky coin flips—the most serendipitous drunken walk in the history of drinking. And it isn't just our ancestors, in Gould's scheme, who were so lucky. Mammalian lineages broadly exhibit movement toward braininess.

The odds of all this happening by luck alone, as Gould would have it, seem to me not that different from the odds that God created all species in a few days. By the basic criterion of scientific judgment—that the most plausible story wins—it's roughly a tie. So, as long as Gould's version of evolution dominates popular understanding, why should the average school-board member find one theory beyond serious doubt and the other unworthy of mention? Neither fits the facts.

Gould recognizes that his story is an unlikely one. If you replayed evolution on this planet, he says, the chances of getting any species as smart as humans—smart enough to reflect on itself—are “extremely small.” In fact, he fairly delights in the prospect that “we are, whatever our glories and accomplishments, a momentary cosmic accident that would never arise again if the tree of life could be replanted from seed and regrown under similar conditions.” To insist otherwise, to see evolution as a natural progression toward intelligent forms of life, is to indulge a “delusion” grounded in “human arrogance” and desperate “hope.”

This is where Gould's aims, perversely, converge with those of the creationists: both, for their own philosophical reasons, want to depict the evolution of a human level of intelligence as spectacularly unlikely. But what, exactly, is Gould's philosophical reason? Why is he so chipper about our creation's being an aimless and pointless process? The answer lies in Darwinism's checkered political past.

EARLY in this century, biological progressivism was dear to the hearts of social Darwinists, who used evolution to justify racism, imperialism, and a laissez-faire indifference to poverty. Part of the logic behind social Darwinism—to the extent that it had a coherent logic—was something like the following: The suffering, even death, of the weak at the hands of the strong is an example of “survival of the fittest.” And surely the “survival of the fittest” has God's blessing. After all, He built the dynamic into His great creative process, natural selection. And how do we know that natural selection is God's handiwork? Because of its inexorable tendency to create organisms as majestic as ourselves, organisms worthy of admission to Heaven. In short, biological progressivism was used to deify nature in all its aspects, and nature, thus deified, was invoked in support of oppression.

This variant of social Darwinism—which infers political and moral values from the direction of evolution—has been essentially dead for a long time, but for Gould it is still an ever-present enemy. His denunciations of progressivism often include dark allusions to the political values that accompanied it in the early twentieth century. His war against progressivism, it seems, is waged partly to vanquish a religious right that died out long ago. Yet the effect of the war is to give aid and comfort to a new religious right.

Anti-progressivism is the grand unifying theme in Gould's oeuvre. To the lay reader, he may seem a man of many theories, but, time and again, they amount to the argument that natural selection, far from being a tireless engineer of organic improvement, is actually an erratic agent that is often swamped by outside factors, and so can't be counted on to push evolution upward. Hence his championing of “punctuated equilibrium”—the idea that evolution proceeds in fits and starts, and spends much of its time moving nowhere in particular. Hence, too, his insistence that many parts of plants and animals are not “adaptations” (things designed by natural selection for a particular purpose) but “spandrels” (incidental by-products of past evolution which may happen to serve a function

Gould's writings on punctuated equilibrium have been a particular gift to creationists. He dwells on gaps in the fossil record to argue that evolution works fitfully; creationists then quote him to argue that it doesn't work at all. (They love the conspiratorial aura of Gould's description of these gaps as the “trade secret of paleontology.”)

Obviously, we can't hold scholars strictly responsible for how their words are used. There *are* lots of gaps in the fossil record, and though many biologists believe that Gould cites the record too selectively, it isn't his fault when creationists quote him dishonestly, as they sometimes do. The problem is that often they don't have to. The biochemist Michael Behe writes, in the anti-evolutionist text “Darwin's Black Box,” “Gould has argued that the rapid rate of appearance of new life forms demands a mechanism other than natural selection for its explanation.” Gould does say that, when he depicts punctuated equilibrium as a major new concept, requiring “additional laws,” beyond natural selection.

This particular excess has drawn criticism from Gould's mentor, the renowned biologist Ernst Mayr. In his book “Toward a New Philosophy of Biology” Mayr insists that any plausible version of punctuated equilibrium is “completely consistent” with the modern Darwinian synthesis, and that the engine of change in punctuated equilibrium is natural selection. Mayr should know. He, more than anyone else, created the theory of punctuated equilibrium, decades before Gould gave it that catchy title.

Of all the Gouldian themes cherished by Darwinism's detractors, perhaps the most interesting is one publicized by Johnson in the early nineteen-nineties, in an *Atlantic Monthly* essay and in his book “Darwin on Trial.” Johnson's argument began with the accurate observation that species often go extinct because of what you might call bad luck, not bad genes. For example, a meteor may strike and trigger an environmental cataclysm, wiping out thousands of species that, only the day before, seemed ideally suited to life on earth.

Johnson then asked: If which genes perish is so often determined randomly,



how could natural selection work well? Isn't the idea supposed to be that, while genetic traits are *generated* randomly, they are weeded out selectively, depending on whether they are "fit"?

That is indeed how natural selection designs fit organisms. But, according to mainstream Darwinian theory, most of the consequential weeding out doesn't happen conspicuously and suddenly, when whole species go extinct; it happens on a day-to-day basis within a species, as some individuals fail to spread their genes as ably as other individuals. So even if every few hundred million years a meteor strikes, wiping out lots of well-designed species, other well-designed species remain, and the design work continues.

RANDOM extinctions are a central theme of Gould's book "Wonderful Life."

species do go extinct because of cosmic rolls of the dice. A meteor shows up and—*poof!*—no dinosaurs. But Gould's argument from this premise blurs the line between two separate issues: the question of whether a given species was likely to evolve and the question of whether the properties it embodied were likely to evolve.

For example, if our ancestors had been wiped out through bad luck, then, as Gould has repeatedly proclaimed, human beings would never have evolved. This point—in some ways the central point of "Wonderful Life"—is so unarguable that, as far as I know, it has never been argued against. No sober biologist would claim that there was some kind of inexorability to the evolution of *Homo sapiens* per se: a species five or six feet tall with ear lobes, bad jokes, and all the rest. The question is whether the evolution of *some* form of highly intelligent life was likely all along.

Though natural selection is a blind process that works by trial and error—and random trial, at that—it has a remarkable knack for invention, for finding and filling empty niches. It doesn't just invent great technologies; it keeps reinventing them. Flight and eyesight are two properties so amazing that creationists cite them for their implausibility. Yet flight has arisen through evolution on at least three separate occasions, and eyes have developed independently dozens of times.

Eyes are so favored by natural selection because light is a terrific medium of perception. It moves in straight lines, bounces off solid things, and travels faster than anything in the known universe. But smell, sound, touch, and taste are also amply represented in the animal kingdom, and are just the beginning of a long list of organic data-gathering technologies. Indeed, humankind's vaunted twentieth-century advances in sensory technology seem almost like a long exercise in reinventing the wheel. We now have infrared sensors for night vision; rattlesnakes beat us to that one. We use sonar—old hat to bats and dolphins. Some burglar alarms work by creating electric fields and sensing disturbances in them; so do some fish,

Gould writes, "Humans 'are here by the luck of the draw.'" Undeniably true. But there's a difference between saying it took great luck for you to be the winner and saying it took great luck for there to be a winner. This is the distinction off which lotteries, casinos, and bingo parlors make their money. In the game of evolution, I submit, it was just a matter of time before one species or another raised its hand (or, at least, its grasping appendage) and said, "Bingo!"

—that evolution's directionality may have a "moral" dimension—helps explain why some religiously inclined people find progressivism intriguing. Obviously, this theme wouldn't sell the creationists themselves on Darwinism; if you think that Genesis is literally true, evolution will always be your enemy. But, in the battle between Darwinians and creationists for the hearts and minds of the uncommitted, it matters whether evolution by natural selection is spiritually suggestive.

Even if you accept the arguments for directionality, and agree that intelligence and even love were likely from the start, that is hardly overwhelming evidence of a higher purpose. But it's closer to it than Gould's version of evolution—a stumbling, bumbling process that just happened to lead, Mr. Magoo-like, to Einstein, Mother Teresa, and the Internet.

Some Darwinians flirt with deism, the no-frills faith that was favored during the Enlightenment precisely for its

compatibility with science. In this view, God set cosmic history in motion and then adopted a hands-off policy, confident that it would lead to something interesting. Certainly, history *has* led to something interesting. Who knows? Maybe the present moment—when an intelligent form of life starts to collectively, deliberately shape the whole biosphere's destiny—was itself, in some statistical sense, destiny.

But, really, how consoling could any Darwinian god be? Those who would like to believe in a higher power that is both omnipotent and benign will be frustrated by the most casual inspection of the medium of our design. Among the key ingredients in natural selection's creative energy are death and suffering, the casting aside of the "unfit." And, for every bit of love and harmony, there seems to be a flip side of antagonism and cruelty; among the things we do for loved ones is hate their enemies. What kind of god would use natural selection as a creative tool?

It is tempting to answer as the biologist George Williams has: a very bad god. On the other hand, a smart, reflective species with a capacity for empathy could be capable of greater things than we've seen. Maybe human behavior will someday justify a theology rather like that of the ancient Manichaeans: maybe nature, though dominated by darkness, has always contained seeds of light, seeds of intellect and love, which over the ages grow until they transcend their base embodiment.

In any event, to note the ample dark side of evolution is simply to re-state the problem that any honest religion must confront: the problem of evil. And solving timeless theological quandaries is beyond Darwinism's job description. My point is just that Darwinism needn't put theologians out of a job. Granted, it may force them to abandon beliefs. Scientific progress, as the philosopher Alfred North Whitehead wrote, has long spurred the amendment of religious doctrine—"to the great advantage of religion"—while religion's essence remained intact. For many religious people, part of that essence is the belief that, above and beyond the vestigial cruelties and absurdities of the human experience, there is a point to it all, a point that, even if obscure, may yet become manifest. So far, biological science has provided no reason to conclude otherwise. ♦