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Review

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Saving Us from Darwin

By [Frederick C. Crews](#)

BOOKS DISCUSSED IN THIS REVIEW

The Wedge of Truth: Splitting the Foundations of Naturalism

by Phillip E. Johnson

InterVarsity Press, 192 pp., \$17.99

Icons of Evolution: Science or Myth? Why Much of What We Teach About Evolution Is Wrong

by Jonathan Wells

Regnery, 338 pp., \$27.95

Darwin's Black Box: The Biochemical Challenge to Evolution

by Michael J. Behe

Touchstone, 307 pp., \$13.00 (paper)

Mere Creation: Science, Faith and Intelligent Design

edited by William A. Dembski

InterVarsity Press, 475 pp., \$24.99 (paper)

Intelligent Design: The Bridge Between Science and Theology

by William A. Dembski

InterVarsity Press, 312 pp., \$21.99

Tower of Babel: The Evidence Against the New Creationism

by Robert T. Pennock

Bradford/MIT Press, 429 pp., \$18.95 (paper)

Finding Darwin's God: A Scientist's Search for Common Ground Between God and Evolution

by Kenneth R. Miller

Cliff Street Books/HarperCollins, 338 pp., \$14.00 (paper)

1.

It is no secret that science and religion, once allied in homage to divinely crafted harmonies, have long been growing apart. As the scientific worldview has become more authoritative and self-sufficient, it has loosed a cascade of appalling fears: that the human soul, insofar as it can be said to exist, may be a mortal and broadly comprehensible product of material forces; that the immanent, caring God of the Western monotheisms may never have been more than a fiction devised by members of a species that self-indulgently denies its continuity with the rest of nature; and that our universe may lack any discernible purpose, moral character, or special relation to ourselves. But as those intimations have spread, the retrenchment known as creationism has also gained in strength and has widened its appeal, acquiring recruits and sympathizers among intellectual sophisticates, hard-headed pragmatists, and even some scientists. And so

formidable a political influence is this wave of resistance that some Darwinian thinkers who stand quite apart from it nevertheless feel obliged to placate it with tactful sophistries, lest the cause of evolutionism itself be swept away.

As everyone knows, it was the publication of *The Origin of Species* in 1859 that set off the counterrevolution that eventually congealed into creationism. It isn't immediately obvious, however, why Darwin and not, say, Copernicus, Galileo, or Newton should have been judged the most menacing of would-be deicides. After all, the subsiding of faith might have been foreseeable as soon as the newly remapped sky left no plausible site for heaven. But people are good at living with contradictions, just so long as their self-importance isn't directly insulted. That shock was delivered when Darwin dropped his hint that, as the natural selection of every other species gradually proves its cogency, "much light will be thrown on the origin of man and his history."

By rendering force and motion deducible from laws of physics without reference to the exercise of will, leading scientists of the Renaissance and Enlightenment started to force the activist lord of the universe into early retirement. They did so, however, with reverence for his initial wisdom and benevolence as an engineer. Not so Darwin, who saw at close range the cruelty, the flawed designs, and the prodigal wastefulness of life, capped for him by the death of his daughter Annie. He decided that he would rather forsake his Christian faith than lay all that carnage at God's door. That is why he could apply Charles Lyell's geological uniformitarianism more consistently than did Lyell himself, who still wanted to reserve some scope for intervention from above. And it is also why he was quick to extrapolate fruitfully from Malthus's theory of human population dynamics, for he was already determined to regard all species as subject to the same implacable laws. Indeed, one of his criteria for a sound hypothesis was that it must leave no room for the supernatural. As he wrote to Lyell in 1859, "I would give absolutely nothing for the theory of Natural Selection, if it requires miraculous additions at any one stage of descent."

Darwin's contemporaries saw at once what a heavy blow he was striking against piety. His theory entailed the inference that we are here today not because God reciprocates our love, forgives our sins, and attends to our entreaties but because each of our oceanic and terrestrial foremothers was lucky enough to elude its predators long enough to reproduce. The undignified emergence of humanity from primordial ooze and from a line of apes could hardly be reconciled with the unique creation of man, a fall from grace, and redemption by a person of the godhead dispatched to Earth for that end. If Darwin was right, revealed truth of every kind must be unsanctioned. "With me the horrid doubt always arises," he confessed in a letter, "whether the convictions of man's mind, which has been developed from the mind of the lower animals, are of any value or at all trustworthy. Would any one trust in the convictions of a monkey's mind...?"

In a sentence that is often misconstrued and treated as a scandal, Richard Dawkins has asserted that "Darwin made it possible to be an intellectually fulfilled atheist."^[1] What he meant was not that Darwinism requires us to disbelieve in God. Rather, if we are already inclined to apprehend the universe in strictly physical terms, the explanatory power of natural selection removes the last obstacle to our doing so. That obstacle was the seemingly irrefutable "argument from design" most famously embodied in William Paley's *Natural Theology* of 1802. By showing in principle that order could arise without an artificer who is more complex than his artifacts, Darwin robbed Paley's argument of its scientific inevitability.

With the subsequent and continually swelling flood of evidence favoring Darwin's paradigm, evolutionism has acquired implications that Darwin himself anticipated but was reluctant to champion. Daniel C. Dennett has trenchantly shown that the Darwinian outlook is potentially a "universal acid" penetrating "all the way down" to the origin of life on Earth and "all the way up" to a satisfyingly materialistic reduction of mind and soul.^[2] True enough, natural selection can't tell us how certain organic molecules first affixed themselves to templates for self-duplication and performed their momentous feat. But the theory's success at every later stage has tipped the explanatory balance toward some naturalistic account of life's beginning. So, too, competitive pressures now form a more plausible framework than divine action for guessing how the human brain could have acquired consciousness and facilitated cultural productions, not excepting religion

itself. It is this march toward successfully explaining the higher by the lower that renders Darwinian science a threat to theological dogma of all but the blandest kind.

2.

That threat has been felt most keenly by Christian fundamentalists, whose insistence on biblical literalism guarantees them a head-on collision with science. They are the faction responsible for creationism as most people understand the term: the movement to exclude evolution from the public school curriculum and to put "creation science" in its place. The goal of such "young-Earthers" is to convince students that the Bible has been proven exactly right: our planet and its surrounding universe are just six thousand years old, every species was fashioned by God in six literal days, and a worldwide flood later drowned all creatures (even the swimmers) except one mating pair of each kind.

Creation science enjoyed some political success in the 1980s and 1990s, packing a number of school boards and state legislatures with loyalists who then passed anti-Darwinian measures. Clearly, though, the movement is headed nowhere. Its problem isn't the absurdity of its claims but rather their patently question-begging character. "Findings" that derive from Scripture can never pass muster as genuine science, and once their sectarian intent is exposed, they inevitably run up against the constitutional ban on established religion.

But the ludicrous spectacle of young-Earth creation science masks the actual strength of creationism in less doctrinaire guises. According to a recent poll, only 44 percent of our fellow citizens agree with the proposition "Human beings, as we know them today, developed from earlier species of animals." One of the dissenters may be our current president, who went on record, during the Kansas State Board of Education controversy of August 1999, as favoring a curricular balance between Darwinian and creationist ideas. His administration, moreover, is partial to charter schools, public funding of private academies, and a maximum degree of autonomy for local boards. If creationism were to shed its Dogpatch image and take a subtler tack, laying its emphasis not on the deity's purposes and blueprints but simply on the unlikelihood that natural selection alone could have generated life in its present ingenious variety, it could multiply its influence many fold.

Precisely such a makeover has been in the works since 1990 or so. The new catchword is "intelligent design" (ID), whose chief propagators are Phillip E. Johnson, Michael J. Behe, Michael Denton, William A. Dembski, Jonathan Wells, Nancy Pearcey, and Stephen C. Meyer. Armed with Ph.D.'s in assorted fields, attuned to every quarrel within the Darwinian establishment, and pooling their efforts through the coordination of a well-funded organization, Seattle's Discovery Institute, these are shrewd and media-savvy people. They are very busy turning out popular books, holding press conferences and briefings, working the Internet, wooing legislators, lecturing on secular as well as religious campuses, and even, in one instance, securing an on-campus institute all to themselves.^[3]

The IDers intend to outflank Darwin by accepting his vision in key respects, thereby lending weight to their one key reservation. Yes, most of them concede, our planet has been in orbit for billions of years. No, Earth's ten million species probably weren't crammed into Eden together. And yes, the extinction of some 99 percent of those species through eons preceding our own tardy appearance is an undeniable fact. Even the development, through natural selection, of adaptive variation within a given species is a sacrificed pawn. The new creationists draw the line only at the descent of whole species from one another. If those major transitions can be made to look implausible as natural outcomes, they can be credited to the Judeo-Christian God, making it a little more thinkable that he could also, if he chose, fulfill prophecies, answer prayers, and raise the dead.

This is, on its face, a highly precarious strategy. According to the premises that intelligent design freely allows, speciation *isn't* very hard to explain. If natural selection

can produce variations without miraculous help, there is every reason to suppose that it can yield more fundamental types as well. Indeed, Darwin believed, and many contemporary biologists agree, that the very distinction between variation and speciation is vacuous. One species can be distinguished from its closest kin only retrospectively, when it is found that the two can no longer interbreed. The cause of that splitting can be something as mundane as a geographical barrier erected between two groupings of the same population, whose reproductive systems or routines then develop slight but fateful differences. And if one of those sets then goes extinct without leaving traces that come to the notice of paleontologists, the surviving set may not be considered a new species after all, since no discontinuity in breeding will have come to light. The whole business requires a bookkeeper, perhaps, but surely not a God.

In effect, then, the intelligent design team has handed argumentative victory to its opponents before the debate has even begun. As the movement's acknowledged leader, the emeritus UC-Berkeley law professor Phillip Johnson, concedes in his latest book, *The Wedge of Truth*, "If nature is all there is, and matter had to do its own creating, then there is every reason to believe that the Darwinian model is the best model we will ever have of how the job might have been done." Such a weak hand prompts Johnson and others to retreat to the Bible for "proof" that nature is subordinate to God. If scientists can't perceive this all-important truth, it's because their "methodological naturalism" partakes of a more sweeping "metaphysical naturalism"—that is, a built-in atheism. Once this blindness to spiritual factors becomes generally recognized, the persuasiveness of Darwinism will supposedly vanish.

While awaiting this unlikely outcome,^[4] however, ID theorists also make an appeal to consensual empiricism. The rhetorically adept Johnson, for example, highlights every disagreement within the evolutionary camp so that Darwinism as a whole will appear to be moribund. There are many such areas of dispute, having to do with morphological versus genetic trees of relationship; with convergent evolution versus common descent; with individual versus group selection; with "punctuated equilibria" versus relatively steady change; with sociobiological versus cultural explanations of modern human traits; and with the weight that should be assigned to natural selection vis-à-vis sexual selection, symbiosis, genetic drift, gene flow between populations, pleiotropy (multiple effects from single genes), structural constraints on development, and principles of self-organizing order. But Johnson misportrays healthy debate as irreparable damage to the evolutionary model—to which, as he knows, all of the contending factionalists comfortably subscribe.

The Wedge of Truth adds nothing of substance to Johnson's four previous volumes in the same vein. By now, though, his cause has been taken up by younger theorists whose training in science affords them a chance to make the same case with a more imposing technical air. In *Icons of Evolution: Science or Myth?*, for example, Jonathan Wells mines the standard evolutionary textbooks for exaggerated claims and misleading examples, which he counts as marks against evolution itself. His goal, of course, is not to improve the next editions of those books but to get them replaced by ID counterparts.^[5] More broadly, he calls for a taxpayer revolt against research funding for "dogmatic Darwinists" and for the universities that house their "massive indoctrination campaign." What he cannily refrains from saying is that a prior religious commitment, not a concern for scientific accuracy, governs his critique. One must open the links on Wells's Web site to learn that, after consulting God in his prayers and attending to the direct personal urging of the Reverend Sun Myung Moon, whom he calls "the second coming of Christ," he decided that he should "devote [his] life to destroying Darwinism."

What is truly distinctive about the intelligent design movement is its professional-looking attack on evolution at the molecular level. Darwin had famously dared his critics to find "any complex organ...which could not possibly have been formed by numerous, successive, slight modifications." Having failed to unearth any such organ, anti-evolutionists have recently turned to the self-replicating cell, with its myriad types of proteins and its many interdependent functions. In *Darwin's Black Box: The Biochemical Challenge to Evolution* (1996), the Catholic biochemist Michael J. Behe has asked whether such amazing machinery could have come into existence by means of "slight modifications." His answer is no: God's intervention within the cell can be demonstrated through the elimination of every possibility other than conscious design. Without

waiting to learn what his fellow biochemists think of this breakthrough (they have scoffed at it), Behe generously ascribed it to them and called it "one of the greatest achievements in the history of science."

The heart of Behe's case is his notion of irreducible complexity. Any mechanical or biological system—a mousetrap, say, or a bacterial flagellum—is irreducibly complex if each of its elements is indispensable to its functioning. How could one irreducibly complex system ever evolve into another? According to Behe, any stepwise mutation that altered the original would have rendered it not just clumsy but useless and thus incapable of survival. To maintain otherwise, he urges, would be like saying that a bicycle could grow into a motorcycle by having its parts traded, one by one, for a heavy chassis, a gearbox, spark plugs, and so on, while never ceasing to constitute a maximally efficient vehicle. Since that is impossible, Behe declares, "the assertion of Darwinian molecular evolution is merely bluster."

The IDers have closed ranks behind Behe as their David to the Darwinian Goliath. His inspiration pervades their manifesto anthology, *Mere Creation: Science, Faith and Intelligent Design*, a triumphalist volume in which the impending collapse of evolutionism is treated as a settled matter. In the view of the editor, William Dembski, Darwinism is already so far gone, and the prospect of reverse-engineering God's works to learn his tricks is so appealing, that "in the next five years intelligent design will be sufficiently developed to deserve funding from the National Science Foundation."

Dembski himself is the author of two books, *The Design Inference: Eliminating Chance Through Small Probabilities* (1998) and *Intelligent Design: The Bridge Between Science and Theology* (1999), that put the case for irreducible complexity on more general grounds than Behe's. The key question about Darwinism, Dembski has perceived, is the one that Paley would have asked: whether natural selection can result in organs and organisms whose high degree of order associates them with made objects (a compass, say) rather than with found objects such as a rock. By applying an algorithmic "explanatory filter," Dembski believes, we can make this discrimination with great reliability. Design must be inferred wherever we find *contingency* (the object can't be fully explained as an outcome of automatic processes), *complexity* (it can't have been produced by chance alone), and *specification* (it shows a pattern that we commonly associate with intelligence). Since living forms display all three of these properties, says Dembski, they must have been intelligently designed.

Working evolutionists, once they notice that Behe's and Dembski's "findings" haven't been underwritten by a single peer-reviewed paper, are disinclined to waste their time refuting them. Until recently, even those writers who do conscientiously alert the broad public to the fallacies of creationism have allowed intelligent design to go unchallenged. But that deficit has now been handsomely repaired by two critiques: Robert T. Pennock's comprehensive and consistently rational *Tower of Babel*, the best book opposing creationism in all of its guises, and Kenneth R. Miller's *Finding Darwin's God*, whose brilliant first half reveals in bracing detail that intelligent design is out of touch with recent research.

As Pennock shows, Behe's analogical rhetoric is gravely misleading. He makes it seem that *one* exemplar of a molecular structure faces impossible odds against transforming itself into *one* quite different form while remaining highly adaptive. But evolutionary change, especially at the level of molecules and cells, occurs in vast populations, all but a few of whose members can be sacrificed to newly hostile conditions and dead-end mutations. Antibiotic resistance among bacteria and the rapid evolution of the HIV virus are two common examples that carry more weight than any number of mousetraps and bicycles.

Both Pennock and Miller demonstrate that evolution is not a designer but a scavenger that makes do with jury-rigged solutions and then improves them as opportunities and emergencies present themselves. Typically, the new mechanism will have discarded "scaffolding" elements that were no longer needed. And conversely, a part that may have been only mildly beneficial in one machine can become essential to its successor, which may serve a quite different end. This chain of makeshift solutions is no less true of cilia and flagella than it is of the reptilian jaw that eventually lent two bones to the

mammalian middle ear.^[6]

As for Dembski, his explanatory filter assumes what it is supposed to prove, that natural causes can't have brought about the "complex specified information" characteristic of life forms. Dembski fails to grasp that Darwinism posits neither chance nor necessity as an absolute explainer of those forms. Rather, it envisions a continual, novelty-generating disequilibrium between the two, with aleatory processes (mutation, sexual recombination, migratory mixing) and the elimination of the unfit operating in staggered tandem over time. Declaring this to be impossible by reference to information theory, as Dembski does with mathematical sleight-of-hand, is just a way of foreclosing the solid evidence in its favor.^[7]

By denying that natural selection can generate specified complexity, theorists like Dembski and Behe saddle themselves with the task of de-termining when the divine designer infused that complexity into his creatures. Did he do it (as Behe believes) all at once at the outset, programming the very first cells with the entire repertoire of genes needed for every successor species? Or did he (Dembski's preference) opt for "discrete insertions over time," molding here a Velociraptor, there a violet, and elsewhere a hominid according to his inscrutable will? Miller and Pennock show that both models entail a host of intractable problems.

The proper way to assess any theory is to weigh its explanatory advantages against those of every extant rival. Neo-Darwinian natural selection is endlessly fruitful, enjoying corroboration from an imposing array of disciplines, including paleontology, genetics, systematics, embryology, anatomy, biogeography, biochemistry, cell biology, molecular biology, physical anthropology, and ethology. By contrast, intelligent design lacks any naturalistic causal hypotheses and thus enjoys no consilience with any branch of science. Its one unvarying conclusion — "God must have made this thing" — would preempt further investigation and place biological science in the thrall of theology.

Even the theology, moreover, would be hobbled by contradictions. Intelligent design awkwardly embraces two clashing deities — one a glutton for praise and a dispenser of wrath, absolution, and grace, the other a curiously inept cobbler of species that need to be periodically revised and that keep getting snuffed out by the very conditions he provided for them. Why, we must wonder, would the shaper of the universe have frittered away thirteen billion years, turning out quadrillions of useless stars, before getting around to the one thing he really cared about, seeing to it that a minuscule minority of earthling vertebrates are washed clean of sin and guaranteed an eternal place in his company? And should the God of love and mercy be given credit for the anopheles mosquito, the schistosomiasis parasite, anthrax, smallpox, bubonic plague...? By purporting to detect the divine signature on every molecule while nevertheless conceding that natural selection does account for variations, the champions of intelligent design have made a conceptual mess that leaves the ancient dilemmas of theodicy harder than ever to resolve.

A conceptual mess can persist indefinitely, however, if its very muddle allows cherished illusions to be retained. As we will see in a second essay, intelligent design is thriving not just among programmatic creationists but also in cultural circles where illogic and self-indulgence are usually condemned. And even stronger evidence that the Darwinian revolution remains incomplete can be found within the evolutionary establishment itself, where Darwin's vision is often prettified to make it safe for doctrines that he himself was sadly compelled to leave behind.

—*This is the first of two articles.*

Notes

^[1] *The Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe Without Design* (revised edition; Norton, 1996), p. 6.

^[2] Daniel C. Dennett, *Darwin's Dangerous Idea: Evolution and the Meanings of Life* (Touchstone, 1995), p. 63.

[3] I refer to Baylor University's Michael Polanyi Center, whose founding director was William Dembski. Despite its Baptist affiliation, however, Baylor has not proved quite ready for intelligent design. Soon after the center was established without faculty consultation, scientists on the campus called for its dissolution. Though it remains in existence, the openly evangelizing Dembski was relieved of his directorship in October 2000. The new director, Bruce Gordon, has been at pains to characterize intelligent design as a research paradigm, not an established fact.

[4] We can be quite sure that science will never become spiritual in Johnson's sense—not because scientists are committed atheists but because their job is to test theories against the real-world consequences that those theories entail. An immaterial factor such as God's will can't figure in a successful empirical argument, because it is compatible with every physical state of affairs.

[5] One such book, cleverly crafted to pass constitutional review, already exists: Percival Davis and Dean H. Kenyon, *Of Pandas and People* (Haughton, 1993). The educational strategy for getting similar works into the classroom is set forth in David K. DeWolf, Stephen C. Meyer, and Mark E. DeForrest, *Intelligent Design in Public School Science Curricula: A Legal Guidebook* (Foundation for Thought and Ethics, 1999).

[6] Miller's best example is a sequence of experiments run by Barry Hall in 1982. By tinkering with genes, Hall disrupted the mechanism that enables bacteria to make use of lactose as food, whereupon the handicapped cells were challenged to find a way of growing on lactose after all. Before long, and without acts of selection by the experimenter, the bacteria had hijacked another, previously indifferent, gene to serve the missing function, and the entire system then responded with still further adaptations. The result looked as irreducibly complex as Behe could have wished, but neither Hall nor God can be regarded as its author.

[7] Dembski reasons that information can only diminish when acted upon by chance processes. But he has confounded two notions, "Shannon information," or reduction of uncertainty, and complexity proper. For an account of his error, see David Roche, "A Bit Confused: Creationism and Information Theory," *The Skeptical Inquirer*, March/April 2001, pp. 40–42.

Letters

November 29, 2001: Roger Shattuck, 'Saving Us from Darwin': An Exchange

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Review

Saving Us from Darwin, Part II

By [Frederick C. Crews](#)

The Faith of Biology and the Biology of Faith: Order, Meaning, and Free Will in Modern Medical Science

by Robert Pollack

Columbia University Press, 125 pp., \$19.95

God After Darwin: A Theology of Evolution

by John F. Haught

Westview, 221 pp., \$18.00 (paper)

Can a Darwinian Be a Christian? The Relationship Between Science and Religion

by Michael Ruse

Cambridge University Press, 233 pp., \$24.95

Finding Darwin's God: A Scientist's Search for Common Ground Between God and Evolution

by Kenneth R. Miller

Cliff Street Books/ HarperCollins, 338 pp., \$14.00 (paper)

Rocks of Ages: Science and Religion in the Fullness of Life

by Stephen Jay Gould

Library of Contemporary Thought/Ballantine, 241 pp., \$18.95

1.

In a recent essay in these pages I argued that "intelligent design"—the theory that cells, organs, and organisms betray unmistakable signs of having been fashioned by a divine hand—bears only a parodic relationship to a research-based scientific movement.^[1] In a world where empirical issues were settled on strictly empirical grounds, ID would be a doctrine without a future. But scientific considerations can take a back seat when existential angst, moral passions, and protectiveness toward sacred tradition come into play.

One doesn't have to read much creationist literature, for example, before realizing that anti-Darwinian fervor has as much to do with moral anxiety as with articles of revealed truth. Creationists are sure that the social order will dissolve unless our children are taught that the human race was planted here by God with instructions for proper conduct. Crime, licentiousness, blasphemy, unchecked greed, narcotic stupefaction, abortion, the weakening of family bonds—all are blamed on Darwin, whose supposed message is that we are animals to whom everything is permitted. This is the "fatal glass of beer" approach to explaining decadence. Take one biology course that leaves Darwin unchallenged, it seems, and you're on your way to nihilism, Eminem, and drive-by shootings.

Crude though it is, such an outlook is not altogether dissimilar to that of prominent American neoconservatives who see their nation as consisting of two cultures, one of which is still guided by religious precepts while the other has abandoned itself to the indulgences of "the Sixties." Whatever the descriptive merits of that scheme, it exhibits

the same foreshortened and moralized idea of causality that we see among the creationists. If the social fabric appears to be fraying, it's less because objective conditions have changed than because the very principles of authority and order have been gradually undermined by atheistical thinkers from Marx, Nietzsche, and Freud through Herbert Marcuse, Norman Mailer, and Timothy Leary. And Darwin, despite his personal commitment to duty, sometimes makes his way onto the enemies list as well.

The most articulate proponent of the "two cultures" theory is the distinguished historian Gertrude Himmelfarb, who also happens to be the author of a learned study of Darwin and his milieu, published in 1959.^[2] Like her husband, Irving Kristol, who has declared "the very concept of evolution questionable," Himmelfarb showed no patience with natural selection in her book. She aimed to prove that Darwin's "failures of logic and crudities of imagination emphasized the inherent faults of his theory.... The theory itself was defective, and no amount of tampering with it could have helped." Himmelfarb's *Darwin* remains an indispensable contribution to Victorian intellectual history, but its animus against Darwin and Darwinism makes the book read like a portent of the neoconservatives' realization that, by liberal default, they must be the party of the creator God.

In recent decades both Kristol and Himmelfarb have been ideological bellwethers for the monthly *Commentary*, which, interestingly enough, has itself entered combat in the Darwin wars. In 1996 the magazine caused a ripple of alarm in scientific circles by publishing David Berlinski's essay "The Deniable Darwin," a florid and flippant attack that rehearsed some of the time-worn creationist canards (natural selection is just a tautology, it contravenes the second law of thermodynamics, and so forth) while adding the latest arguments from intelligent design. And as if to show how unimpressed they were by the corrections that poured in from evolutionists, the editors brought Berlinski onstage for an encore in 1998, this time declaring that he hadn't been taken in by party-line apologetics for the Big Bang, either.^[3]

In answering his dumbfounded critics, Berlinski—now a fellow of the Discovery Institute in Seattle, an organization founded to promote anti-Darwinian ideas—denied that he is a creationist. What he surely meant, however, was that he isn't a *young-Earth* creationist. His Darwin essay called Paley's 1802 argument from design "entirely compelling," leaving us with no reason to look beyond the following explanation of life: "God said: 'Let the waters swarm with swarms of living creatures, and let fowl fly above the earth in the open firmament of heaven.'" By his fellow anti-Darwinian Phillip Johnson's definition—"A creationist is simply a person who believes that God creates"—Berlinski is no less a creationist than every other member of the ID movement.

Commentary is not the only rightward-leaning magazine to have put out a welcome mat for intelligent design. For some time now, Richard John Neuhaus, editor of the conservative religious journal *First Things*, has been using Phillip Johnson as his authority on the failings of natural selection—this despite the fact that Johnson's willful incomprehension of the topic has been repeatedly documented by reviewers. On the dust jacket of *The Wedge of Truth*, furthermore, Neuhaus calls Johnson's case against Darwin "comprehensive and compellingly persuasive," adding, remarkably, that its equal may not be found "in all the vast literature on Darwinism, evolution, creation and theism."

Further: when, in 1995, the neoconservative *New Criterion* sought an appropriate reviewer for Daniel C. Dennett's *Darwin's Dangerous Idea*—a book that rivals Richard Dawkins's *The Blind Watchmaker* as creationism's *bête noire*—it was Johnson again who was chosen to administer the all-too-predictable put-down.^[4] *The New Criterion*'s poor opinion of evolutionism can be traced to its managing editor Roger Kimball's esteem for the late philosopher David Stove, whose book *Darwinian Fairytales* (1995) is notable for its obtusely impressionistic way of evaluating scientific hypotheses. But since Kimball and *The New Criterion* regularly divide the world's thinkers into those who have and haven't undermined Western ethics, here once again the ultimate source of anti-Darwinian feeling may be moral gloom.

The case of *Commentary* looks more significant, however, because the magazine is published by the American Jewish Committee and is much concerned with defending Jewish beliefs and affinities. In lending their imprimatur to intelligent design, the editors can hardly have been unaware that they were joining forces with Christian zealots like Johnson, who has declared the Incarnation of Christ to be as certain as the proposition

"that apples fall down rather than up," or like William Dembski, whose ultimate thesis is that "all disciplines find their completion in Christ and cannot be properly understood apart from Christ." But *Commentary's* willingness to submerge religious differences for the sake of an imagined solidarity is nothing new. Rallying around both "family values" and the modern state that occupies the biblical Holy Land, the magazine's guiding figures had previously acknowledged that they share some principles with the evangelical right.^[5] That realignment reached a memorable climax when, in 1995, Norman Podhoretz extended a friendly hand to Pat Robertson despite the latter's authorship of *The New World Order*, a *Protocols*-style tract against "the Jews."^[6]

Commentary prides itself on favoring pragmatic realism over wishful thinking; and where science and technology are concerned, you can expect its articles to claim the support of authenticated research. But there is one exception: evolutionary biology has been consigned to the Johnsonian limbo of "materialistic philosophy." Such, among those who see themselves as guardians of decency and order, is the power of resistance to the disturbing prospect of a world unsupervised by a transcendent moral sovereign. The result is that *Commentary*, in the company of other magazines that treat natural selection as an illusion, tacitly encourages creationists to advance toward their primary goal: adulterating the public school curriculum so that children and adolescents will be denied access to an empirically plausible understanding of human origins.

But what about the secular left? Surely, one might suppose, that faction, with its reflexive aversion to "faith-based" initiatives, can be counted upon to come to the aid of embattled evolutionism, and doubly so when some of the attacks are mounted in organs like *Commentary* and *The New Criterion*. This expectation, however, overlooks the antiscientific bias that has characterized much leftist thought for the past quarter-century.

Liberals and radicals who have been taught in college to believe that rival scientific paradigms are objectively incommensurable, that the real arbiter between theories is always sociopolitical power, and that Western science has been an oppressor of dispossessed women, minorities, and workers will be lukewarm at best toward Darwin.^[7] The latter, after all, shared the prejudices of his age and allowed some of them to inform his speculations about racial hierarchy and innate female character. Then, too, there is the sorry record of Social Darwinism to reckon with. Insofar as it has become habitual to weigh theories according to the attitudinal failings of their devisers and apostles, natural selection is shunned by some progressives, who are thus in no position to resist the creationist offensive. And while other leftists do broadly accede to evolutionism, much of their polemical energy is directed not against creationists but against Darwinian "evolutionary psychologists," a.k.a. sociobiologists, who speculate about the adaptive origins of traits and institutions that persist today.

2.

Political suspicion on the left; fear of chaos on the right. Who will stand up for evolutionary biology and insist that it be taught without censorship or dilution? And who will register its challenge to human vanity without flinching? The answer seems obvious at first: people who employ Darwinian theory in their professional work. But even in this group we will see that frankness is less common than waffling and confusion. The problem, once again, is how to make room for God.

As even Phillip Johnson concedes, most of our religious sects are formally opposed to the campaign against Darwinism. Various church councils have avowed that evolution poses no threat to supernatural belief, and the same position is eagerly endorsed by scientific bodies.^[8] Creationists who read those declarations, however, always notice that a key question has been fudged. What *kind* of God is consistent with evolutionary theory? Theistic evolutionism would seem to demote the shaper of the universe to a *deus absconditus* who long ago set some processes in motion and then withdrew from the scene. And we have already noted that even this faint whiff of divinity is more than the theory of natural selection strictly requires.

Because Americans on the whole profess faith in both science and a personal God, those who experience this conflict are eager to be told that it is easily resolved. The public appetite for such reassurance is never sated. Not surprisingly, then, universities have developed specialties in "science and religion," and one book of soothing wisdom can

hardly be scanned before the next entry appears in print. When coldly examined, however, these productions almost invariably prove to have adulterated scientific doctrine or to have emptied religious dogma of its commonly accepted meaning. And this legerdemain is never more brazen than when the scientific topic is Darwinism.

Take, for example, *The Faith of Biology and the Biology of Faith* by Robert Pollack, a molecular biologist at Columbia University and the director of its recently founded Center for the Study of Science and Religion. The title of Pollack's book appears to promise a vision encompassing the heavens above and the lab below. By the time he gets to evolution on page 2, however, the project has already collapsed. There he tells us that a Darwinian understanding of the natural world "is simply too terrifying and depressing to me to be borne without the emotional buffer of my own religion." By cleaving to the Torah he can lend "an irrational certainty of meaning and purpose to a set of data that otherwise show no sign of supporting any meaning to our lives on earth beyond that of being numbers in a cosmic lottery with no paymaster."

If Pollack's argument had stopped at this point, he could at least be praised for candor about his failure of nerve. But he is determined to place "feelings on a par with facts," and his book is therefore studded with clumsy attempts to make religion and science coincide after all by means of word magic. The rabbi and the molecular biologist, he extravagantly proposes, "share two beliefs founded entirely on faith...: that one day the text of their choice will be completely understood and that on that day death will have no power over us." Moreover, he declares that scientific insight comes from "an intrinsically unknowable place"—and who is the Unknowable One, he asks, if not God himself? Hence there is "only a semantic difference between scientific insight and what is called, in religious terms, revelation."

Pollack's half-formed ideas and bumbling prose stand in sharp contrast to the suaveness of John F. Haught, a professor of theology and director of yet another Center for the Study of Science and Religion, this one at Georgetown University. In *God After Darwin: A Theology of Evolution*, Haught acknowledges that the cruel indifference of Darwinian nature ought to jar the complacency of his fellow Catholics. But Haught himself remains unruffled; we need only bear in mind, he says, that our "thoughts about God after Darwin must be continuous with the authoritative scriptural and traditional sources of faith." In that spirit, Haught blithely assimilates Darwin to "humility theology," a body of thought depicting a God who "participates fully in the world's struggle and pain" and who chose to make himself vulnerable through the Incarnation and Crucifixion.

What God wants from planet Earth, Haught informs us, is "the building of 'soul' in humans." That job requires plenty of agony and death—just what we find, happily, in "the cruciform visage of nature reflected in Darwinian science." Evolution occurs, then, "because God is more interested in adventure than in preserving the status quo." And though the story of emergence and extinction may look rather drawn-out and impersonal from our sublunary point of view, Haught assures us that it's all going to be redeemed: "Everything whatsoever that occurs in evolution—all the suffering and tragedy as well as the emergence of new life and intense beauty—is 'saved' by being taken eternally into God's own feeling of the world."

Not surprisingly, Haught's favorite scientific figure is the long-discredited paleontologist and Jesuit priest Pierre Teilhard de Chardin, who argued, somewhat in Haught's own lofty style, that the evolutionary process is being drawn forward to an "Omega point," a universal acceptance of Jesus Christ as Lord. As Haught remarks, this conception relocates God in the future and depicts him not as a planner but as "a transcendent force of attraction." But it doesn't occur to Haught that such teleology is just what Darwin managed to subtract from science. Whether pushing us or pulling us toward his desired end, the Christian God is utterly extraneous to evolution as Darwin and his modern successors have understood it. Evolution is an undirected, reactive process—the exact opposite of Haught's construal—or it is nothing at all.

Unlike Pollack and Haught, the philosopher of science Michael Ruse, who now teaches at Florida State University, has an expert's understanding of Darwinian theory and a creditable history of standing up to creationists in court testimony. That experience has doubtless shown him how advantageous it is, in God's country, for proponents of evolution to earn the support of religious believers. In *Can a Darwinian Be a Christian?* the agnostic Ruse contends that only "tensions rather than absolute and ineradicable

contradictions" subsist between evolutionary and Christian doctrine, and he is sure that those tensions can be eased if both parties resolve to ponder "where and how they might be prepared to compromise...." But what gets compromised when Ruse attempts to build this conciliatory case is his own fidelity to the essential features of Darwinism.

Consider the question of original sin. An evolutionist, Ruse concedes, cannot be expected to lend credence to a guilt literally inherited from Adam's primordial transgression. Nevertheless, if we are willing to interpret the concept liberally, "a ready understanding of original sin offers itself." Successful adaptations generally "involve self-interest, if not outright selfishness, with the host of features and attitudes and characteristics that we all find offensive and that the Christian judges sinful." Hence "original sin is part of the biological package."

Can Ruse be serious here? How could the result of fortunate mutations be called a sin? Both "selfishness" and "altruism" are found in nature for the same amoral reason: under given circumstances they yield an adaptive (and eventually reproductive) advantage. Ruse has blundered into gross anthropomorphism, ascribing psychological and moral traits to organisms that were programmed by natural selection to attack, poison, and deceive without cogitation.

And then there is the Darwinian/ Christian impasse over miracles. According to Ruse, we needn't suppose that Jesus actually walked on water, produced food from nowhere, and raised the dead. Perhaps "people's hearts were so filled with love by Jesus' talk and presence that...they shared" their loaves and fishes. Or again, Lazarus may have been in a trance when awakened, and so perhaps was Jesus himself before his alleged resurrection—which, on the other hand, may have been only a metaphor for the "great joy and hope" excited in his followers. On and on plods Ruse, cheerfully turning wonders into banalities. Inside every Baptist, he seems to believe, there is a Unitarian struggling to get free.

In this book, but nowhere else in his soberly rational works, Ruse treats propositions about "God's judgement, the appropriateness of His righteous punishment, and the need and meaningfulness of His grace and forgiveness" as if they carried the same epistemic weight as propositions about the ancestry of birds and dolphins. As he knows full well, it just isn't so. However acrimoniously scientists may quarrel, they subscribe to canons of evidence that refer every dispute to the arbitration of discovered facts, whereas divine judgment, punishment, grace, and forgiveness are *irresolvably* mysterious. Insofar as Ruse tries to put that difference under the rug, he forsakes the empirical tradition that he has elsewhere worked so hard to protect.

The most startling disjunction of sensibility, however—a Jekyll–Hyde metamorphosis between the covers of one book—is manifested in Kenneth Miller's *Finding Darwin's God: A Scientist's Search for Common Ground Between God and Evolution*, a work whose first half, as I suggested in my earlier essay, constitutes the most trenchant refutation of the newer creationism to be found anywhere. Yet when Miller then tries to drag God and Darwin to the bargaining table, his sense of proportion and probability abandons him, and he himself proves to be just another "God of the gaps" creationist. That is, he joins Phillip Johnson, William Dembski, and company in seizing upon the not-yet-explained as if it must be a locus of intentional action by the Christian deity.

Like the sophists of intelligent design, Miller rounds up the usual atheistic suspects—Daniel Dennett and Richard Dawkins, along with Cornell's William B. Provine and Harvard's Edward O. Wilson and Richard Lewontin—and represents them as dangling before us Satan's offer: "Exchange your belief in God for a material theology of disbelief, and complete knowledge will be yours." As always, the choice is stark: we must either surrender to such meretricious temptation or leave some sensible room for theology of the more familiar kind. With Michael Behe and John Haught, Miller wants his biology to sit comfortably with the dogmas of Roman Catholicism—for example, that Jesus was born of a virgin. Such a contention, he says, "makes no scientific sense," but that's just the point. "What can science say about a miracle? Nothing. By definition, the miraculous is beyond explanation, beyond our understanding, beyond science."

As Miller realizes, however, an appeal to the ineffable contributes nothing to a project called "finding Darwin's God." His only recourse, if he is to stay faithful to Darwinian theory, is to make a more modest case for a measure of unpredictability that can then be

given a theological spin. "What if the regularities of nature," he asks, "were fashioned in such a way that they *themselves* allowed for the divine?" Quantum indeterminacy must have allowed God to shape evolution on the subatomic level "with care and with subtlety," gently nudging matter toward the emergence of "exactly what He was looking for—a creature who, like us, could know Him and love Him, could perceive the heavens and dream of the stars, a creature who would eventually discover the extraordinary process of evolution that filled His earth with so much life."

This case differs only marginally from the intelligent design argument that Miller decisively refuted in the opening chapters of his book. The distinction is simply that Miller's Darwinian God wouldn't have known in advance that you and I, who have finally pleased him by tumbling to his evolutionary scheme, would emerge from a line of apes. "Theologically," Miller explains, "the care that God takes *not* to intervene pointlessly in the world is an essential part of His plan for us"—or rather, of his plan for some intelligent species that luckily turned out to be us. Now that we're here, though, we humans can regard ourselves as "*both* the products of evolution and the apple of God's eye."

"In each age," Miller writes, God "finds a way to bring His message directly to us." But which divine message, among Earth's thousands, does he mean? Although he notes in passing that the Almighty neglected to get his redemptive word out to the Mayas and the Toltecs among others, he dismisses that anomaly with an indifferent shrug. By effectively reducing religion to the Western monotheisms and then glossing over *their* differences, he blots from view the world's pantheist gurus, animist shamans, and idol worshipers while making the quarrelsome ayatollahs, cardinals, presbyters, and rabbis look as if they are hearing the same clear voice from above.

Miller doesn't explain how he has been able to delve so unerringly into the Architect's cravings, schemes, and limitations. Nor does he answer the question that he himself crushingly deployed against the ID team: "Why did this magician, in order to produce the contemporary world, find it necessary to create and destroy creatures, habitats, and ecosystems millions of times over?" The God who entrusted his will entirely to mutation and selection can hardly be the one who, as Miller alleges, presented the ancient Hebrews with an ethical guidebook, "knowing exactly what they would understand"; who transformed himself into a man so as to settle accounts in his ledger of human sin; who "has a plan for each of us"; and who has endowed us with "immortal souls." As the fruit of a keen scientific mind, *Finding Darwin's God* appears to offer the strongest corroboration yet of William Provine's infamous rule: if you want to marry Christian doctrine with modern evolutionary biology, "you have to check your brains at the church-house door."^[9]

3.

There is, however, one last way of ensuring that Darwinism won't inhibit religious belief and vice versa. It is proposed by America's best-known paleontologist, Stephen Jay Gould, whose record of opposition to creationism and to religious interference with scientific research is consistent and unimpeachable. In *Rocks of Ages: Science and Religion in the Fullness of Life*, Gould maintains that the two "magisteria," or domains of authority, will enjoy mutual respect if their adherents refrain from any attempted synthesis. With "NOMA"—that's "nonoverlapping magisteria"—kept firmly in mind, scientists and divines can carry out their equally valuable tasks, the investigation of nature and the pursuit of spiritual values and ethical rules, without trespassing on one another's terrain.

Gould's term "magisteria" was inspired by two popes who have issued dictates about evolution. In *Humani Generis* (1950), Pius XII ruled physical evolution to be compatible with orthodox faith but still unproven, and he warned against any supposition that the soul had emerged from natural processes. And in 1996 John Paul II took note of the convergent findings that by then had rendered evolution "more than a hypothesis"—a conclusion that Gould hails as his "favorite example of NOMA" emanating from an unexpected religious source. If this is really the Pope's considered view, says Gould, "we may rejoice in a pervasive and welcome consensus" between scientists and ecclesiastics.

Regrettably, however, Gould barely hints at a crucial point that ought to have muted his

hosanna. John Paul II's position on the supernatural origin of the soul is identical to that of every predecessor pope. "The Church's Magisterium," he wrote in the very statement that Gould hails,

is directly concerned with the question of evolution, for it involves the conception of man: Revelation teaches that he was created in the image and likeness of God (cf. Gn 1:27–29). The conciliar Constitution *Gaudium et spes* has magnificently explained this doctrine, which...recalled that man is "the only creature on earth that God has wanted for its own sake." ...Pius XII stressed this essential point: if the human body takes its origin from pre-existent living matter, the spiritual soul is immediately created by God....

Consequently, theories of evolution which, in accordance with the philosophies inspiring them, consider the mind as emerging from the forces of living matter, or as a mere epiphenomenon of this matter, are incompatible with the truth about man.^[10]

This passage shows that the Church, while conceding that evolutionary science can no longer be snubbed, remains intransigently creationist where its own interests are concerned. Nor has Gould been unmindful of that fact. When he broached the NOMA rule in his *Natural History* column of March 1997, he voiced a suspicion that John Paul II's "insistence on divine infusion of the soul" was "a device for maintaining a belief in human superiority within an evolutionary world offering no privileged position to any creature." But he backed down at once, pleading in his next sentence that "souls represent a subject outside the magisterium of science." And now in *Rocks of Ages*, borrowing heavily from his *Natural History* piece, he has chosen to omit any mention of his misgivings.

Gould's concordat sounds more reasonable than the Pope's until one asks what it might mean in practice. As a paleontologist who was raised without a faith, Gould could be expected to feel more protective of one magisterium than the other. Sure enough, his NOMA forbids the miraculous and, by extension, any idea of divine action within the world: "Thou shalt not mix the magisteria by claiming that God directly ordains important events in the history of nature by special interference knowable only through revelation and not accessible to science." As Phillip Johnson has understandably complained, "This is 'separate but equal' of the *apartheid* variety." And John Haught chimes in, "No conceivable theology, by definition, could ever live comfortably with evolution if Gould's claim is correct that Darwin's theory inevitably entails a cosmos devoid of directionality and overall significance."

Rocks of Ages sounds like an extended effort to soften Gould's peace-on-my-terms through flattery of the pious. The strain is apparent in his uncharacteristically slick and sentimental prose:

...Science gets the age of rocks, and religion the rock of ages; science studies how the heavens go, religion how to go to heaven.

I join nearly all people of goodwill in wishing to see two old and cherished institutions, our two rocks of ages—science and religion—coexisting in peace while each works to make a distinctive patch for the integrated coat of many colors that will celebrate the distinctions of our lives, yet cloak human nakedness in a seamless covering called wisdom.

Compare these excerpts, for tone and content, with what Gould spontaneously told a television interviewer in 1998:

I think that notion that we are all in the bosom of Abraham or are in God's embracing love is—look, it's a tough life and if you can delude yourself into thinking that there's all some warm and fuzzy meaning to it all, it's enormously comforting. But I do think it's just a story we tell ourselves.

I am not the first commentator to point out that there is something contradictory about Gould's attempt, in *Rocks of Ages*, to endear himself to believers by praising their "wisdom" while reprimanding atheists for their "aggressive advocacy" of a position

scarcely distinguishable from his own.

On one point, however, Gould is perfectly candid. In order to make his "nonoverlapping magisteria" palatable to both parties, he has set aside considerations of truth and followed what he calls a "'Goldilocks principle' of 'just right' between too much and too little.... NOMA represents the bed of proper firmness, and the right amount of oatmeal at the right temperature." "Oatmeal" is right. Instead of grappling with the issues that seriously divide religious and scientific thinkers, as Ruse and Miller at least attempt to do, Gould delivers gratuitous restraining orders to both factions. In exchange for abandoning their immanent God and settling for a watery deism, the religionists get the realm of ethics largely to themselves, while scientists are admonished to eschew "invalid forays into the magisterium of moral argument." But *Rocks of Ages* is itself a moral argument proffered by a scientist and an infidel—and why not?

As Gould maintains, scientific facts and theories don't tell us how we ought to conduct ourselves. This doesn't mean, however, that ethics can be confidently entrusted to shepherds of souls. Undoubtedly, fear of God makes for social cohesion and moral restraint, at least toward those who share our faith; and many noble causes are championed by people who think they are implementing his wishes. But religious certitude can also remain fixated on ancient prejudices and prohibitions that dehumanize outsiders, coarsen ethical calculation, and retard social enlightenment. If he weren't bent on playing the roving ambassador between two wary camps, Gould would be the first person to acknowledge this obvious truth.

Both Gould and many of his readers want to believe that liberty begins where biology ceases to hold sway. We live, he writes, in a universe "indifferent to our suffering, and therefore offering us maximal freedom to thrive, or to fail, in our own chosen way." Ringing words, but what do they mean? The universe is also indifferent to a mouse being tossed and tortured by a cat, but the mouse's freedom is no greater for that. The options we enjoy as a species that has staked its fate on intelligence and foresight are surely a gift of our staggeringly complex neural circuitry, which is natural selection's boldest experiment in trading blind instinct for feedback mechanisms that allow dangers to be consciously assessed and circumvented. By shifting levels of discourse and proclaiming that we acquire our scope for action from a mere absence of interference by "the universe," Gould has momentarily left science behind and become a theologian, albeit an existentialist one.

The evasions practiced by Pollack, Haught, Ruse, Miller, and now Gould, in concert with those of the intelligent design crew, remind us that Darwinism, despite its radical effect on science, has yet to temper the self-centered way in which we assess our place and actions in the world. Think of the shadows now falling across our planet: overpopulation, pollution, dwindling and maldistributed resources, climatic disruption, new and resurgent plagues, ethnic and religious hatred, the ravaging of forests and jungles, and the consequent loss of thousands of species per year—the greatest mass extinction, it has been said, since the age of the dinosaurs. So long as we regard ourselves as creatures apart who need only repent of our personal sins to retain heaven's blessing, we won't take the full measure of our species-wide responsibility for these calamities.

An evolutionary perspective, by contrast, can trace our present woes to the dawn of agriculture ten thousand years ago, when, as Niles Eldredge has observed, we became "the first species in the entire 3.8-billion-year history of life to stop living inside local ecosystems."^[1] Today, when we have burst from six million to six billion exploiters of a biosphere whose resilience can no longer be assumed, the time has run out for telling ourselves that we are the darlings of a deity who placed nature here for our convenience. We are the most resourceful, but also the most dangerous and disruptive, animals in this corner of the universe. A Darwinian understanding of how we got that way could be the first step toward a wider ethics commensurate with our real transgressions, not against God but against Earth itself and its myriad forms of life.

—*This is the second of two articles.*

Notes

^[1]See my essay "Saving Us from Darwin," *The New York Review*, October 4, 2001.

[2] See Gertrude Himmelfarb, *Darwin and the Darwinian Revolution* (1959; Elephant Paperbacks, 1996); On *Looking into the Abyss: Untimely Thoughts on Culture and Society* (Knopf, 1994); *The De-moralization of Society: From Victorian Virtues to Modern Values* (Knopf, 1995); *One Nation, Two Cultures* (Knopf, 1999); and "Two Nations or Two Cultures?," *Commentary*, January 2001, pp. 29–30.

[3] David Berlinski, "The Deniable Darwin," *Commentary*, June 1996, pp. 19–29; and "Was There a Big Bang?," February 1998, pp. 28–38. In a more recent piece for *Commentary*, Berlinski quietly backed off from his opposition to the Big Bang but resumed his emphasis on the inability of science to cope with the ultimate mystery of existence and life. See "What Brings a World into Being?," *Commentary*, April 2001, pp. 17–23.

[4] See Phillip E. Johnson, "Daniel Dennett's Dangerous Idea," *The New Criterion*, October 1995, pp. 9–14.

[5] See, e.g., Irving Kristol, "The Political Dilemma of American Jews," *Commentary*, July 1984, pp. 23–29.

[6] Norman Podhoretz, "In the Matter of Pat Robertson," *Commentary*, August 1995, pp. 27–32. For discussion of *The New World Order*, see Michael Lind, "Rev. Robertson's Grand International Conspiracy Theory," *The New York Review*, February 2, 1995, pp. 21–25.

[7] It is significant, in this regard, that Phillip Johnson is fond of citing the chief advocates of incommensurability, Paul Feyerabend and Thomas Kuhn, in his own attempts to decertify Darwinism. As he wrote in a newsletter recalling a colloquium with political science professors on one of his campus visits, "I told them I was a postmodernist and deconstructionist just like them, but aiming at a slightly different target." Quoted by Robert T. Pennock, *Tower of Babel: The Evidence Against the New Creationism* (Bradford/MIT Press, 2000), p. 210.

[8] A sampling of these statements can be found in *Darwin: A Norton Critical Edition*, edited by Philip Appleman, third edition (Norton, 2001), pp. 525–533, 613–623. This volume is the most convenient collection of readings surrounding Darwin's career and its significance.

[9] William B. Provine, "Evolution and the Foundation of Ethics," in *Science, Technology, and Social Progress*, edited by Steven L. Goldman (Lehigh University Press, 1989), p. 253.

[10] John Paul II, "Message to the Pontifical Academy of Sciences," reprinted in "The Pope's Message on Evolution and Four Commentaries," *The Quarterly Review of Biology*, Vol. 72, No. 4 (December 1997), pp. 382–383.

[11] Niles Eldredge, *The Triumph of Evolution: And the Failure of Creationism* (Freeman, 2000), p. 16.

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Exchange

'Saving Us from Darwin': An Exchange

By [Alvin Plantinga](#), [Benjamin Kissin](#), [Charles Gross](#), [Roger Shattuck](#), Reply by [Frederick C. Crews](#)

In response to [Saving Us from Darwin](#) (OCTOBER 4, 2001)

To the Editors:

Frederick Crews's "Saving Us from Darwin" [NYR, October 4] leaves a lot to be desired. According to Crews, "If Darwin was right, revealed truth of every kind must be unsanctioned." But how could an empirical science like evolutionary biology show that there is no such person as God, or that if there is, he could not have revealed truths to us (or that if he could, those truths would be "unsanctioned")? Crews commits the common sin of failing to distinguish empirical evolutionary science from a philosophical or religious patina added by those who embrace metaphysical naturalism.

According to Crews, Daniel Dennett "has trenchantly shown that the Darwinian outlook is potentially a 'universal acid' penetrating 'all the way down' to the origin of life on Earth, and 'all the way up' to a satisfyingly materialistic reduction of mind and soul." Well, satisfaction is in the eye of the beholder; but in any event there is less here than meets the eye. Perhaps a "Darwinian outlook," whatever precisely that is, may be thus corrosive; evolutionary science itself is certainly not. It doesn't imply that there is no God, or that God has not created human beings in his image, or that the second person of the Trinity did not become incarnate, or that there aren't any souls, or that if there are, they are in fact material processes or events of some sort, or anything else of the kind. It is only evolutionary science *combined with metaphysical naturalism* that implies these things. Since metaphysical naturalism all by itself has these implications, it is no surprise that when you put it together with science (or as far as that goes, anything else—ancient Greek history, the Farmer's Almanac, the Apostle's Creed) the combination also implies them.

Biological science isn't corrosive, but the metaphysical naturalism and materialism Crews tries to infer from it certainly is—along a dimension he fails to notice. He quotes "Darwin's Doubt": "With me [says Darwin] the horrid doubt always arises whether the convictions of man's mind, which has been developed from the mind of the lower animals, are of any value or at all trustworthy. Would anyone trust in the convictions of a monkey's mind...?" Crews applies this doubt to "revealed truth." But of course it applies much further—not just to religious ideas, but to *all* the convictions of man's mind, including, of course, metaphysical naturalism and science itself. No doubt that's why Darwin found it a "*horrid*" doubt.

Ironically, in another piece in the same issue, Stephen Jay Gould glimpses the problem: "How can we escape this recursive paradox that our brains, as biological

devices constrained by the history of their origin, must be enlisted to analyze history itself?" Right. Darwinian naturalism (the combination of metaphysical naturalism with Darwinian evolution) implies that the whole point and function of our minds is to enhance reproductive fitness; it is not to enable us to acquire true beliefs. But then won't the Darwinian naturalist have excellent reason to mistrust the beliefs those minds produce, including Darwinism naturalism itself?

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To the Editors:

In his review of various books by scientists attempting to reconcile science and religion [*NYR*, October 18], Frederick Crews effectively refutes all their arguments, drawing the inevitable inference that such reconciliation is probably impossible. Crews refers to biology, logic, philosophy, and sometimes just common sense to make his very convincing case but somehow overlooks the influences of personal psychology, which play a very large role indeed. Consequently, even though his conclusions are correct, the entire review is somewhat slanted.

For example, given the fact that science and religion are almost certainly irreconcilable, Crews does not ask why some 40 percent of scientists believe in a personal God. Yet part of the answer lies in his own review. Crews charges Robert Pollack, a respected microbiologist, with "failure of nerve" when Pollack writes that a Darwinian understanding of the natural world "is simply too terrifying and depressing to me to be borne without the emotional buffer of my own religion." Pollack does follow his admission with some inadequate ideas about the nature of God but at least he makes it clear why it is so necessary for him to attempt some reconciliation between science and religion. If, to his need to find meaning in life, we add the needs for certainty, for spiritual experience, for a comprehensive philosophy of life, and further add the influences of early religious training and personal experience, we can begin to understand why so many scientists believe in a personal God.

There is a somewhat cavalier attitude toward religious scientists in Crews's review which creates the impression that he personally does not see much need for religion. This comes out especially in his review of Stephen Jay Gould's *Rocks of Ages* in which Gould, himself like Crews an avowed agnostic, attempts to reduce the tensions between the camps of science and religion by separating the two disciplines on the basis of the NOMA (non-overlapping magisteria) principle. Gould argues that science and religion need not be in conflict with one another since they occupy entirely different domains of human experience. Consequently, he concludes that even though they are not reconcilable, they are not incompatible. Gould allocates exploration of the external world to science and of the internal world to religion and outlines the prerogatives of both. Crews rightly criticizes Gould for his overly generous disposition of all moral questions to religion, but he further chides him for trying to mollify religionists by providing them with a domain of their own.

Given the inability to philosophically reconcile science and religion, I believe that Gould's solution, modified in some respects, is the only one that will begin to resolve the conflict between science and religion. If the religious will be willing to confine themselves solely to their personal belief in God and its associated religious practices—and certainly only the most sophisticated will be willing to do that—everything else would fall under the aegis of science. Then, particularly in the religious

scientist, there would be no conflict between his personal religion and his trust in science. The practice of science would satisfy the needs of his objective intellectual self, that of religion the needs of his subjective intellectual self.

It is not enough to imply, as Crews seems to, that any reconciliation between science and religion is not only impossible but even more, unnecessary. Science and religion are two of the most powerful personal and social forces in the world today and neither one will be denied. If philosophic reconciliation between the two is impossible, as seems to be the case, then some other form of mutual accommodation is essential.

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To the Editors:

In his fine two-part essay "Saving Us from Darwin," Frederick Crews builds up a striking antithesis between research-based evolutionism and the faith-based "intelligent design" school. I'm impelled to point out that Crews omits some historic episodes that open up an important intermediate position.

Darwin's most loyal and effective champion in England, T.H. Huxley, became annoyed at people's insistence that he accept a philosophical label—preferably "atheist" if he would not be Christian. Ten years after *The Origin of Species*, Huxley finally reacted. "So I took thought, and invented what I conceived to be the appropriate title of 'agnostic.' ...To my great satisfaction the term took." Several years earlier he had expressed his agnosticism to Charles Kingsley, chaplain to Queen Victoria. "I neither deny nor affirm the immortality of men. I see no reason for believing it, but, on the other hand, I have no means of disproving it." Huxley continued to affirm that final questions lie beyond our present knowledge and perhaps beyond our powers to know.

The history of "agnostic" does not end with Huxley. In 1870 the sixty-one-year-old Darwin, on the verge of publishing *The Descent of Man*, wrote as follows: "My theology is a simple muddle; I cannot look at the universe as the result of blind chance, yet I can see no evidence of beneficent design, or indeed of design of any kind, in the details." Six years later, after a passage discussing miracles, revelation, and design, Darwin embraced Huxley's term as his own. "I cannot pretend to throw the least light on such abstruse problems. The mystery of the beginning of all things is insoluble by us; and I for one must be content to remain an Agnostic."

Darwin and Huxley were not seeking to console or to conciliate anyone. They insisted on finding an accurate way to express their uneasy convictions on religious matters and their doubts about the range of human knowledge. A Manichaean antithesis did not serve.

I give a full account of these events, with references, in *Forbidden Knowledge: From Prometheus to Pornography* (Harvest, 1997), pp. 35–41.

Roger Shattuck
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To the Editors:

Charles Darwin remains the central figure in every branch of biology from molecular biology to ecology and neuroscience. One measure of this is that he is continually cited in the leading scientific journals such as *Science*, *Nature*, and *Proceedings of the National Academy of Sciences*. Many of these citations are not just historical, but reflect some rediscovery or new influence of Darwin's insights.^[1] Thus, as a scientist and teacher, it is particularly disturbing to read Frederick Crews's account of attacks on Darwin [*NYR*, October 18] from both the right and left. I would like to add that independent of religious or political agendas, even those who profess to be Darwinians have great difficulty in understanding Darwin's central premise of the origin of species by natural selection of *random* variations. In a recent survey of Princeton undergraduates, including those who had studied biology and described themselves as favorable to Darwinism, about 40 percent saw "variation as non-random, occurring in the direction that would be more beneficial to the organism," that is, they took a non-Darwinian or Lamarckian view of evolution.^[2] As Richard Dawkins teased, "It is almost as if the human brain were specifically designed to misunderstand Darwinism...."^[3] It does seem difficult for most people to grasp that, as far as science is concerned, our presence on earth is the result of a series of accidents. This difficulty underlies the importance of adequate teaching of evolution in the schools (and apparently the universities).

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Frederick Crews replies:

1. With the air of correcting an errant schoolboy, Alvin Plantinga instructs me that evolutionary biology doesn't require us to believe "that there is no such person as God." Quite right; I made the same point myself. But I went on to pose the following question: "What *kind* of God is consistent with evolutionary theory? Theistic evolutionism would seem to demote the shaper of the universe to a *deus absconditus* who long ago set some processes in motion and then withdrew from the scene. And...even this faint whiff of divinity is more than the theory of natural selection strictly requires." Is Plantinga really as untroubled by the Darwinian menace to orthodoxy as he now pretends to be?

One might infer from Professor Plantinga's letter that he accepts evolutionary findings, objecting only to a "patina" of "metaphysical naturalism" that gets superimposed on those findings by militant secularists. In fact, however, Plantinga is an influential creationist who hopes to replace theologically uncongenial theories, including Darwinism, with a concoction he has named "Augustinian science."^[4] This "science" takes as its starting point what Plantinga calls "our knowledge of God"—a knowledge, he adds, that has been granted to us through both general intuitive revelation and "God's *special* revelation, in the Scriptures and through his church, of his plan for dealing with our fall into sin."

For Plantinga, evolution is a mere "story" or "myth" that attempts to account for the apparent connections among life forms. A better story, he suggests, would be Saint Augustine's own: God implanted "seeds, potentialities of various kinds in the world, so that the various kinds of creatures would later arise, although not by way of genealogical interrelatedness." Well, then: if Plantinga, as he implies in his letter, finds Darwinian theory perfectly compatible with the triune, historically active,

miracle-working, salvation-dispensing deity whom he worships, why has he felt the need to spurn evolution in this patently medieval fashion?

Modern creationists do their best to discredit the convergent evidence favoring natural selection, but they sense that this is a losing game. Their ultimate, desperate stratagem is to call science itself unscientific because it leaves God out of account. As my first article explained, however, one scientist can't convince others that a given fact bespeaks the work of a supernatural agent, since that same agent would, by definition, be capable of bringing about every imaginable state of nature. Any science worthy of the name—and "Augustinian science" doesn't come close to making the grade—must be *methodologically* naturalistic, however pious the individual researcher may happen to be.

Methodological naturalism doesn't logically require its user to embrace metaphysical naturalism, or disbelief in the existence of divine power. But the explanatory success of Darwinism has exerted just such an effect, and Plantinga knows it. "As science explains more and more," he has written, "the scope for God's activity is less and less; it is in danger of being squeezed out of the world altogether, thus making more and more tenuous one's reasons (on this way of thinking) for believing that there is such a person as God at all." That is why Plantinga has warned his fellow Christians against even trying to look for evidence of God in natural processes; the risk of discouragement is simply too great.

Finally, Professor Plantinga thinks he has caught me in a fatal paradox. If, as Darwin feared, the convictions of the evolved human mind are untrustworthy, then "methodological naturalism and science itself" are thereby decertified along with revealed truth. But if so, one wonders how Darwin, the host of this paralyzing thought, managed to carry on with his researches instead of falling into nihilistic despair. Precisely because doctrinaire certainty is unreliable, Darwin felt that convictions should be demoted to hypotheses and then be subjected to community standards of review. Many fallible minds in disciplined, mutually critical exchange can, after all, make some headway against entrenched prejudice. That is the scientific ethos, against which Plantinga and his fellow creationists are implacably and atavistically arrayed.

2. Some 95 percent of polled Americans profess a belief in God, but the figure among scientists, as Benjamin Kissin says, is only about 40 percent. Here is further evidence that science and religion make awkward bedfellows. Kissin is surely right about the needs and influences that keep doubt at bay for theists in both populations. My essay wasn't concerned with belief per se but with resistance to Darwinism, which I ascribed to "existential angst, moral passions, and protectiveness toward sacred tradition." Those, too, are components of personal psychology.

Professor Kissin charges me with harboring "a somewhat cavalier attitude toward religious scientists." But I was passing judgment on arguments, not on people. Even when exceptionally keen minds attempt to make intellectual peace between Darwinism and faith, one of two things always happens: evolutionary doctrine gets bowdlerized or the dogmatic claims of theology are put under the rug. In exhorting theists to "confine themselves solely to their personal belief in God and its associated religious practices," Kissin effectively acknowledges that the problem is intractable.

Given the fact that neither religion nor science is about to loosen its grip, Professor Kissin regrets that I didn't propose a viable means of accommodation between them. Happily, however, no one is waiting for directions from me. Most believers just muddle through, tacitly acceding to scientific rationality while ducking the big

contradictions. Compared to the sophistries cranked out in "Science and Religion Studies," this refusal to be bothered looks positively wise.

3. I welcome Charles Gross's and Roger Shattuck's letters, but I'm afraid that Shattuck has misconstrued my essay as a plea for atheism. In my experience, there is no important difference in understanding between people who call themselves atheists and those who say they are agnostics. Both groups of nonbelievers could readily subscribe to Huxley's judgment that human immortality is neither supported by any evidence nor subject to disproof. In any case, "Saving Us from Darwin" merely urged a secular, empirically plausible apprehension of our uniquely dangerous species, including its penchant for hearing imaginary messages from above. Many theists would surely agree, especially after the recent horrific display of what can be done by people who think they possess a "special revelation" of God's agenda on earth.

Notes

[1] E.g., Steven Pinker, "Talk of Genetics and Vice Versa," *Nature*, Vol. 413 (October 4, 2001), p. 465; Douglas J. Emlen, "Costs and Diversification of Exaggerated Animal Structures," *Science*, Vol. 291 (February 23, 2001), p. 1534; David Tilman, "An Evolutionary Approach to Ecosystem Functioning," *Proc. Nat. Acad. Sci.*, Vol. 98 (September 25, 2001), p.10979.

[2] Andrew Shtulman, *Intuitive Evolution: Are We Predisposed to Misunderstand Darwinism* (BA thesis, Princeton University, 2001).

[3] Richard Dawkins, *The Blind Watchmaker* (Norton, 1987).

[4] Here and later I am quoting Alvin Plantinga's two-part essay entitled "Methodological Naturalism?" The text can be read on links to the Access Research Network Web site, www.arn.org.

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