

IN THE BEGINNING . . .

Creationism Has No Evidence. Evolution Has Few Answers.

RACHEL FLICK

*It's the monkey in me that makes me want to do it.
It's the monkey in me that makes me want to
chew it.
It's the monkey in me that sets me loose—*

"Monkey in Me"
by Dennis James
from the movie musical, *Starstruck*

The theory of evolution is one of the cornerstones of modern science. It is accepted by almost all scientists as the best explanation for the origin of species, in fact as the only possible reading of the evidence. Professor Francisco Ayala of the University of California at Davis, member of the drafting committee of *Science and Creation: A View from the National Academy of Sciences*, says, "Scientists do not bother, any more, to prove that the earth is round, or to prove evolution."

This consensus, though, is not shared by a number of scientists who are also fundamentalist Christians. These "creation scientists" believe that species were created just as the Bible says they were. Although the literal reading of the Bible is an article of fundamentalist faith, in their stand against evolution, creationists say that they no longer rely on biblical authority alone. They claim, rather, to have enough scientific evidence of their position that they no longer need Scripture to make their case.

Evolution is consistent with the fossil evidence in a way that creationism is clearly not. There are enough weaknesses in the theory of evolution, however, to keep the dispute alive. For one thing, we have never seen evolution happen, and without this "hardest" of all imaginable proof, people can continue to doubt. A more serious weakness is in our understanding of how evolution happens, even if we accept that it does. The evolutionary mechanism remains largely mysterious.

Evolution is the theory that species change over time. It holds that new species arise out of old species, over the course of many generations, by mutation and a controversial process called "natural selection." Evolution maintains that life emerged from non-life by naturalistic

processes. The earliest form of life, it explains, was simple. By natural selection, this simple form was wrought into the present variety of complex forms. All organisms that now exist, from fungi to lions and tigers and bears, are children of the original, primal amoeba. And man and the apes, evolution teaches, are close cousins—descendants of a still nearer common ancestor.

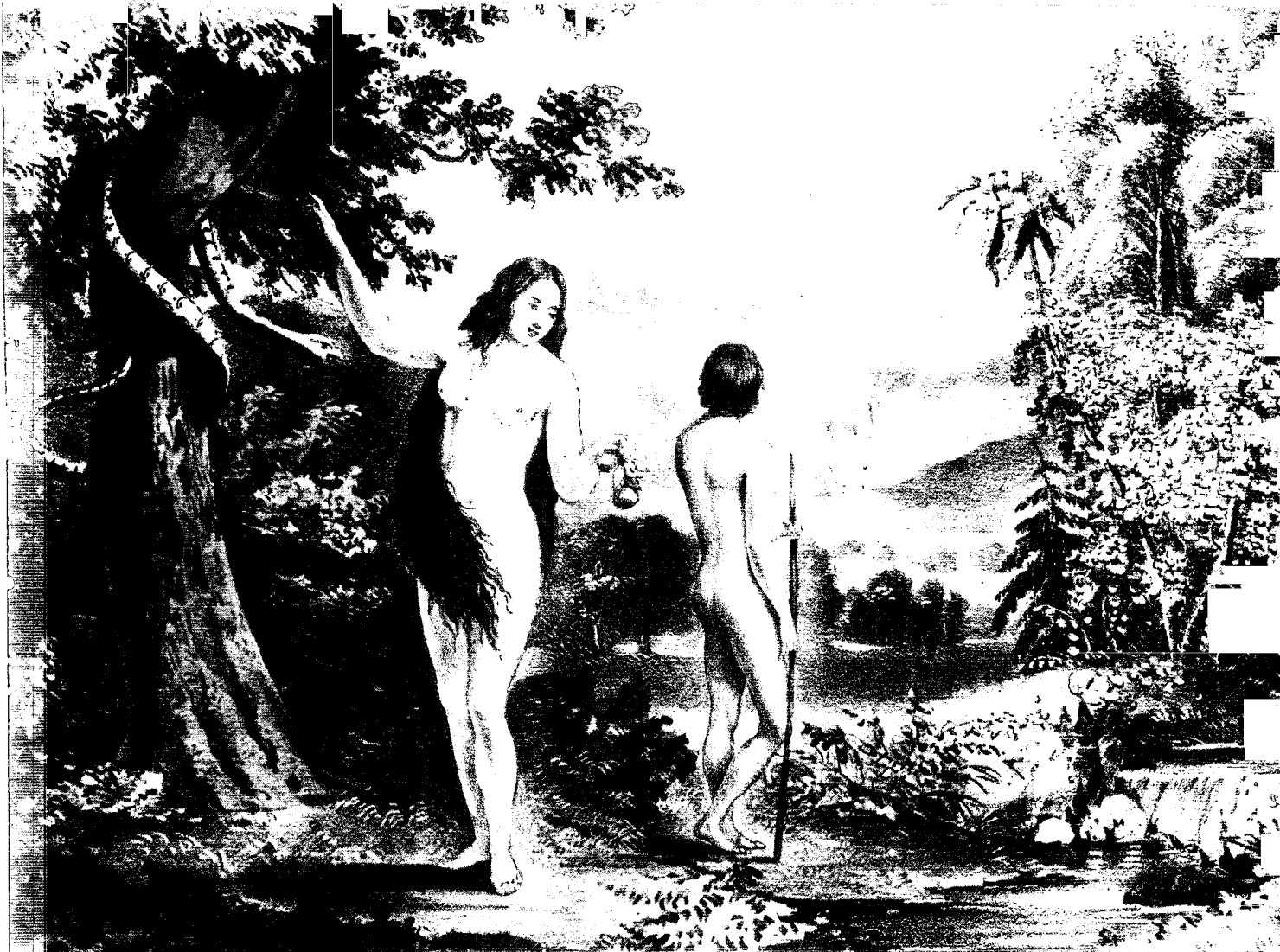
"Creation science," on the other hand, teaches that mutation and natural selection could not have fashioned all of life from a single organism, and that, in fact, species can only change at all within fixed limits. It does not believe that man and the apes have a common ancestor. Creationism teaches that the universe, energy, and all of the forms of life that have ever lived were created suddenly and essentially simultaneously.

Fossil Feud

Both theories rely mainly on the same incomplete body of evidence, the fossil record. To say that few organisms are fossilized is an understatement on the order of saying that little of a book remains, when fragments from a few of its letters are all that is left of each chapter. Yet many years' labor, a few good finds, and a few scattered regions where the fossil text is particularly clear, combine to form a complete enough picture for each side to make its case and, eventually, for a consensus to have emerged on the basic questions.

And that consensus is pretty clearly evolutionary; the fossil record establishes that species were not created simultaneously. Fossils are laid down in strata of earth. The strata on the bottom and the fossils within them are assumed to have been laid down earlier—and therefore to be older—than the strata and fossils on top of them. Fossils of some species appear all the way through the record, from the earliest stratum to the latest. Other species do not show up until later on. In general, complex life shows up later than simple life. This evidence argues powerfully against simultaneous creation.

RACHEL FLICK is with the White House Office of Planning and Evaluation. The views she expresses are hers alone.



The origin of species?

Some creationists dispute that the record necessarily argues any such thing. For one thing, they disagree that the strata should be read as a time sequence. They offer an alternative explanation for the appearance of different fossils in different layers of the earth. First, they suggest that the strata result from a huge flood, perhaps the Noachian flood. As the waters rose, the creationists say, the various creatures settled out at different levels depending on their differing hydrodynamic qualities (with the denser or less mobile ones falling) or on their differing intelligence (with the smarter ones swimming to the top, the better to survive the rising flood). Thus, the strata reveal not that different organisms lived at different times, but that some organisms lived at the bottom of the ocean and others at the top.

Evolutionist Stephen Jay Gould of Harvard University spells out the insufficiency of this argument: there are organisms appearing in different strata that do not, he reports, differ either hydrodynamically or in intelligence. For example, different kinds of clams appear in each stratum, forming a changing "column" of clams all the way up. Each species of clam is hydrodynamically and mentally identical to every other, yet each appears in one specific part of the column and nowhere else. Change in clams over time is simply the most plausible explanation for their stratification, Mr. Gould concludes.

Creationists also find grist for their mill in the sudden

appearance of many complex forms of life in the Cambrian period, 500 to 600 million years ago. Duane T. Gish, a creationist and biochemist, who has done post-doctoral work with Nobel Prize winners at Cornell University and the University of California, Berkeley, writes:

The oldest rocks in which indisputable fossils are found are those of the Cambrian period. In these sedimentary deposits are found billions and billions of fossils of highly complex forms of life. . . . What do we find in rocks older than the Cambrians? Not a single, indisputable multicellular fossil has ever been found in pre-Cambrian rocks.

Again, evolutionists like Mr. Gould simply dispute this claim. Before the Cambrian period, Mr. Gould explains, organisms reproduced asexually. Asexual reproduction works with a relatively narrow gene pool, and so affords but little opportunity for evolutionary change. Sexual reproduction apparently began in the Cambrian period, which was consequently the occasion for a great flowering of new life forms. Mr. Gould points out that even though the pre-Cambrian period was relatively simple, about thirty years ago it was discovered that life in fact did exist in that era, and that since this discovery, an extensive record of both single-cellular and multi-cellular pre-Cambrian life forms, from every continent of the earth, has been assembled.

Missing Link

The last large area in which creationists dispute the evolutionary reading of the fossil record is the matter of transitional forms. Evolutionists think they know which species evolved into which, but it has always been difficult to find fossils of the intermediate organisms—hard evidence of a species in transition. It is believed, for example, that reptiles evolved into birds, but it is hard to find an actual specimen from the half-reptile/half-bird stage through which these creatures must have passed.

Creationists believe that such specimens are hard to find because the transitions never occurred. They systematically try to demonstrate how implausible the whole notion of transition is. For instance, they study fossilized reptile jaws and review the possible sequences of changes by which they could have become bird jaws, to show that each of these scenarios is too unlikely to have happened.

The creationist position is that the living world is basically static. The theory maintains that there is change “only within the fixed limits of originally created kinds.” As Henry M. Morris and Martin E. Clark write in *The Bible Has the Answer*, “The actual processes of nature as they occur today are conservative and decay processes, rather than creative and developmental.” Presumably, species can become extinct, in this theory. But Morris and Clark write:

There are many varieties of dogs and many varieties of cats, but never any kind of new animal in between a dog and a cat! . . . The same great ‘gaps’ exist between basic kinds in the fossil world that exist in the modern world. There are new varieties of dogs and new varieties of cats found in the fossil world, but still nothing between a dog and a cat!

Evolutionists are relatively untroubled by the admitted scarcity of transitional forms. For one thing, they do have a few such specimens, such as the Archaeopteryx displayed at the Smithsonian Institution, intermediate between the dinosaurs and the birds. And for another, they are not all that surprised that these are rare. It has been estimated that the transition from one species to another may take as little as 10,000 years. As 10,000 years are represented by only a single fossil stratum, some evolutionists explain, one can hardly expect a long sequence of transitional deposits.

Seeing is Believing

The most persuasive imaginable proof of evolution would be seeing it happen, either in life or in the laboratory. But proof still eludes us. We have yet to see a new species emerge through evolution, even from species such as fruit flies, where thousands of generations have turned over in laboratory experiments. We have seen, it is true, the selective dying out that might be called the flip-side of the evolutionary process. For example, we have observed that when air pollution darkens a city’s surfaces a population of both brown and white moths becomes a population of brown moths only, because predators find it easier to pick off the lighter ones. But we have not seen evolution create a species that had never before existed.

Nor—and some say this is the crux of the debate—are we precisely sure how speciation occurs. There is a wide scientific consensus that species evolve from each other, but the actual mechanism remains unknown.

These days, the controversy over the mechanism tends to center around a new theory called punctuated equilibrium. “Punk eke,” as it is jazzily called, challenges Darwin’s idea about the rate at which species change, in a way that, among other things, vastly alters the “feel” of the evolutionary process.

Basically, Darwin believed that a species changes gradually, at a relatively constant rate, by a series of imperceptibly tiny steps. The direction of its evolution is toward adaptation to the environment: as the environment changes so does the species. And Darwin thought that as environmental conditions are always slowly changing, most species, too, are changing all the time.

Darwin believed that nature was characterized by *plenitude*. He saw no environmental niches where species might be and weren’t. Rather, he saw “a force like a hundred thousand wedges trying to force every kind of adapted structure into the gaps in the economy of nature, or rather forming the gaps by thrusting out the weaker ones.” If some particular type of species didn’t exist, there was a reason why. Darwin also thought nature was *balanced*, with every living kind constantly adjusting itself toward stable relations with every other living kind.

Punctuated equilibrium, on the other hand, maintains that species change in a burst of activity when a new one branches off from its parent species. This usually occurs when a seed population happens into a small, isolated, relatively safe environment, such as a lake or island. Once the new species has spun off from its parent type—a process called “speciation”—it tends to stop evolving. At some point, a new species might branch off from it. Stability, not change, is the norm, and evolution is full of niches and gaps where speciation might have occurred but chanced not to. To borrow the words of Steven Stanley, one of its principal exponents, punk eke implies “that there is not universally present on earth a tightly integrated balance of nature.”

More interesting, though, than the particular disagreement between the Darwinian gradualists and the punctuated equilibriumists, is the total impossibility of ever resolving that disagreement. The futility of any effort to settle the differences between the two positions exposes an essential weakness at the center of each. That weakness is in the idea that Darwin dubbed “natural selection.”

Unnatural Selection

Every evolutionary theory, including both gradualism and punk eke, is some variation on the concept of natural selection. The trouble with natural selection, though—with any version of it—is that it doesn’t tell you very much.

Natural selection can be summarized in the maxim “the survival of the fittest,” which means that the organisms best suited to live and reproduce in any particular environment are the ones that take hold there and populate it. The problem with the survival of the fittest, though, is that you cannot know, in advance, which traits

will improve a species' chances of surviving and reproducing—which will make it more “fit”—and which will not. You have to wait and see how every constellation of traits works out in actuality. This raises the question whether “the fit” are really only definable as “those who survive,” making natural selection the theory of “the survival of those who survive”—a tautological and unusable idea.

The problem with natural selection is that every imaginable circumstance confirms it, including circumstances that contradict each other. Natural selection is utterly insusceptible of disproof—making it, by logical extension, never really provable either. If a species changes before our very eyes, the theory lets us assume the new kind is more fit than the old, and we can say “the fit are surviving.” Similarly, if the species does not evolve, we can assume this means it is perfectly fit as it is, and we can still say “the fit are surviving.” You can imagine no pattern of species change or non-change that would enable you to say “the less fit are surviving; the theory is disproven.” As nothing can be true under any circumstances and still mean something, this makes natural selection an empty assertion.

It is because of this weakness in the natural selection idea that disputes like the one between the gradualists and the punctualists are irresolvable. A passage in an essay by Mr. Stanley illustrates the chimerical quality of the punk eke debate. The traditional Darwinians, Mr. Stanley writes, claim that if a species is stable, that is only because it is either very well specialized or very broadly adapted, and not in need of change. It is not because the normal condition for a species is stability. Mr. Stanley responds, “There is no factual support for either of these allegations.” He illustrates with some species that seem to make his case. What he cannot do, though, is disprove what the traditionalists are saying. Because all evolutionary statements are irrefutably logical, there can be “no factual support” for any one of them over any other.

The impossibility of pinning down natural selection perhaps explains a remark made at a recent seminar on evolution that was held at the Resident Associates program of the Smithsonian Institution. After a minute or two of persistent questioning on an evolutionary fine point, Joel Cracraft, associate professor of anatomy at

the University of Illinois, exclaimed: “Look! There are probably 50 people in this room who call themselves evolutionists, and if you asked each one of them what evolution is, you’d probably get 50 different answers.”

It would probably overstate the case to say—as some do—that natural selection is a pure tautology. We can’t know which traits are fittest until we see what survives, but there might still be such a thing as objective fitness, even before nature does the weeding out.

But the tautological quality of natural selection does deny evolutionists any predictive powers. Dr. Leon Kass of the University of Chicago explains that the problem

with natural selection is not so much that there is no truth to it, but that it “forces us into the retrospective. It is virtually impossible,” he says, “to discuss the fitness of an organism prospectively.” Natural selection, says Dr. Kass, is “sometimes a name for our ignorance.”

Evolution is the best explanation for the origin of species, yet it leaves unanswered many questions. For instance, though evolution tells us that life arose from a certain combination of elements under certain conditions, it leaves us to wonder why these circumstances produce consciousness and others do not. It is hardly surprising that a theory that raises mysteries as great as this one continues to be embattled.

If improperly pursued, though, the study of evolution

can be more seriously deficient even than this. Evolution is perhaps the most essential of all inquiries, for in seeking to discover where we are from, it also seeks to tell us, in one way, what we are. Yet though it may tell us what we are, it has no obvious lesson about what we are for. It is arguably dangerous for any discipline to expose a subject so fundamental as the origins of life without at all addressing—while even appearing, sometimes, to dismiss—this larger and more pressing question.

Just because evolutionists haven’t done enough with this problem doesn’t mean they cannot. That the positive moral lessons of the development of species are subtle and have been too little discussed does not mean they are not present and important. If we hope ever to make peace with evolution, the discipline, such as it is, must now turn its efforts in this direction. It is time to consider not only our origins, but also what our progress from them has meant.



"VERY WELL THEN, HANDS UP ALL THOSE WHO PROPOSE TO BECOME BIRDS."

© Punch/Rothco

CAN-DO GOVERNMENT

Three Reagan Appointees Who Made a Difference

WILLIAM KRISTOL

William J. Bennett, James C. Miller III, and Thomas W. Pauken have defied the conventional wisdom about institutional paralysis in Washington. Neither Tip O'Neill nor career bureaucrats nor the *Washington Post* stopped these three Reagan appointees from translating their president's mandate into fundamental policy changes at the agencies they lead.

When Mr. Bennett took over the National Endowment for the Humanities (NEH) at the end of 1981, the agency was a roaring success by Washington standards: its budget had grown even faster than the norm during the 1970s. Unfortunately, there was no evidence that the humanities were better off as a result of these unfocused dollops of Federal spending. If anything, the NEH was aiding and abetting the shallowest and trendiest sorts of projects, those least likely to be of enduring value.

Three years later, the institution has been transformed. Its budget has been cut in real terms by 15 percent. The Division of Special Programs, which gave grants to such noted bastions of the humanities as labor unions and the National Organization for Women, has been eliminated. There is a new focus on restoring the vitality of core humanities disciplines: new guidelines for education grants promote basic courses in the humanities, and a successful new program provides summer seminars for secondary school teachers on great books or themes in the humanities.

Mr. Bennett has also played a role beyond the direct effect of NEH programs in reframing the public debate on education and the humanities toward a concern with excellence and with fundamentals. For example, his recent public request for lists of 10 works in the humanities that every high school student should read, and his argument that the knowledge of such works is more important than acquaintance with the latest trends, has strengthened the hand of "back-to-basics"-minded parents, teachers, and school board members throughout the nation.

If the NEH was drifting before Mr. Bennett took over, the Federal Trade Commission was self-destructing. Under the leadership of Naderite Michael Pertschuk, the FTC had become notorious as the "National Nanny" for

its campaign against "unfair" advertising on children's TV programs; by 1981, when James C. Miller III replaced Mr. Pertschuk as Chairman, Congress had reserved for itself a legislative veto on all new FTC regulations, and had cut back on the agency's authority in various ways. In this respect, one might say that some of the Reagan Administration's work had already been done for it. But Mr. Miller was not content to preside over a relatively harmless FTC. He has moved aggressively to transform the FTC into an agency that promotes the free market by moving against government-created restrictions on competition, such as municipal taxi-licensing, and by speaking out for deregulation and free trade within the Federal government. More important, he has made the FTC an example of rule-making based on serious economic analysis. No longer does a subjective judgment that certain business practices are "unfair or deceptive" justify government intervention and rulemaking; now the FTC requires solid evidence that consumers are actually harmed, and that the proposed remedy would improve the situation. Not only has this resulted in fewer but better cases being brought by the Commission, and in more emphasis on voluntary compliance than on rulemaking, it also has elevated the level of public understanding about the workings of the market, and the effects of government intervention on markets.

Opening New Vistas

Another dramatic turnaround was engineered by Thomas W. Pauken at ACTION, the Federal volunteer agency. Mr. Pauken succeeded anti-war activist Sam Brown as director of ACTION; the director of VISTA, ACTION's most prominent component, had been Marge Tabankin, whose claim to fame was a comradely visit to Hanoi in 1972. Under these two, as one might expect, a good chunk of Federal volunteer funds were going to various New Left community organizing and advocacy organizations. Mr. Pauken has failed in his efforts to

WILLIAM KRISTOL is assistant professor at the Kennedy School of Government, Harvard University.