

caution in devising a remedy, rejecting a laundry list of affirmative orders sought by plaintiffs. Judge Roth's sweeping integration order in *Milliken* is politically more understandable when we learn that it was originally sought by counsel for white parents in Detroit. Even Judge Battisti's public housing mandate in *Parma* can be explained in part by the city's scorched-earth legal defense, resisting any liability rather than attempting to limit its scope to negative liberty.<sup>8</sup>

The great question of whether federal judicial remedies are effective in dealing with major social problems is only indirectly elucidated by *Hard Judicial Choices*. The span of cases Cooper has selected takes us from the gross problems faced in *Brown* and the earliest mental hospital and prison cases to more recent disputes that have wound up depending on the fine distinctions so beloved by lawyers and so inexplicable to everyone else. Cooper joins the criticism leveled by some on the left against the Burger Court, but he attends too little to the fact that the issues had changed since the Warren Court era. Had he done so, he might have addressed the fundamental difficulties posed by public law injunctions.<sup>9</sup>

**THE ORIGIN OF SPECIES REVISITED: THE THEORIES OF EVOLUTION AND OF ABRUPT APPEARANCE.** By W.R. Bird.<sup>1</sup> New York, N.Y.: Philosophical Library. 1989. 2 Volume set. \$65.00.

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As a Yale law student, Wendell Bird published a 1978 *Law Journal* Note, which argued that the exclusive teaching of evolution in the public schools violates the religious liberties of creationist students and their parents. This unfashionable thesis failed to convince the courts, but the note won an academic prize and even achieved a singular form of commercial success. Friends who were student editors at Yale tell me that fundamentalist churches order it

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8. Cooper quotes extensively, and with apparent astonishment, hyperbolic arguments of Parma's counsel, equating the federal government with Hitler and the court's decree with the hydrogen bomb. Cooper may have insufficient knowledge of the reward structure for lawyers.

9. For a thoughtful assessment, see Horowitz, *Decreeing Organizational Change: Judicial Supervisions of Public Institutions*, 1983 DUKE L.J. 1265 (1983).

1. Formerly represented State of Louisiana as special assistant to the Attorney General. He is recognized as a leading constitutional authority on creation science.

2. Professor of Law, University of California (Berkeley). An expanded version of this review will appear in *FIRST THINGS* (Oct. 1990).

in quantity, and it has accounted for more sales in reprint than all other *Yale Law Journal* notes combined.

After graduation Bird became the leading attorney for the creationist cause, especially in defending the Louisiana "balanced treatment for creation-science" statute that was held unconstitutional by the Supreme Court in *Edwards v. Aguillard*.<sup>3</sup> As an advocate he labored unsuccessfully to rescue scientific creationism from its fatal association with Biblical fundamentalism. His argument was that the statute did not give equal status in the classroom to religion and science, but rather required balanced treatment for two contrasting interpretive models, evolution and abrupt appearance, each of which has both scientific support and religious or philosophical implications. The Supreme Court majority largely ignored Bird's effort to redefine the terms of the controversy, being persuaded by the National Academy of Sciences and other prestigious authorities that scientific creationism is simply Biblical fundamentalism in disguise, with no scientific support whatever.

Bird has now published a two-volume treatise that amounts to a massive compendium of scientific and other evidence in support of his "two models" approach to what is customarily called the evolution-creation controversy. In a nutshell, his thesis is that there is ample scientific evidence to support a "theory of abrupt appearance," as opposed to the orthodox theory of gradual evolution. Bird applies this thesis all the way back to the "Big Bang," but the heart of the matter is the history of life. There is a great deal of evidence in the fossil record that new forms of life tend to appear suddenly, without evolutionary development from preexisting forms.

Probably most readers of this journal will dismiss such a thesis out of hand as contradictory to established scientific opinion. Those willing to study the subject without prejudice may be impressed in spite of themselves by the sheer weight of scientific documentation that Bird has assembled, and by the fact that some reputable scholars have been willing to write prefaces and jacket notes recommending the book for serious consideration.

Whether a purely descriptive phrase like "abrupt appearance" can qualify as a scientific theory may be debatable, but that new forms of life actually do seem to appear abruptly rather than in gradual stages is well known to those familiar with the fossil evidence. For example, here is a description of the fossil record by Harvard Professor Stephen Jay Gould:

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3. 482 U.S. 578 (1987).

The history of most fossil species includes two features particularly inconsistent with gradualism:

1. Stasis. Most species exhibit no directional change during their tenure on earth. They appear in the fossil record looking pretty much the same as when they disappear; morphological change is usually limited and directionless.
2. Sudden appearance. In any local area, a species does not arise gradually by the steady transformation of its ancestors; it appears all at once and "fully formed."<sup>4</sup>

Of course orthodox scientists do not believe that new species really do appear at once fully formed, as if by miracle. They infer that new forms of life evolved gradually from preexisting forms, but that evidence of the transitional stages has not been preserved in the fossil record. If one is very certain on independent grounds that gradual evolution is the true explanation of the origin of species, then it is reasonable to construe the fossil evidence in the light of that certainty. (Gould himself theorized that the intermediate forms must have lived in small numbers in relatively brief periods of geologic time.) On the other hand, if one is relying on the fossil evidence to *provide* that initial certainty, then a consistent pattern of "sudden appearance" followed by "stasis" ought to be highly unsettling.

Bird's evidentiary claims are too comprehensive and detailed to be examined in these pages, and my primary concern in any case is with the philosophical and legal aspects of his thesis. Because the academic world is so overwhelmingly prejudiced against anything that smacks of creationism, however, I ought to mention just one more piece of evidence to show that "abrupt appearance" is in at least some important respects fairly descriptive of the historical evidence. We saw that *species* tend to be fully formed at their first appearance in the fossil record; the pattern is even more pronounced in the case of the higher taxonomic categories such as classes and phyla. Here is how a particularly vigorous advocate of Darwinism, Oxford Zoology Professor Richard Dawkins, describes the "Cambrian explosion," i.e., the apparently sudden appearance of all the invertebrate animal phyla at the beginning of the Cambrian era:

For example the Cambrian strata of rocks, vintage about 600 million years, are the oldest ones in which we find most of the major invertebrate groups. And we find many of them in an advanced state of evolution, the very first time they appear. It is as though they were just planted there, without any evolutionary history. Needless to say, this appearance of sudden planting has delighted creationists. Evolutionists of all stripes believe, however, that this really does represent a very large gap in the fossil record, a gap that is simply due to the fact that, for some reason,

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4. S. Gould, *THE PANDA'S THUMB* 151 (1980).

very few fossils have lasted from periods before about 600 million years ago.<sup>5</sup>

In short the descriptive phrase "abrupt appearance" accurately characterizes the first appearance of animal groups, if one looks at the evidence without theoretical preconceptions. Therefore, a broad-minded person might think it understandable that creationists are not impressed by claims that the fossil record supports the official theory of gradual evolutionary development. Of course the abrupt appearance in question is thought to have occurred hundreds of millions of years ago, and not in the year 4004 B.C., and those who identify creationism with Biblical literalism will consider the date a conclusive argument in favor of mainstream science. The fundamental claim of religious creationism, however, is simply that God creates, and this claim has no necessary connection to any particular theory about Biblical authority, however much it may be associated in practice with Biblical literalism. Creationism in the broadest sense is not even hostile to "evolution," provided that evolution is considered to be a process through which God creates.

The important thing is not whether God created all at once or in stages, or whether the process of creation required a greater or lesser period of time. Anyone who thinks that the biological world is the product of a pre-existing intelligence, and that its development up to and including mankind occurred in furtherance of a divine purpose, is a creationist in the most important sense of the term. By this broader definition at least eighty percent of Americans, including me, are creationists.

The position which is opposed to creationism is not evolution as such, but *naturalistic* evolution, meaning evolution as a mechanistic process unguided by God. When contemporary neo-Darwinists speak of "evolution" they mean a naturalistic process which employs only unguided mechanisms such as random mutation, natural selection, and genetic drift. That is why it is so important to them to insist that a continuous series of extinct transitional forms linked those Cambrian animal groups to a common bacterial ancestor, regardless of what the fossil record may fail to show. If all living forms including humans evolved from an ancestral bacterium in gradual steps by chance mutations and natural selection, then God did nothing to propel or guide evolution, the existence of humanity is a cosmic accident, and humans exist for no purpose unless they choose to invent one.

For example, here is how Douglas Futuyma, the author of a leading college evolutionary biology textbook, explains the essential

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5. RICHARD DAWKINS, *THE BLIND WATCHMAKER* 229-30 (1986).

difference between the theory of evolution and what he thinks of as the "fundamentalist" perspective:

[If] the world and its creatures developed purely by material, physical forces, it could not have been designed and has no purpose or goal. The fundamentalist, in contrast, believes that everything in the world, every species and every characteristic of every species, was designed by an intelligent, purposeful artificer, and that it was made for a purpose. Nowhere does this contrast apply with more force than to the human species. Some shrink from the conclusion that the human species was not designed, has no purpose, and is the product of mere material mechanisms—but this seems to be the message of evolution.<sup>6</sup>

It is not only "fundamentalists," of course, but theists of any description who believe that an intelligent artificer made humanity for a purpose, whether through evolution or otherwise. Futuyma is not expressing some idiosyncratic opinion, because the same point is made repeatedly throughout the neo-Darwinist literature. Although this point is not essential to evolution it is essential to the logic by which Darwinists commonly interpret the evidence. Note that Futuyma does *not* say that it is beyond the capacity of evolutionary biology to determine whether the universe or the human species exists for a purpose, a sensible proposition with which thoughtful people of disparate religious views could concur. On the contrary, he asserts that science has considered the question of purpose and resolved it in the negative. In the words of Stephen Jay Gould, "No intervening spirit watches lovingly over the affairs of nature (though Newton's clock-winding God might have set up the machinery at the beginning of time and let it run). No vital forces propel evolutionary change. And whatever we may think of God, his existence is not manifest in the products of nature."<sup>7</sup>

What Gould fails to appreciate is that the question whether God is "manifest" in, say, a tree, is not a scientific question. Professing to summarize the scientific evidence, he has in fact delivered a theological opinion. Thus, evolutionary biologists make purportedly scientific statements about subjects such as whether humanity exists for a purpose and whether evolution was guided by an "outside" intelligence, i.e., God. The statements directly contradict not only the positions held by Biblical fundamentalists, but also the views of theists who believe in something they call evolution but who think of it as guided in some non-trivial sense by God. Ac-

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6. D. FUTUYMA, *SCIENCE ON TRIAL: THE CASE FOR EVOLUTION* 12-13 (1983). The quotation is from a book for the general reader, but Futuyma makes substantially the same point in the opening chapter of his textbook for college biology students, where he compares Darwin with Marx and Freud as providing "a crucial plank in the platform of mechanism and materialism."

7. C. HAMRUM, *DARWIN'S LEGACY* 1, 5-6 (1983).

According to Cornell University Professor William Provine, a leading historian of Darwinism, evolutionary biology is anything but neutral on questions of theology: "The destructive implications of evolutionary biology extend far beyond the assumptions of organized religion to a much deeper and more pervasive belief, held by the vast majority of people, that non-mechanistic organizing designs or forces are somehow responsible for the visible order of the physical universe, biological organisms and human moral order."<sup>8</sup>

Those who doubt whether the officially sponsored naturalistic theory of evolution is true are not necessarily misinformed or uninformed about the evidence. They may simply be looking at the evidence from a different philosophical viewpoint than that adopted by scientists who are professionally committed to naturalism. Gareth Nelson, a senior zoologist at the American Museum of Natural History, comments in his preface to Bird's book that "evidence, or proof, of origins—of the universe, of life, of all the major groups of life, of all the minor groups of life, indeed of all the species—is weak or nonexistent when measured on an absolute scale." The absence of proof on an absolute scale is not important to a scientific naturalist, who feels that science is doing well enough if it has a plausible theory that is consistent with the naturalist worldview. To someone who is willing to put that worldview itself in question, it is not so easy to fill those gaps in the fossil record with imaginary intermediates that "must have existed."

What scientists like Futuyma and Gould call the "theory of evolution," or sometimes the "fact of evolution," is therefore a queer mixture of science and philosophy. If creationism (defined broadly) were granted a fair hearing in the intellectual world as an alternative, creationists would have some good points to make and some tough questions to ask. Are the Darwinists asserting that they have experimental proof that naturalistic mechanisms are capable of building complex biological entities like butterflies and people? Is the creative power of natural selection a deduction from philosophical naturalism rather than a verifiable hypothesis? If the Biblical fundamentalists are guilty of distorting the scientific evidence in order to reconcile it with the Genesis account, have the Darwinists done much the same to reconcile the fossil record with their theory? In fact some prominent contemporary paleontologists have candidly admitted that their predecessors misrepresented the fossil record to support Darwinism. According to Niles Eldredge, "We paleontologists have said that the history of life supports [the story of gradual adaptive change], all the while really knowing that it

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8. Provine, *Evolution and the Foundation of Ethics*, 3 MBL SCIENCE 25 (1988).

does not.”<sup>9</sup> Has this deception altogether ceased?

Obtaining a fair hearing for creationist dissent is impeded by the confusion introduced into the subject by the categories employed in constitutional law, which teaches that “science” may be propagated in the public schools but that “religion” may not. Neither term has been authoritatively defined, but the usual assumption is that creation is inherently a religious concept whereas naturalistic evolution is scientific. It seems to follow that naturalistic evolution may (must?) be presented to schoolchildren as “fact,” and that creation, if mentioned in the classroom, must be described as myth or poetry. The question whether the story of naturalistic evolution is *true* does not arise. It is science, and that is all we need to know.

I do not find it easy to accept the idea that truth is irrelevant, but I can understand how constitutional lawyers got themselves into such a state of confusion. The Biblical fundamentalists and the Darwinist fundamentalists have cooperated in maintaining the stereotype that Biblical literalism and fully naturalistic evolution are the only possibilities. When the issue is put that way it is inevitable that practically all intellectuals will be on the side of empirical science, and that they will regard proof that the world is more than 6000 years old as proof that evolution occurred the way Darwinists say it did. Constitutional adjudication then proceeds on the premise that what is at stake is the integrity of empirical science, as against attempts to impose a premodern religious worldview. The possibility that the courts are rejecting one brand of fundamentalist ideology only to endorse another is never considered.

I am not interested in rearguing *Aguillard v. Edwards*, because I believe that educators must have authority to determine the curriculum, simply as a matter of good educational policy. The last thing our declining public education system needs is further disruption by advocacy groups seeking a platform in the classroom. Science educators in particular must as a practical matter take guidance from officially recognized authorities such as the National Academy. What follows from these premises is not, however, that the science organizations should promote their own worldview in the name of science. On the contrary, as trustees for the public they have an obligation to distinguish carefully between what science as an empirical discipline can actually demonstrate, and what certain scientists would like to believe.

Probably the public school classroom is not the appropriate

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9. N. ELDRIDGE, TIME FRAMES 144 (1986).

place to undertake a searching examination of the philosophical elements in the orthodox doctrine of naturalistic evolution. But then where *may* the intellectual case against naturalistic evolution be fairly considered? Nothing in the Constitution prevents universities from providing a forum for dissent, including theistic dissent from naturalistic evolution. The only problem is to overcome the prejudice which makes so many intellectuals identify naturalism with reason itself, and which causes them to accept uncritically Darwinist assurances that any dissenters must either be ignorant of the evidence or misunderstand "how science works."

**CONSTITUTIONAL BRINKMANSHIP: AMENDING THE CONSTITUTION BY NATIONAL CONVENTION.**

By Russell L. Caplan.<sup>1</sup> New York: Oxford University Press. 1988. Pp. xxii, 240. \$27.00, cloth.

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Two or three years ago people began to notice that thirty-two state legislatures had filed petitions requesting Congress to call a national convention to propose an amendment to the Constitution requiring a balanced budget. This number was (and remains) two short of the two-thirds of the states that article V specifies as necessary to mandate such a convention. For many commentators a second national constitutional convention seemed uncomfortably imminent. The *Washington Post* called it "a terrible idea" that would "be a mess—and could threaten our structure of government and guaranteed liberties."<sup>3</sup> The *New York Times* said a convention would be "fraught with the danger of runaway revision."<sup>4</sup>

This reaction was nothing new. The convention method of proposing amendments has never been used. Each time we have come anywhere close, the same kind of alarm has warded it off.

In this book, Russell Caplan has provided the first modern scholarly volume on the national constitutional convention contemplated in article V. It is an extremely useful addition to the literature of constitutional change. Caplan approaches the subject in two parts. In the first he examines the history of the "constitutional convention," from its origins in seventeenth century England to the

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1. Attorney, United States Department of Justice.

2. Professor of Law, University of Connecticut.

3. Wash. Post, May 9, 1988, at A14, col. 1.

4. N.Y. Times, Aug. 18, 1987, at A24, col. 1.