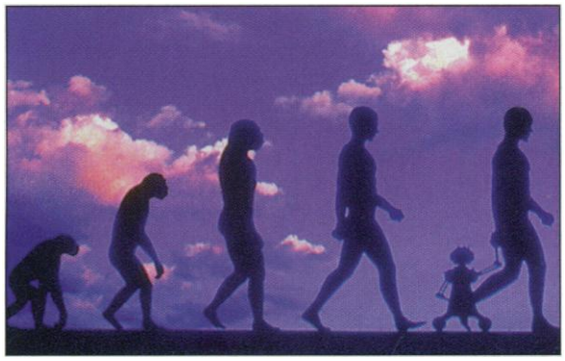
Readers criticize an editorial by Stephen Jay Gould as being "a sermon" and replacing one "crutch" with another. Gene therapy researchers discuss "clinical trials for patients with retinoblastoma," as well as where a cowboy hangs his hat. Speaking of clinical studies in general, readers state that "physicians, physician-scientists, and basic scientists all have contributed to biomedical research." And Earth scientists debate the magnitude of the seismic hazard in the New Madrid zone in the central United States

Science and "Truth"

It is amusing to see how quickly evolutionists fall into the trap of scientism (which is religiosity) when they declare that the theory of evolution has claim to "the truth." No reputable physicist or chemist would be presumptuous enough to characterize scientific discoveries, at least in the hard sciences, as "truth that will make us free," even when the evidence has become overwhelming (as it has for the Second Law of Thermodynamics or Einstein's theory of general relativity).

The editorial "Darwin's more stately mansion" by Stephen Jay Gould (*Science*'s Compass, 25 June, p. 2087) is a sermon in praise of the "evolutionary nexus," as he calls it. If Gould chooses to believe that he belongs to the species *Homo sapiens*, where he is "a little higher than the apes...," that is his prerogative. I and many of my physicist colleagues see intelligent design everywhere in nature and, compelled by the weight of such evidence, choose to believe that we are made "a little lower than the angels...," a quote which Gould takes from Psalm 8, but quickly dismisses as a "crutch."



Random or intelligent design?

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I ought to thank Gould for reminding me of the difference between good science and scientism. We should all take seriously the principle that "the confidence expressed in any scientific conclusion should be directly proportional to the quantity and quality of evidence for the conclusion" (*1*).

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References

1. *Teaching Science in a Climate of Controversy* (American Scientific Affiliation, Ipswich, MA, 1993), p. 23.

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Gould is right that the public would be better off if they understood the basis of all biological science. But I disagree that evolution, as a scientific theory, is "validated," at least in the classic sense of the scientific method. Evolution, when construed as the hypothesis that the properties of all species are set by the process of natural selection through survival and reproduction of the fittest, is, at best, a barely testable hypothesis.

Scientific hypotheses are most securely "validated" when (i) they make successful predictions; (ii) there are conceivable observations that could, in principle, refute them, but have not; and (iii) there is a comparably sensible competitor theory that is faring worse. None of these conditions is met by evolution, at least when it is construed as a statement about the natural world.

Don't get me wrong: I believe in evolution. But I would have a much stronger reason for my belief if Gould or others made a verifiable, falsifiable prediction about some as-yet-unobserved aspect of the natural world (and I don't mean about selectively bred fruit flies in laboratories) and put the hypothesis that evolution occurs by natural selection through survival of the fittest to an a priori test.

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Gould's editorial, with its many allusions to religious images, is puzzling. Has Gould appropriated the terminology of traditional religion as a prelude to creating an evolutionary religious faith? Or does he (consciously or unconsciously) recognize the existence of realities that transcend the empirical facts and that can only be expressed by words like "spirit" or "soul"?

If it follows from the statement "evolution is true" that "the comforts and crutches of traditional religious belief are false," then it behooves the evolutionary scientist to make his or her case. If "evolution is true" logically implies that "our species is *not* God's created image," then say so. Otherwise, a "pastoral effort" to win the minds and hearts of unbelievers that removes one crutch to replace it with another is open to severe criticism. (And do not forget the multitude who accept both the theory of evolution and the idea of man's spiritual destiny.)

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Although we probably can only ascribe spiritual significance to the biblical myth of creation, we must also be aware that man's thought and imagination are in a timeless realm—we cannot correlate either with what is happening in an hour in the timepiece on our wrist or over billions of years. Gould, therefore, should be more careful about overreaching with his laments and conclusions.

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Retinoblastoma Treatment

We take exception to the article "RAC nixes gene therapy treatment for retinoblastoma" by Ken Garber (News of the Week, 25 June, p. 2066). We strongly disagree with its portrayal of events at the 14 June meeting of the National Institutes of Health (NIH) Recombinant DNA Advisory Committee (RAC). At that meeting, members of our research team presented a proposed phase I clinical trial for patients with retinoblastoma that involves the use of suicide gene therapy. This therapy, which employs an adenoviral vector to deliver the herpes simplex thymidine kinase gene followed by treatment with ganciclovir, has been used to treat other tumors, including those of the central nervous system. Our proposed protocol will be the first use of this therapy to treat a malignancy of the eye. Current therapies for children with retinoblastoma include enucleation, chemotherapy, and radiation, all of which have damaging lifelong consequences, including blindness and increased onset of fatal second malignancies. The article by Garber does not accurately reflect either the outcome or the