Book Review

Two Cultures

Stephen Jay Gould
Dinosaur in a Haystack
New York: Harmony Books, 1995

Stephen Jay Gould
Leonardo's Mountain of Clams and the Diet of Worms
New York: Harmony Books, 1998

Stephen Jay Gould
The Lying Stones of Marrakech
New York: Harmony Books, 2000

Review Essay by Howard A. Doughty

It has been almost half a century since C. P. Snow lamented the apparent gap between the sensibilities and capabilities of humanists and scientists. In his influential book, The Two Cultures, he described those in the arts as possessing eloquence and those in the sciences as gifted in analysis. Put more crudely, humanists can't think and scientists can't write.

Whether or not humanists have learned to think remains open for debate. That some scientists have learned to write cannot be disputed. Indeed, among the most engaging authors in print today are (or could sensibly be allocated to the categories of) physicists (Murray Gell-Mann and Ivars Peterson), mathematicians (John Barrow and Roger Penrose), physicians (Lewis Thomas and Oliver Sacks), biologists (Richard Lewontin and Jared Diamond), and palaeontologists (Donald Johanson and Stephen Jay Gould). And Gould is, I think, the most extraordinary case in point.

Stephen Jay Gould would have won an important place in the history of science on the basis of a single article on "punctuated equilibrium" that he co-authored with his colleague Niles Eldridge and published in 1972. Evolution, they explained, does not take place in the gradual manner that Darwin learned from his mentor, the celebrated geologist Charles Lyell . It is not always a process of slow, incremental change. Instead, species may exist unmodified for long periods of geological time and then undergo startling periods of rapid transformation. Their notion of natural history as long periods of "stasis" "punctuated" by dramatic explosions of new species (as, for example, the sudden speciation of mammals in the aftermath of the destruction of the dinosaurs) has won the support of most evolutionary biologists and constitutes an important revision of Darwinism. That insight, however, was only the beginning.

In the past thirty years, Gould has become the most prolific popularizer of science and among the most important writers to bridge the gap between Snow's "two cultures." Among numerous other fine books, Gould has, to date, compiled nine anthologies drawn from his monthly essays in the journal Natural History. The volumes discussed here are the three most recent. The tenth, which he says will be his last, will appear shortly.

The subjects that Gould discusses range over the whole of human and non-human experience and deal with matters of enormous practical and philosophical importance. In a single essay, he can weave a web that captures cowboy actor Gabby Hayes, baseball player Larry Doby (who broke the colour bar in the American League a year after Jackie Robinson in the National), Puccini's La Boheme, fifteenth-century Chinese admiral Cheng Ho and St. Thomas Aquinas all in the service of a meditation on the intellectual limitations of Alfred Russel, Charles Darwin's contemporary and co-theorist of evolution.

He can use the case of what is possibly the world's largest living organism, a fungus (Armillaria bulbosa) in northern Michigan that has spread over (but mostly under) thirty acres of forest to offer an insightful meditation on the problematic distinction between individuals and communities. He can write knowledgeably on the place of Australopithecus afarensis in the hominid fossil record, on Handel's Messiah and on contemporary issues in biotechnology. His past ruminations on the distinction between facts and the truth (made plain in his discussion of the last pitch thrown for a strike in Don Larsen's perfect game in the 1956 World Series) are now required reading in innumerable university courses on ethics.

As this phase of his career draws to a close, his style has almost imperceptibly changed. His earlier work was more polemical; his more recent essays seem more reflective. The current pieces tend more to brief biographical sketches (of Jonathan Swift, Mary Shelley, Alfred Lord Tennyson and Edgar Allan Poe as well as scientists such as Linnaeus, Erasmus and Charles Darwin, and J. B. S. Haldane) all of which are fashioned to make some important point about science in theory and in practice, and some of which contain such charming details as the fact that the only book by Poe to be reprinted in his lifetime was a textbook he authored entitled The Conchologist's First Book: or, A System of Testaceous Malacology, arranged Expressly for the Use of Schools.

Such studies of lives in science do, however, continue to give evidence that the fires of his political convictions (once and perhaps soon again to be focussed on the idiocy of "creation science") have not cooled. His feminism, for example, is transparent in his recovery of another early conchologist, Mary Roberts (1763-1828). As well, in an article that focuses on the symbolic importance of galvanizing events in the advance of more general social and intellectual movements, he speaks of the famous debate between T. H. Huxley and Bishop Wilberforce as a singular moment in the history of triumphant Darwinism, but his heart is revealed more in his treatment of the Triangle Shirtwaist fire of 1911. It was a conflagration in a New York sweatshop that killed 146 women workers and united, as never before, trade unionists and social reformers in the drive for safer working conditions in factories. In this piece and others, we see the soul of a member of the International Ladies Garment Workers Union in the body of a Harvard professor and

Curator of Invertebrate Palaeontology at that university's Museum of Comparative Zoology.

For lay readers, Gould's essays combine grace, wit and unbounded enthusiasm for the grand themes but especially for the quirky details of life. Among his special gifts is the ability to talk of technical matters in plain language, explaining clearly but never insulting his readers by talking down to us. For scientists, his provocative and delightfully discursive works allow specialists to see and to understand, sometimes for the first time, the historical context in which their professional work is embedded.

I await Gould's tenth and final Natural History anthology with understandably mixed feelings. It is always a thrill to open one of his collections, but there will be sorrow in knowing that the next will be the last. Still, we can look forward to compelling work of a different sort. In Leonardo's Mountain, he hinted at a theme that soon afterward became a book unto itself. Always fascinated by the debate between science and religion as a special aspect of the "two cultures" hypothesis, Gould sought first briefly and then, in his book Rocks of Ages, to assign to the sciences and the humanities different domains of knowledge, each with its own ontological and epistemological premises, its own scope and its own methods. Put overly simply, he insists that religion deals with questions of morals and the meaning of life. Its special "magisterium" is the immaterial and the supernatural. Science, on the contrary, is concerned exclusively with the material facts of living and non-living things.

So, when religious fundamentalists insist upon imposing a literal interpretation of The Bible on biology, they are trespassing on alien turf. Likewise, when scientists forget their boundaries and try to use their knowledge of physical reality to deny theological claims, they too are treading upon foreign soil. Natural science, by definition, must stand mute before those whose domain is supernatural, and metaphysics must repay the courtesy by refraining from interference in the researches of those well equipped to ask questions of nature.

In Gould's account, there is no necessary quarrel between faith and fact, and only with mutual respect for legitimate differences can genuine dialogue ensue. His argument is, of course, both more ample and more subtle than I have rendered it here, but it goes a long way toward connecting Snow's two cultures. It also forces all of us, when we read him, to stretch our minds, to jettison our prejudices and to romp merrily in fields of human knowledge that we may have neglected for far too long. Finally, as a lifelong baseball enthusiast who recognizes in Stephen Jay Gould a fellow fan, I am pleased to close with a quote from the New York Times Book Review's comment on Dinosaur in a Haystack: "Mr. Gould is the Stan Musial of essay writing. He can work himself into a corkscrew of ideas and improbable allusions paragraph after paragraph and then, uncoiling, hit with such power that his fans know that they are experiencing the game of essay writing at its best."

A Partial Bibliography

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- The Mismeasure of Man
- An Urchin in the Storm (a collection of book reviews)
- Time's Arrow, Time's Cycle
- Wonderful Life
- Full House
- Questioning the Millennium
- Rocks of Ages
- The Natural History Anthologies
- Every Since Darwin (1977)
- The Panda's Thumb (1980)
- Hen's Teeth and Horse's Toes (1983)
- The Flamingo's Smile (1985)
- Bully for Brontosaurus (1991)
- Eight Little Piggies (1993)
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- The Lying Stones of Marrakech (2000)

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