

Commentary

This issue's Commentary section contains eight views on Stephen Jay Gould's contributions to evolutionary theory and evolutionary biology. Seven of the authors are biologists; Ullica Segerstråle is a sociologist and author of "*Defenders of the Truth*", an account of the sociobiology controversy (see *J. Biosci.* (2001) **26** 549–554).

Editor

Stephen J Gould

Stephen J Gould was twentieth century biology's Thomas Huxley: researcher, theorist, activist, teacher, prolific author of books and articles (both popular and technical), historian–philosopher, moralist, and proponent of contingency and rapid evolutionary change. Like Huxley, Gould became the public face of evolution and championed its understanding in the larger society. With his death, evolutionary biology has lost one of its most ardent participants and champions, and teachers of



Figure 1. Stephen J Gould next to a museum cabinet and a skeleton, doing what he did best – talking science. (Photograph taken at the Mütter Museum, Philadelphia, 1998.)

biology have lost one of the field's most eloquent synthesizers. New York City baseball teams and art museums have lost one of their greatest fans and patrons.

Every biologist has his or her own "Gould". Mine is the pioneer of evolutionary developmental biology and the remarkable communicator of a moral scientific message. In 1977, Gould published *Ontogeny and Phylogeny*, an idiosyncratic mélange of classical embryology, European history, punctuated equilibrium, and profound respect for developmental mechanisms in evolution. The first half of this book is a *tour-de-force* exorcism of the ghost of Ernst Haeckel. In what is probably the best history yet written of the social influences of embryology, Gould demonstrated the pernicious nature of this particular synthesis of embryology and evolution. The second half of the book then detailed how we can have a new synthesis of evolution and development without resorting to the racist and linear models of the nineteenth century. This book came out the same year as Jacob's model of *bricolage*, and these two works cleared the ground for the foundations of evolutionary developmental biology to be built.

"My" Gould also includes the popular writer, a scientist who crafted wonderful essays that could explain complex points of biology to the general public and to other scientists. There are few writers today, and even fewer scientists, who would dare write stories with moral messages at the end. But Gould's writing was not only about science; it was about the importance of wonder, intelligence, respect, pluralism, and ideas. Gould's writing often focused on how science interacted with and was influenced by other aspects of society, and the care that science had to take to get its stories right. He believed that ideas could kill people as assuredly as bullets, and that science possessed ideas that were among the most powerful in the world. His analysis of the history of science (especially of the Burgess Shale) stressed that even though science was co-constructed with other social forces, this did not necessarily invalidate the science. So Gould campaigned vehemently against the invalid and socially destructive ideas that had been attributed to science and that, indeed, had been part of science. He waged war against genetic determinisms in whatever shape they took, whether they were manifest as the racial biology of the nineteenth century, the eugenics of the early twentieth century, or as aspects of the sociobiology and evolutionary psychology of the late twentieth century. His *Mismeasure of Man* and *Ever Since Darwin* were paeans to the glories of diversity, both within the living kingdoms and within humanity. He defended evolution eloquently in the media, in courthouses, and in the scientific literature. In all things evolutionary, the "ladder" was to be replaced by the "bush". Stephen J Gould had great fun making this world more just through better science. Like Gilbert and Sullivan's recipe for a "Heavy Dragoon", Gould was a remarkable composite: a first-rate teacher, scientist, and writer who educated us all by discovering the facts of nature, formulating a moral wisdom from such facts, and communicating the wonder and joy of science to the world.

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