

THE SCIENCE AND HUMANISM OF STEPHEN JAY GOULD

by Richard York and Brett Clark. New York, New York: Monthly Review Press, 2011. \$16.95 U.S., paperback. ISBN: 978-1-58367-216-7. Pages: 1-223.

Reviewed by Jon Careless¹

Gould saw “the transformation of society by scientific progress” as “the greatest dialectic in human history.” It involves a world filled with constraints and possibilities. It creates contingent historical moments that force the confrontation between the power to change and the limits set by external structures (184). The above passage is illustrative of the late Stephen Jay Gould’s commitment to producing an evolutionary theory predicated not on deterministic principles, but on a dialectical and humanist understanding of evolutionary dynamics. Establishing this point is the central thrust of this informative, well-written account of Gould’s career as a preeminent “paleontologist, evolutionary theorist, historian of science, and prolific writer.”

Gould’s most prominent challenge to orthodox ideas is his critique of the Modern Synthesis, “the neo-Darwinian theory based on the merger of Darwinian natural selection and Mendelian genetics,” which gained paradigmatic status in the 1950s (18). Gould, the authors note, greatly admired Darwin and did not dispute the validity of selection as an evolutionary factor. Rather, Gould contested the deterministic assumptions underlying the Modern Synthesis. This included the idea that evolutionary processes occur strictly through changing gene frequencies in populations regulated by selection (as is argued by Gould’s peer Richard Dawkins). The theory neglects organismal structure and processes taking place at levels other than selection among genes or individuals, along with any events occurring on timescales other than day-to-day interaction between organisms in ecological time.

Accordingly, proponents of Modern Synthesis assume organismal structural changes take the form of gradual adaptations generated in response to changing selection pressures. In response to the deterministic assumptions underlying ‘gradualist’ theories, Gould and his colleagues developed a dialectical explanation for evolution which they called

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punctuated equilibrium. According to this theory, most species undergo long periods of relative stasis, during which there are only minor, non-directional changes in organismal structure. These changes are non-directional in that their occurrence doesn't necessarily build upon or progress from the changes that preceded it. Indeed, the structural form of development can limit the types of forms organisms can take. These periods of stasis, furthermore, are punctuated by brief periods of rapid evolution. During such moments, new species emerge through separation and speciation by way of geological change, which occurs over millions of years between events of mass extinction. Gould thus placed great emphasis on historical contingency as impacting evolutionary pathways. Unpredictable events may cause mass extinctions, like the asteroid of the Cretaceous Era, which ended the evolutionary path of some species (dinosaurs) and opened a path for others (small mammals).

The authors allege that the orthodoxy afforded to gradualist evolutionary theories likely stems in part "from the ideology of the social elite, for slow, predictable change against the notion" that historical change can occur in brief revolutionary moments (40). Though the authors neglect to explore this elite conservatism in detail, they do include Gould's critiques of biological determinist theories which, the authors purport, legitimize social hierarchies. Such theories, like that put forth in *The Bell Curve* by Herrnstein and Murray (1994), argued that intelligence is determined by race, and that "the poor occupy their social position due to their inherently inferior intellects" (123). Gould reasoned that such theories fail due to the "proclivity of scholars to interpret ambiguous evidence in a manner that confirms their prior convictions" (119). Such logic flows from Gould's alignment with the Marxian scientific tradition through which he worked to unmask those cultural biases that were used for the ranking and ordering of humanity.

A principal strength of this book is its capacity to communicate Gould's ideas in a way that is not overly technical, but still establishes how Gould's theories contributed to a humanist understanding of evolutionary science. This is due, in large part, to the author's chosen methodology, which involved an in-depth analysis of Gould's work. The book provides an account of the wide range of philosophical ideas that influenced Gould's work, such as Mark Twain's satirical critique of the view of evolution as having determinately prepared the world "for the eventual rise of human beings" (7). Through their commitment to excavating Gould's worldview, the authors are better able to illustrate his "insights into a wide range of fields" (8). Given their efforts to produce a work that establishes the multi-disciplinary usefulness of Gould's ideas, it

is clear that this book is intended for audiences across a wide range of disciplines in the social sciences, humanities, and natural sciences. This feat is made more impressive given that York and Clark are not evolutionary scientists, but in fact are practicing sociologists possessed with a keen interest in Gould's work.

One of the book's weaknesses is that it does not include arguments from contemporaries of Gould who have challenged his theories. While notable modern theorists like Daniel Dennett and Richard Dawkins come under heavy criticism, Gould's own positions are left largely unchallenged. This oversight is likely due, as the author's note in the introduction, to their desire to focus "on the broader intellectual insights that underlie Gould's work, rather than debating any single particular claim about natural history" (12). In this sense, it is reasonable to suggest that if the authors were to delve heavily into the debates concerning theory, it might detract from the central purpose of the text. That said, the absence of such debates encourages the reader to accept the validity of Gould's criticisms against his peers without having to first consider counterpoints made against him, and thereby decide on what is credible themselves. Ultimately, though, this is a minor point of concern in what is an otherwise fantastic and highly readable text that gives due credit to an important thinker.