

## Gould's Real Contribution

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### FORUM

#### Gould's Real Contribution

In his review/essay (Vol. 16, No. 1), Donald Prothero takes a rather sour view of how Stephen Jay Gould's work and legacy has fared at the hands of neontologists. I agree with some of what Prothero writes; nevertheless a short response is warranted. Both Prothero and I are field-oriented paleontologists. While he has spent most of his career among geologists, I have spent mine among biologists of various stripes, which may explain our differing view on Gould's reception. Prothero emphasizes Eldredge and Gould's punctuated equilibrium as Gould's most important and most misunderstood contribution to evolutionary theory. It has become very clear that the punctuated part of this hypothesis is not in any way at odds with what we know of the processes of speciation and microevolution. The idea of stasis (equilibrium) was not new. No less than Darwin noted in 1859 (p. 121) in reference to the sole diagram in *Origins* that "the other nine species...of our original genus may for a long period continue transmitting unaltered descendants." Nevertheless, paleontologists have been correct in pushing the stasis (equilibrium) part of the hypothesis because neontologists too often do not appreciate the implications of deep time. Where Gould most rankled other biologists was in his attempts to downgrade the importance of natural selection and adaptation and his accompanying attempt to discover a new macroevolutionary mechanism. These attempts were not fruitful and it unfortunately eclipsed his other truly great contributions both to science and the public.

Some of his catalytic contributions can be found in three of his books: his argumentation for the importance of developmental timing in evolutionary change (*Ontogeny and Phylogeny* 1977), his emphasize on the importance of deep time in evolution (*Times Arrow, Time's Cycle* 1987), and his view that historical contingency is a major shaping force of evolution (*Wonderful Life* 1989). When I had the opportunity to speak with him at length in the late 1980s I expressed my admiration for his ideas in the first two books. He concurred that these were also his favorites. His lecture that day concentrated on historical contingency, and his *Wonderful Life* came out soon thereafter.

One particular passage of Prothero's requires a specific response. Prothero wrote "As Gould himself pointed out, paleontology was virtually irrelevant to evolutionary theory from Darwin's time until the 1940s. During the start of the Modern Synthesis in the 1930s and 1940s, Gould argued that paleontology became subservient to evolutionary genetics, especially due to the work of paleontologist George Gaylord Simpson and his book *Tempo and Mode in Evolution*." This is neither a correct portrayal of Simpson's contribution to the development of the Modern Synthesis of evolution nor Gould's commentary on Simpson's importance. In fact, in the 1983 article by Gould that Prothero cites, Gould had quite the opposite to say concerning Simpson's contribution: "The synthesis had received an indispensable boost from Simpson's brilliant and necessary argument (1944) that the large-scale phenomena of life's pageant could be rendered consistent with Darwinian principles" (p.359). Not only is Gould obviously praising Simpson's contribution but he is specifically citing the book that Prothero calls "subservient." Both Simpson and Gould are arguably the 20<sup>th</sup> century's most important paleontological contributors to evolutionary biology, but perhaps in Gould's case not in the areas he intended.

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