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Stephen J. Gould's Legacy: Nature, History, Society

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Stephen Jay Gould's hypothesis on neoteny in humans

Abstract

Thanks to the work of a generation of scholars, the profound influence that punctuated equilibrium has had on paleoanthropology is now widely acknowledged, and it is evident even in popular literature. However, the work of Steven J. Gould contains itself a complex and articulated anthropology which, if not as popular as his macroevolutionary theories, remains after decades – we believe – extraordinarily original and potentially fecund for a variety of disciplines. In my paper, Gould's theory on human neoteny, in the version he gave in *Ontogeny and Phylogeny* (1977), will be presented in detail. In addition, I will provide a concise review of the heated debate that the theory provoked in the literature on heterochrony. Gould proposed a theory on human evolution that was, at the same time, strictly adherent to Darwinian principles, and capable of synthesizing the approach of nascent evolutionary ecology with the idea that regulatory mechanisms of development played a central role in shaping our morphology. It was the first time such an attempt had been made, and literature on human evolution currently seems to struggle to reach such a level of synthesis. In the debate that followed, two different positions clearly emerged within the field of evolutionary developmental biology: one, expressed by Gould, that from a paleontological standpoint put emphasis on the concept of form, and the other, expressed by Gould's critics, that through an embryological approach put emphasis on the concept of growth. We believe this debate to be relevant not only for anthropology, but also for the epistemological analyses of evolutionary developmental biology in general. Furthermore, we will use this rigorous representation of Gould's theory on human neoteny to challenge a trend in philosophical anthropology, and in the popular literature that stems from it, which has used the concept of neoteny to give pseudo-scientific support to a new form of anthropocentrism. Far from demonstrating our "uniqueness", neoteny is an extraordinary tool to frame many of our apparent oddities in the continuum of living processes.