

One who created a tempo of his own

George Gaylord Simpson: Paleontologist and Evolutionist

by Leo F. Laporte
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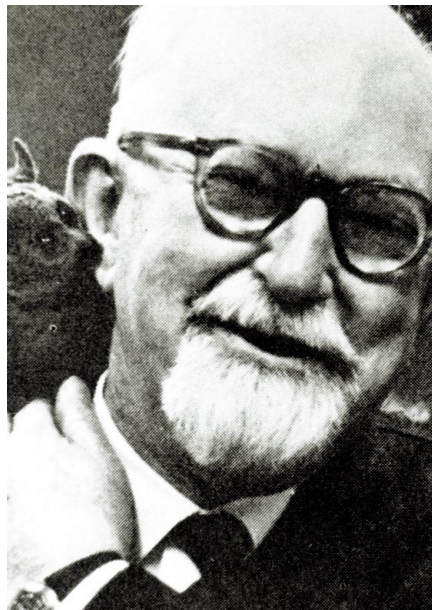
Michael J. Novacek

Palaeontology offers direct evidence about extinct life, and as such is integral to our understanding of nature and our place in it. But how exactly do patterns in the fossil record elucidate our understanding of evolution? Many decades ago, George Gaylord Simpson (1902–84), the subject of this informative and engaging biography by Leo Laporte, was consumed by this problem. In addressing those who refused to accept that palaeontological data could detect phylogenetic relationships and resolve other evolutionary problems, Simpson wrote: “In so difficult a study it is inexcusable to reject offhand any evidence that might give light.”

Laporte notes that Simpson “threw down the gauntlet” when he asserted that there was no reason why palaeontology and genetics should not be combined to provide a revised evolutionary perspective. He picked up the gauntlet himself in 1938 when he began writing *Tempo and Mode in Evolution*. With that work, Simpson, already known as an astoundingly prolific and influential palaeontologist, took on the mantle of visionary palaeontologist and, along with biologists such as Theodosius Dobzhansky and Ernst Mayr, became an architect of what was then called the “modern evolutionary synthesis”.

Laporte, whose book is a linked series of previously issued articles, treats the publication of *Tempo and Mode* in 1944 as a pivotal moment that transformed a career and a discipline. He effectively traces the influential roots of the work and methodically reviews its major tenets. He also reminds us that Simpson was the first to really codify the notion that microevolutionary processes suggested by genetics and population biology were essentially sufficient to explain patterns in the fossil record. Accordingly, Simpson thoroughly trounced vestiges of advocacy for ‘straight line’ evolution that seemed peculiarly enduring within palaeontology.

Laporte’s analysis of the impact of *Tempo and Mode* lacks incisiveness, and gives only a flavour of the vast variety of reactions — whether acceptance, criticism, embellishment, emulation or emphatic rejection — that have proliferated in the primary literature. For example, he fails to dissect the complex blend of similarities and distinctions between *Tempo and Mode* and the much more recent model of punctuated equilibrium devised by Niles Eldredge and Stephen



Visionary: Simpson was an architect of a new approach to palaeontology.

Jay Gould, which posits rapid shifts during speciation events followed by prolonged stasis. Instead, Laporte relates the largely positive reaction to *Tempo and Mode*, as expressed mainly by ecologists and geneticists, in the years immediately after it was published. This truncated historical treatment creates the false impression that even some of Simpson’s most controversial proposals had rock-solid endurance. Modern approaches to the study of evolutionary rates are not simply a refinement of Simpson’s use of survivorship curves. To believe this is to ignore the substantial current debate over the assumptions made for these rate estimates and what they really explain. Laporte does offer a closing comment that some of the conclusions in *Tempo and Mode* are “badly flawed”, but he doesn’t tell us how.

Critical response to *Tempo and Mode* generally falls into two camps. Some applaud Simpson’s valiant steps into the *terra incognita* of evolutionary palaeontology, but substitute their own theories for his. Others remain dissatisfied with the empirical basis for some of either Simpson’s or more modern formulations. This resistance may partly stem from parochialism, but may also be a reasonable concern for what is justified by the evidence. As Laporte relates, even Dobzhansky and other biologists who heaped praise on *Tempo and Mode* when it first appeared remarked on a certain thinness of documentation.

In addition to describing the widespread interest in *Tempo and Mode*, the book shows how hugely influential and productive Simpson was in several other areas. Simpson the explorer is well documented, and Laporte skilfully links Simpson’s early quantitative studies of fossils that he himself collected with his later investigation of more general evolutionary problems. Simpson the bio-

geographer is aptly described as a rallying point for palaeontologists and geologists who rejected Alfred Wegener’s theories of continental drift. History, of course, shows this as the losing position. And the accumulation of evidence for plate tectonics in the 1960s eventually compelled Simpson to capitulate. As for his commitment to taxonomy and classification, Simpson spent much of his career describing many fossil mammals, and eventually produced a classification of the whole group.

Here again, Laporte unfortunately fails to place Simpson’s achievements in the context of more recent trends. While recognizing Simpson’s prodigious contributions, many today regard his mammalian classification as a step backward in concept and methodology. Moreover, Laporte hardly mentions Simpson’s conflicts with the rise of new approaches to systematic classifications, such as cladistics, and their threat to his philosophies.

In recounting Simpson’s personal and professional life, Laporte candidly offers a sad portrayal of a man who seemed to recognize with gratitude the warmth and support of his mentors but seemed unable to project those qualities himself. To be fair, Simpson’s intensive attention to his work and his enormous output would distinguish and, at the same time, distance anyone. Nonetheless, it seems that Simpson’s own reserve, whether a product of shyness or a sense of superiority, did not help to connect him closely with people.

The book relates the conflicts and resentment that induced Simpson to move to Harvard from the American Museum of Natural History. Laporte’s review of this matter, as well as his brief note on Simpson’s strained departure later from Harvard’s Museum of Comparative Zoology, lays much of the blame on Simpson himself. The biographer remarks that, despite the great man’s achievements, his “expectations were at times inflated, going beyond the bounds of what was reasonable in terms of other people’s needs and interests and responsibilities”.

Laporte derives some insights into Simpson’s mood in his final years from the brooding, melancholic Sam Magruder, the title character of Simpson’s posthumously published science-fiction novella. But it is clear that, in the Arizona retreat that served as home, library and laboratory in that final epoch, Simpson found much comfort in the companionship of his wife, Anne Roe, a statistician and clinical psychologist who, with Simpson, published the influential book *Quantitative Zoology* in 1939. He also had a small circle of friends and colleagues, and maintained his own indefatigable passion for scientific research until his death. ■

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