

This Week's Citation Classic

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Mayr E. *Animal species and evolution*.

Cambridge, MA: Harvard University Press, 1963. 797 p.

The present work is an attempt to summarize and review critically what we know about the biology and genetics of animal species and their role in evolution. This is a volume on the species and its role in evolution theory itself. [The (SCI[®]) indicates that this paper has been cited over 935 times since 1963.]

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"After four printings of my *Systematics and the Origin of Species* had been sold out (around 1949), I had to decide whether or not to bring out a revised edition.¹ Realizing how active the field of evolutionary biology had become, I decided to prepare an entirely new work in which I would try to synthesize the entire literature of the field with particular emphasis on the origin of organic diversity.

"I began the first draft in 1949, but continuously revising each chapter and incorporating the newest literature, I was not ready to turn the manuscript over to Harvard University Press until 13 years later (1962). The volume is still selling unexpectedly well, 16 years after its publication, and after four or five other somewhat similar syn-

theses have been published. Benign reviewers claim that the volume is better balanced and the subject matter presented in a more logical sequence than in the competing volumes. This popularity is the more surprising since the volume does not deal with all the exciting new discoveries in molecular biology.

"My emphasis in the volume has been on three aspects. The first is that I have consistently described evolutionary change as well as the origin of evolutionary diversity as population phenomena. Only he who understands the variation of populations and the consequences of an isolation of populations will understand evolution. The second point is that I rejected the atomistic approach in much of population genetics, which ascribed absolute selective values to individual genes and made calculations as if the changes in the frequency of individual genes were independent of each other. The third point is that my concept of evolution stresses that which every biologist considers as evolution, changes in adaptation and in organic diversity. Structure and habits are the target of selection, and not individual genes. This permits a bridging of the gap between the findings of population genetics and those of the students of macro-evolution. Finally, I devoted an entire chapter to an application of the modern evolutionary findings to the evolution of man."

1. Mayr E. *Systematics and the origin of species*. New York: Columbia University Press, 1942. 334 p.