

Preface to the Third Edition

TEN YEARS have elapsed since the publication of the second edition of this book. This decade witnessed the convulsion of the War and the gloom of the postwar reaction. And yet, it has proved to be the most fruitful decade in the history of evolutionary thought since the appearance of Darwin's classic in 1859.

The earlier conclusions reached by the different biological disciplines bearing on evolution had often seemed inconsistent with each other. There seemed to be no common language spoken by geneticists, systematists, paleontologists, ecologists, embryologists, and comparative anatomists interested in evolutionary problems. This is no longer the case. Mayr's *Systematics and the Origin of Species* (1941) and Stebbins's *Variation and Evolution in Plants* (1950) showed that the findings of animal and plant systematics are wholly compatible with the theory of the mechanisms of evolution developed by geneticists. Simpson's *Tempo and Mode in Evolution* (1944) and *Meaning of Evolution* (1949) ended the belief which used to have a surprisingly wide currency, that paleontology has discovered some mysterious "macroevolution" which is inexplicable in the light of the known principles of genetics. The long pageant of evolution extending over one billion years appears to have been brought about by fundamental causes which are still in operation and which can be experimented with today. Rensch (1947) and Schmalhausen (1949) generalized the facts of comparative morphology and comparative and experimental embryology, and integrated them with genetics. A similar integration of the findings of ecology and natural history was given by Huxley (1942), Lack (1947), and Emerson (in Allee et al., 1949), and of cytology by White (1945). Only the fields of physiology and biochemistry still remain relatively little influenced by the evolutionary approach. However that may be, instead of the varied theories of evolution which arose in different branches of biology, we are now witnessing the emergence of a

new science of life unified by the great evolutionary idea. It is quite possible to analyze and to describe the processes of life one by one. But biology is becoming more than a branch of technology concerned with organic materials and processes. It aspires towards understanding life and man. Such an understanding requires knowledge of the organism as a part of the constantly changing and developing pattern of nature. Evolutionary biology is a study of the dynamics of life.

The amount of new data bearing on evolution published in recent years is very large. In preparing a third edition of the present book it has been even more necessary than in the past to avoid submerging the fundamental principles of the evolutionary thought in a review of the current literature. In numerous instances this has meant that some valuable papers could not be adequately discussed or even mentioned. More than in the first two editions the economy of space required that the presentation be made assertive rather than polemic.

This book owes much to the critical reading of the manuscript by my colleagues and friends Drs. A. B. da Cunha, M. Demerec, L. C. Dunn, E. Mayr, J. A. Moore, and T. Prout. My greatest appreciation goes to Mrs. N. P. Sivertzev-Dobzhansky for her advice, criticism, and her help in the preparation of the manuscript and in reading the proofs. The adroit editorial pencil of Miss Elizabeth Adams, of the Columbia University Press, has efficiently removed numerous rough spots in the original manuscript.

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