# Book Reviews

***Neuere Probleme der Abstammungslehre — Die transspezifische Evolution.*** Bernhard Rensch. Ferdinand Enke Verlag, Stuttgart, ed. 2, 1954. xi + 436 pp. Illus. Paper DM. 47.00; cloth, DM. 49.20.

Practically every chapter and subchapter of Rensch's book on "trans-specific evolution," that is, the origin of systematic categories higher than the species, ends with a sentence that sounds approximately like this:

> In summary we can conclude that the reviewed evidence shows that the considered evolutionary event can be explained in terms of the factors responsible for intra-specific evolution (mutation, changes in population size, selection, isolation). There is no reason to assume that other autonomous internal factors have been at work.

Since these statements come from one of the world's leading zoologists who at one time was a convinced Lamarckist and later has probably contributed more than anybody else to establish the importance of geographic variations within the species in his classical work on *Rassenkreise,* the statements certainly do carry a great weight for anyone who is interested in the study of evolution.

This is the second enlarged edition; the book originally appeared in 1947. Even though the general plan has not been basically altered, several chapters have been entirely rewritten and others have been added. Trans-specific evolution is considered from two main aspects: "cladogenesis," that is, the branching of phyletic lines, and "anagenesis," that is, the origin of progressive changes, of higher more complex structures. Problems of general significance for biology, such as evolutionary rates, irreversibility of evolution, origin of new organs and of morphological correlations, orthogenesis, degeneration and extinction of phyletic branches, increase of complexity in the structure of organisms, and the like, are discussed with great originality, with the evaluation of an imposing amount of pertinent data. Chapters dealing with problems to which the author and his school have made personal contributions are particularly noteworthy. Remarkable among these is a discussion of the significance of allometric growth for evolutionary advances based on very recent investigations carried out at Rensch's laboratory at the University of Münster. Stimulating, too, are other chapters of a more speculative nature, such as that on the possibility of existence and evolution of living things on cosmic bodies other than the earth and that on the origin of the phenomenon of consciousness and cognition (*Bewusstseinerscheinungen*).

The significance of Rensch's contribution to evolutionary literature lies, I think, in the fact that it provides a thorough discussion from a modern viewpoint of problems of evolution as approached by a morphologist studying living fauna. These have previously been presented by Dobzhansky from the viewpoint of the geneticist, and therefore dealing primarily with variation at the subspecific level; by Simpson from the viewpoint of the paleontologist, and therefore dealing primarily with the major features of evolution observed along the time axis; and by Mayr from the viewpoint of the systematist, and therefore dealing primarily with speciation and the origin of taxonomic categories.

In this book we find a very learned and novel discussion, especially for the American reader, of most of the classic problems of morphology that have aroused the doubts of many biologists concerning the validity of the Darwinian theory of natural selection for explaining evolutionary events. It is indeed gratifying to see how convergent conclusions can be drawn starting from such different viewpoints and experiences. The value of genetic mechanisms in explaining morphological correlations could possibly have been presented in a more forceful way had recent work on polygenic inheritance and on correlated responses under selection been considered. As it stands, however, this book is certainly very important at the present stage of development of evolutionary studies. A translation into the English language would be very valuable.

At a time when even scientists seem to favor the intervention of mysterious, unanalyzed, and often unanalyzable, almost mystic factors to explain natural events, it is indeed refreshing to read such a clear, down to earth discussion of the major problems of biology carried out with a detached and healthy scientific attitude.

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***The Mind and the Eye.*** A study of the biologist's standpoint. Agnes Arber. Cambridge Univ. Press, New York, 1954. 146 pp. $3.

The author of this group of essays is a well-known British botanist who, nearing the end of her active service, lays before us these studies of the basic assumptions, investigational methods, and modes of written description currently accepted among biological workers, together with her conception of the metaphysical and philosophic implications of her science. Part I deals with the nature of biological research, the choice of a problem, the mode of discovery, the interpretation of data, the validity of conclusions, and the writing of reports. Part II carries the argument to higher levels, with examination of the bases of scientific thinking, of fundamental assumptions in biological research, of the role of antitheses in the description of problems, and of the value of metaphysical and philosophic theories in interpretation. The author illuminates her argument with many