

beings, by the effects of external conditions, or of habit, or of the volition of the plant itself. (lines 23-25)

The problem of adaptation, after all, is very nearly one with the problem of coadaptation, and it is the solution of the latter which Darwin set as the condition of the adequacy of any evolutionary theory.

Vorzimmer neither contests nor notices that condition. Nor does he clearly formulate the thesis that his argument requires: that Darwin came to admit a systematic correlation of the causes of variation and the adaptive needs of organisms. In fact, that thesis is false. In consequence, although his book contains valuable information concerning the interaction of Darwin and his critics, his central conclusions about the import of Darwin's concessions to Lamarckism are not established.

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COEFFICIENTS OF NATURAL SELECTION. L. M. Cook. Hutchinson University Library 1971. Pp. 207. £1.25.

Though population genetics is some 50 years old, the mathematical theory is only slowly becoming sufficiently sophisticated to deal with natural selection in wild populations in the true sense of the word "wild". This has mostly been because we have been unable to deal with the environment in its full complexity, in which the physical environment of the species varies in time and space and its biological environment (those other species which compete with it or prey upon it) has a population genetics of its own. This book attempts to present fairly simply (but with a quite misleading title) "the theory of natural selection as used in ecological genetics". The algebra takes up only a small part of each section which is then devoted to a discussion of its relevance to the real world.

In the main, the author succeeds in his intentions and makes available in one cover topics such as gene-frequency dependent selection, selection in several environments and so on, the theory of which is only to be found in the original papers. There are, however, too many misprints in the algebra.

The main gap in existing theory concerns natural selection at the level of metric characters. It may be that it will be impossible to construct an adequate theory—one in which predictions of reasonable accuracy can be made—but the necessary condition which must hold before the observed interrelationship between a metric character and fitness can be used in any predictive way is not generally realised and is certainly not given by the author in the relevant chapter. This is that variation in fitness between genotypes at the loci affecting the measurement are completely determined by the phenotype for the measurement—in other words that these loci form a closed system affecting fitness solely through the measurement being made. It is very doubtful whether this condition is ever satisfied in real life.

Although population density and number as factors in natural selection are thoroughly discussed, the author does not attempt to deal with genetic drift, probably the right decision in a book of this size. There is little treatment of plants (Allard's work on partially-selfing species like *Avena* finds no reference in the chapter on "polymorphism in non-panmictic conditions")

and, in my view a very important omission, no discussion of the complications in the analysis of any selection process arising from the stage at which gene frequencies are measured, recently well discussed by Prout.

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GENETICS. D. J. Cove. Cambridge University Press, 1971. Pp. 216. Hard cover, £3.00; Paperback, £1.40.

The appearance of yet another text for students meeting genetics for the first time is hardly likely to generate much enthusiasm among teachers. However, they would be well advised to consider the merits of the strategy displayed in this approach to the problem.

The basic ideas are introduced by reference to inheritance in haploid organisms and the examples are chosen from *Aspergillus*. There follows an account of inheritance in diploids, chromosome theory, gene mapping and gene action. Succeeding chapters deal with the structure of DNA, especially with reference to mutation, the genetics of bacteria and phage, cytoplasmic inheritance, protein synthesis and the genetic code, intermediary metabolism, the control of gene activities and finally, a brief look at the principal ideas in the genetic control of development. These various topics are dealt with in a succinct and lucid manner and there are two very useful features in the treatment, namely, the printing of technical terms in heavy type when they appear for the first time and also a chapter of problems with the answers at the back of the book.

The Author points out that the text does not pretend to be a comprehensive introduction and it makes no mention, for example, of population genetics or evolution. Every teacher has his own ideas on how best to introduce genetics to students but there is much to be said for keeping an open mind on this and anyone prepared to do so should certainly consider the approach in this text.

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THE ONGOING EVOLUTION OF LATIN AMERICAN POPULATIONS. Francisco M. Salzano (Ed.). Charles C. Thomas, Illinois, February 1971. Pp. 717. \$25.25.

Human population geneticists should be aware of this expensive book, though perhaps few will purchase it unless specifically interested in the complexities of South American anthropology, social or physical. It is a full report of a conference held in Austria in 1969 and is divided into five sections, most of the genetic aspects falling into parts 2, 4 and 5. The rich variety of every aspect of human life on that continent is emphasised on practically every page and conscientious efforts are made to order this vast wealth of information by refining classificatory and semantic practice. The science of social anthropology is, understandably, still at this descriptive stage and, less understandably, has not yet shaken off the political and moral attributes of the writer—of p. 62 for example who hopes “those in charge . . . may avoid the worst consequences of haphazard contact or mistaken policies”. The probing by detached scientists into social phenomena seems to have opened a gate through which a surge of involved sociologists has poured and is