
 Book reviews

Autrum, H.; Wolf, U. (eds): Humanbiologie. Heidelberger Taschenbücher, Band 121. Berlin, Heidelberg, New York, Tokyo: Springer 1983. 256 pp., 51 figs. \$ 10.10.

In its second edition this attractive pocket book on human biology has been brought up-to-date. Most of the 13 chapters show a strong genetic touch. It is not, as the title may suggest, a textbook of human biology, but more a presentation of modern aspects of the sciences of man. It was in its first edition of 1977 born of the fact that anthropology in Germany had developed a bad reputation. The completely revised edition reflects the progress of the recent decennium, so that quite a good overview on present day problems is given. In addition to evolution and selection, special attention is given to chromosomal aberrations, molecular organisation of the genome, biochemical genetics and genetical aspects of transplantation. Immunology, twin research and the effects of environmental pollution and human ethology have not been forgotten and are discussed by German experts. Special emphasis is placed on genetical aspects of gerontology and intelligence. The book is easy to read. Each chapter contains a list of supplementary readings.

H. F. Linskens, Nijmegen

Mayo, O.: Natural Selection and Its Constraints. London, New York: Academic Press 1983. viii + 145 pp., several figs. Soft bound £ 5.95.

From the beginning until present day, the theory of evolution by natural selection has been open to much criticism and doubt. The well-known arguments against its acceptance (slowness of the evolutionary process; difficulties in explaining precise adaptations, progressive evolution and speciation) have repeatedly initiated controversial discussions.

The author's aim in this book is to provide answers to the following questions:

1. How much evolutionary change can be explained best by natural selection?
2. How much evolutionary change can best be explained by other mechanisms of evolution which have been advanced at various times?
3. Under what circumstances will natural selection be completely or partly ineffective?
4. Within what constraints must natural selection operate?

5. Are the constraints on natural selection unique to natural selection?

The general guidelines in discussing these questions are: definition of natural selection and some other hypothesized broad mechanisms of evolution; general constraints on any evolutionary process; hypotheses about very early evolution and, finally, consideration of evolution as constrained by something rather like the genetical mechanisms existing today.

The chapter-headings 'alternative hypotheses of evolution', 'general boundaries for evolution', 'physical constraints', 'early evolution', 'adaptation', 'the rate of evolution', 'canalization', 'processes regarded as distinct from natural selection', 'sexual reproduction', 'speciation' and 'conclusions in terms of historical science' provide a sufficient insight into the main content of the different chapters. Therefore, further comments concerning the content may be omitted here in this review.

All chapters are followed by a list of speculative questions which are related to the problems of the preceding chapter. These 'topics for discussion' can also be used for teaching-purposes to initiate and stimulate fruitful discussions in any courses on evolutionary problems.

An extensive list of references (650 titles!) provides the reader with the possibility for advanced and extended studies. But in spite of this gigantic number of cited references some recent publications of special interest and importance covering the same topics are missing here, for example: Ninio, J.: Molecular approaches to evolution (Pitman - London 1982) and Steele, E. J.: Somatic selection and adaptive evolution on the inheritance of acquired characters (Croom Helm - London 1980).

The book is excellently written in a very informative, lucid and concise style. The text can be read with profit and interest by readers at very different levels. Necessary special results from evolutionary biology as well as details from population genetics have been kept to a minimum. Only a knowledge of basic facts from these fields has been presumed. Furthermore, the author succeeded in restricting the mathematics to an extremely elementary level.

Without any doubt and restriction I want to characterize this book as stimulating and fascinating. I enjoyed reading it. I am sure any evolutionary biologist and geneticist will confirm this opinion.

M. Hühn, Kiel