members, for many of whom it may be a timely reminder of their deficiencies.

Fortunately for all of us, this is a book that is not only of fundamental importance but also a delight to read. Its style is clear, its presentation orderly, its illustrations relevant and of high quality. Most important of all it comes over as being written by two authors who have not only been major figures in the development of human genetics up till the present, but who appear vitally concerned for its role in the future, both as it influences the development of our knowledge and as it affects the welfare of man.

P S HARPER

Genetic Disorders and the Fetus. Diagnosis, Prevention, and Treatment.

Edited by A Milunsky. (Pp xxiv+704; figures + tables. £49.50.)

New York, London: Plenum Press. 1979.

All but two of the contributors to this work are North American and, although this does not detract in any way from the content, it does explain the bias towards American attitudes, both medical and societal.

The guidelines for genetic counselling are good and clear although there are some medicolegal attitudes with which the non-American reader will not be familiar. It is a pity the chapter on Amniocentesis was written before the Val David conference for two reasons. The consensus reached by the internationally recognised experts at this meeting was that this procedure is not without risk and that this risk is probably no higher than a 1% increase in the risk of fetal loss, although how much lower is still a matter of speculation. The second is that the incidence of respiratory problems in the neonatal period just failed to reach statistical significance in the American study on the subject, whereas it did attain significance in the British study, suggesting that paediatric presence at the delivery of such infants is important.

The editor's experience of amniotic fluid cell culture is probably unparalleled and his contributions on this subject and on the diagnosis of chromosomal disorders reflect this. The vast subject of hereditary biochemical disorders of metabolism and the pitfalls present in this area occupy a quarter of this large volume and are most adequately dealt with.

The subject of neural tube defects is fairly well covered, but the reader in the UK would do well to remember the higher incidence of these conditions in this country, as well as the relationship between

recurrence risks and population incidence. The chapter on the use of ultrasound is somewhat disappointing in that there are omissions of conditions whose diagnosis by this means are well documented.

The diagnostic value of fetoscopy and fetal blood sampling is well covered by the experts from Yale, and the theoretical advantages as well as the problems associated with obtaining fetal tissue from the trophoblast and fetal cells in the maternal circulation are well documented.

The volume ends with comprehensive discussions on the medicolegal (specifically American) and moral aspects of prenatal diagnosis, which all who are involved in this field would do well to read.

As an up-to-date source of reference, this book is highly recommended and the editor and his contributors are to be congratulated. The cost alone will probably discourage the individual, but no medical library can justify not having a copy.

M J BENNETT

Theory of Population Genetics and Evolutionary Ecology: An Introduction

By J Roughgarden. (Pp x + 634;

figures + tables. £18.70.)

New York, London: Collier Macmillan. 1979.

Here for once is a book which is exactly what its title claims, neither more nor less. Evolutionary population ecology is a new facet of population biology based on the integration of evolutionary genetics with population ecology. It develops descriptions of evolutionary change based on genetic models of the effects of selection, drift, etc, on gene frequencies and fitness, and on ecological models of the external constraints on population growth—availability of resources, competition, and so on. The result is a rapidly evolving body of quantitative theory, little of which can be found in older textbooks on evolution.

This book, as its title states, is an introduction to the field, but a peculiarity which runs right through the book is the mixing of very elementary and rather advanced material. Chapters are categorised as elementary ('suitable for undergraduate and beginning graduate students') or advanced ('for graduate students, professional scientists and others who want a survey of models on comparatively specialised topics'). In fact, even within a chapter which is supposedly elementary or advanced the author sometimes seems unsure whom he is addressing, and arguably it might have been better to separate the material into two books. As it is, beginners may be

frightened off, while the careful and lucid explanations of elementary points will be wasted on professionals. On the other hand a mathematically adept beginner will find the mixture exciting to dip into.

The first six (elementary) chapters cover standard topics of population genetics, beginning with Hardy-Weinberg and going on to natural selection, mutation, and drift at one locus. The chapter on drift, though labelled 'elementary', is considerably more demanding than the other elementary chapters. This section ends with an interesting and straightforward discussion of the neutrality controversy. Chapters 7 to 10 (advanced) cover multiple alleles, multiple loci, quantitative inheritance, and non-random mating. Chapter 8 has a rather exhaustive survey of the mathematical quirks which can be extracted from models of natural selection at two loci, while chapter 9 has a good discussion of the heritability concept and its limitations. The next four chapters (advanced) cover special topics in evolution: the evolution of the genetic system, evolution in spatially and temporally varying environments, ending with an interesting review of the controversies over altruism and group selection.

The elementary ecology starts with the common models of population growth, and the next chapter incorporates into these selection in a simple two-allele system to give a model of density-dependent selection. Next, age structure is introduced, then chapter 19 (advanced) brings in genetics with age-specific selection, which leads onto the important question of the evolution of senescence. The final chapter in this section uses time series analysis to explore conditions leading to extinction and the lag between a change in the environment and the appropriate change in population size. In the last

section, on interacting populations, two elementary chapters detail simple models of density-dependent competition and predation. The final two chapters apply these ideas to co-evolution (the simultaneous evolution of interacting populations) and to niche theory. These are based largely on the author's own work and are noticeably more lively in style than the rest of the book.

This is, as the title says, a book of theory, and the emphasis throughout is on the development of mathematical models. Roughgarden does take care to describe the biological relevance of each topic, but such natural history as there is there to illustrate the mathematics, rather than the other way round. To an observer from the very applied world of medical genetics there is more than a hint of Tom Thumbism—the tendency to put one's thumb into the mathematical pie, pull out a plum of an equation, and sit admiring it. But this is a criticism of the subject rather than of the author and it applies particularly to the ecological sections, where there are no universal simple mechanisms and the descriptions must necessarily be fairly abstract to have any generality.

This is a solid, well-made book, nicely produced and good to handle and includes a lot of material not available in book form elsewhere. The writing is always lucid, and although the argument is largely mathematical it does not in fact demand as advanced a knowledge of mathematics as the first glance may suggest. For the medical geneticist wanting to learn human population genetics it will not replace the classic books by Cavalli-Sforza and Bodmer, but it provides an excellent and probably unique entry to the rapidly expanding literature of theoretical population biology.

ANDREW P READ

Announcement

2ND INTERNATIONAL CONFERENCE OF DIABETES MELLITUS

This congress will be held in Freiburg/Br, Germany (FRG) from 9–11 April 1981.

For further information, please contact: Pro-

fessor J Köbberling, Medizinische Universitätsklinik, Robert-Koch-Strasse 40, D 3400 Göttingen, FRG.

Preliminary programmes may be obtained from Sero Symposia, Goethestrasse 62, D 7800 Freiburg/Br, FRG.