REVIEWS

HORMONE CHEMISTRY. W. R. Butt. John Wiley and Sons, Inc., 1977. 2nd Edition. Pp. 272. Price: £16.00.

If you need to find out something about vertebrate hormones this is the book with which to start. It contains the basic facts about the structure, metabolism and functions of oestrogens, androgens, progestagens, corticosteroids, thyroid hormones, catecholamines and prostaglandins. The book discusses the best ways of identifying and measuring these hormones in a variety of biological fluids. Each section includes an account of the synthetic analogues of the natural hormones, and describes their uses and assay.

The book is well produced and is illustrated with many clear diagrams. Finding further information about any hormone or assay method is made very easy by the carefully selected bibliographies given at the end of each section. These include references to over 1400 original papers and reviews. I hope that my copy will not be worn to shreds through constant use before the third edition is published.

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GENETIC ENGINEERING: THREAT OR PROMISE? Laurence Karp. Nelson-Hall Inc., Chicago, 1976. Pp. 235. Price: \$15.00.

The most unfortunate thing about this book is its title, which has recently (no doubt since the book's conception) become associated with techniques of *in vitro* genetic recombination. Dr Karp's one reference to the latter is untypically confused, since he leads the reader to suppose that the manifesto organised by Paul Berg had to do with the *in vivo* phenomena of transformation and transduction. But the book is primarily about the more controversial medical applications of genetics and reproductive biology (often referring to the latter class as "reproductive engineering"); it is addressed to the non-geneticist and lay public, and it does a good job.

The author first outlines the basic principles of genetics, starting with the gene as a length of DNA (but avoiding mention of bases) and a protein as its usual product, and continuing to describe chromosomes, mitosis and meiosis (without mentioning crossing-over); then come genetic diseases, under chromosomal abnormalities, single gene defects, and multifactorial conditions. There follow chapters on genetic counselling, eugenics, screening for carriers or affected individuals, therapy (*e.g.* dietary manipulation in phenylketonuria), and prenatal diagnosis. The second half of the book is devoted to "reproductive engineering": artificial insemination, sex determination, ectogenesis (defined as "techniques which permit an egg or an embryo to complete some or all of its parental development outside, rather than within, the female reproductive tract"), parthenogenesis, cloning, and the synthesis of life from unliving matter. The last three headings may suggest that Dr Karp is willing to indulge science fiction; but his concern is to distinguish what can reasonably be said in these

contexts from what has sometimes been wildly claimed (he refers, for instance, to Dr Leon Kass as considering the production of 10,000 Mao Tse-Tungs by cloning).

The book is clear and unpatronising, all the more so where it is strongly argued, which is often. As one example, I do not recall having seen a better non-technical criticism of eugenics. Dr Karp is also especially vivid in telling the reader what actually happens: the procedure in genetic counselling, for instance, or how screening programmes are carried out. Instances are even given where actual practice departs from the ideal; e.g. a misdiagnosis of diastrophic for achondroplastic dwarfism, which led to a couple having three affected children before correct diagnosis. He is also openly critical of what he considers unjustified scientific or medical claims, such as those of Shettles on sex determination.

The author adopts a rather polemical attitude towards those who exaggerate potential hazards or who question development in this area on ideological/philosophical/religious grounds. In the preface, he makes plain his position, which is a moderate commitment to the freedom of individuals (by which he clearly implies members of the public rather than interested professionals or doctrinaires) "to conduct their own affairs". Throughout the book, Dr Karp is profoundly sceptical of scientific arguments overtly manipulated for political ends, or calls for control on particular lines of research based on unrealistic, sometimes hysterical, prophecies on their consequences. One is inclined to have reservations about his optimism that informed and rational free choice is unlikely ever to have untoward results. However, he argues convincingly that many dire predictions assume future societies so unpleasant that there will be far worse subjects for worry.

This book, therefore, is not aimed so much at professional geneticists (and readers of *Heredity*), as at those of their relatives and acquaintances who, interested and perhaps concerned, ask to have suggested an informative and well-argued book on medical aspects of genetics and reproductive biology. For them, it may be recommended.

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FOUNDATIONS OF MATHEMATICAL GENETICS. A. W. F. Edwards. Cambridge University Press, 1977. Pp. viii+119. Price: £5.80.

This book is intended for mathematicians rather than biologists. It gives a very full account of one locus, deterministic selection theory with random-mating and constant fitnesses, but other topics are only briefly treated or not mentioned. In this respect the title is somewhat misleading, and a mathematician wishing to become acquainted with theoretical population genetics will find a more comprehensive survey in Ewens' text. Chapters 2, 4 and 6, which cover the algebra of one-locus selection theory, are likely to be of most use to geneticists interested in the mathematical aspects of population genetics. They provide a lucid and detailed account, using matrix algebra to handle the n -allele case. Chapters 3 and 5 give a geometrical treatment of selection with two and three alleles respectively, which most readers will probably find rather esoteric. Edwards is very much concerned with the history of the subject, and the mathematics is inter-