

## BOOK REVIEWS

CHROMOSOMES TODAY, Vol. 7. M. D. Bennett, M. Bobrow and G. Hewitt (Eds). George Allen and Unwin, 1981. Pp. xxiii + 310. Price: £16.00.

This volume contains the proceedings of the 7th International Chromosome Conference on its return, after a decade, to Oxford. All of the papers are contributed by speakers invited to "present summaries of the current state of their own particular fields". Abstracts of the poster demonstrations were published separately at the time of Conference. The twenty-seven papers are organised under eight sections, of which the largest (nine contributions) is predictably concerned with chromosome organisation at the molecular level. The main issues discussed are the organisation of the various types of repeated DNAs, including mobile sequences, within the chromosomes, and the questions of their origin and their function in relation to phenotype and evolution. One paper in this Section is concerned with the structure of polytene chromosomes and it is refreshing to have some balance between text and illustrations. Meiosis is allotted three papers only, one on biochemistry by H. Stern, one on synaptonemal complexes by J. Wahrman and one on the detection and analysis of meiotic exchanges by G. H. Jones and C. Tease. Populations have two contributions, one by B. John arguing persuasively that one of the functions of heterochromatin variation in natural populations is the regulation of recombination and another by C. F. Curtis concerned with chromosome manipulation for insect pest control. There are sections too with papers on Chromosomes and Speciation (3), Chromosomes and Plant Breeding (2), Chromosomes and Malignant Change (2), Induced Chromosome Variation (2) and Human Cytogenetics (4).

Chromosomes Today are thus given wide coverage, with emphasis on molecular affairs. The treatment of some other areas such as polyploidy, chromosome movement and chromosomes in relation to development, for example, is noticeably scant. What is also noticeable is the heterogeneity in the format of the papers. They range from as brief as two, up to as lengthy as fifteen pages of solid text. Some authors have summarised their field of work and others have simply presented an aspect of their work. The volume contains one photograph of plant chromosomes—an *in situ* hybridisation in maize showing a satellite DNA localised to knob heterochromatin—in the paper by Peacock, Dennis and Gerlach. Photographs of meiosis (in animals) can be found in Wahrman's paper on synaptonemal complexes and that of Jones and Tease on meiotic exchange.

Professor Darlington, who founded the Chromosome Conference, died in the interval between the Conference and the publication of the proceedings. His introductory paper—"Chromosomes and organisms: the evolutionary paradoxes" on the theme of the C-value paradox, is one of the most interesting in the volume. He reminds us that we are dealing with chromosomes as a part of the genetic system and that in the search to find immediate relationships between the nucleus and phenotype of

individuals we must not overlook the fact that variations in the chromosome have their effects through future generations.

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POPULATION STRUCTURE AND GENETIC DISORDERS. A. W. Eriksson, H. R. Forsius, H. R. Nevanlinna, P. L. Workman and R. K. Norio (Eds). Academic Press Inc., London, 1980. Pp. xvii + 690. Price: £55.00/\$126.50.

This is a collection of papers presented at a Symposium, held in Mariehamn, Finland in 1978, devoted to human population structure and genetic variation, both "normal" and clinical, with a strong emphasis on variation in isolated populations. A vast mass of data on allele, haplotype, genotype and phenotype frequencies in a wide range of populations is accompanied by much interesting and relevant information on the history and mating structure of the populations discussed. Unfortunately, such demographic information, while helpful in illuminating some important points (such as the role of chance in the spread of rare harmful recessives), is at the moment insufficient for any definitive account of the factors governing variation in human populations; this variation is, in fact, as little understood as genetic variation in any other species. Inevitably, then, explanations given by the authors for the patterns of genetic variation they describe are highly speculative. As a result, this book will appeal mainly to those with a particular interest in human genetic variation and even these will probably treat the book solely as a reference work (your reviewer read it all, but would not wish to press others to do the same). The reader must also be prepared to take an indulgent attitude to those contributors who have, perhaps, taken too much to heart Hardy's dictum that one of the first duties of a professor is to exaggerate a little the importance of his subject.

To protest about the price is probably about as effective as throwing an inkwell at the devil. Nevertheless, the book could have been substantially shorter and cheaper had the editors excluded just over a hundred pages (based on the poster exhibition at the Symposium) of clinical descriptions of genetic abnormalities which, while everywhere rare, are relatively frequent in Finland. Apart from two, very recently described, conditions all of these abnormalities are listed in McKusick's *Mendelian Inheritance in Man* (5th ed.).

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CONSERVATION AND EVOLUTION. O. H. Frankel and M. E. Soule. Cambridge University Press, 1981. Pp. viii + 327. Price: £25.00.

This excellent book is the product of fruitful collaboration between a genetical-agricultural botanist and an ecologico-genetical zoologist. Jointly, they bring to bear on their subject matter a vast range of relevant knowledge and experience. Indeed, the subject, running as it does across conventional scientific boundaries, demands such a range that it is doubtful whether a single author could ever have encompassed it; at all events these two authors cover it fluently, readably and with evident authority. Roughly