literature on the subject. It is not very clear why the authors wished to present such a mass of detailed results in book form rather than as separate journal papers. The utility of the book is impaired by its lack of coverage of the work of others. For example, several papers on kin selection were published in 1978 which yield conclusions paralleling those mentioned above, but they are not even referred to. The authors do not seem to be aware that their cascade effect with reciprocal altruism is a special case of Wright's famous shifting-balance theory of evolution. Indeed, the book seems to be aimed at an audience of applied mathematicians rather than biologists, and is written in a style that makes it inaccessible to all but the most dedicated student of evolutionary theory. Despite the authors' stated aim to develop models of social evolution based on the tradition of population genetics, they seem to wish to distance themselves from this tradition by their choice of notation (*e.g.*, β for gene frequency, Σ for mean fitness), their tortuous approach to model building, and their unwillingness to give intuitive interpretations of their formal results. Although the book deals with several interesting and important problems and has points of real substance to make, it thus seems to me to be more or less a failure as an attempt to communicate with the audience to which it should be addressed.

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INSECT CYTOGENETICS. SYMPOSIA OF THE ROYAL ENTOMOLOGICAL SOCIETY: NUMBER TEN. R. L. Blackman, G. M. Hewitt and M. Ashburner (Eds). Blackwell Scientific Publications, Oxford London Edinburgh Boston Melbourne, 1980. Pp viii+ 278. Price: £22.50.

Insects have figured prominently in cytogenetic studies from the early years of chromosome studies to the present day. This is doubtless in part a reflection of the phenomenal evolutionary success of the class Insecta, accounting as they do for an estimated 75 per cent of all animal species. The cytogeneticist in search of a problem could hardly avoid this vast and diverse group. The fortuitous choice of an insect, *Drosophila melanogaster*, as an organism for genetical research, the exceptional quality in terms of number, size and clarity of chromosomes possessed by certain insect groups such as the Orthoptera, and the economic importance of many insect species as agricultural pests and vectors of human diseases must also be accounted important factors.

This volume reports the proceedings of the tenth symposium of the Royal Entomological Society held in September 1979, the aim of which was to summarise recent developments in insect cytogenetics and in particular to present a juxtaposition, and hopefully a synthesis, of developments at the molecular level with the applications of cytogenetics to problems of population and evolutionary biology. The molecular end of the subject is represented by three papers on DNA sequence organisation in insects (mostly *Drosophila*) by Peacock and Lohe, Dover, and Glover *et al.*, followed by useful reviews of structural and functional aspects of polytene chromosomes (Ashburner) and lampbrush chromosomes (Kunz and Glätzer). Forer presents a review of chromosome movement in insect spermatocytes. In further papers, the eccentricities of chromosomal mechanisms in scale insects are described by Nur while the cytogenetic systems of

parthenogenetic aphids and grasshoppers are dealt with by Blackman and White respectively. The contributions of cytogenetics to studies of insect ecology and speciation are exemplified by the cases of *Podisma pedestris* (Hewitt and Barton) *Caledia* (Shaw, *et al.*) and *Drosophila* (Carson). Finally, in a section on insects of medical importance, there are papers on the cytogenetics of blackflies (Rothfels), tsetse flies (Southern) and mosquitoes (White).

Reflecting the aim of this symposium to present a summary of recent developments in insect cytogenetics to a mixed audience, the individual papers present general summarising reviews of their different areas, which by virtue of the fine sense of compromise they display contain something of interest for specialist and non-specialist readers alike. Collectively these papers present an unusually useful source of information, opinions and ideas on a wide range of topics of cytogenetic interest and as such this volume represents a valuable addition to personal and institutional libraries. It succeeds to a large extent in bringing closer together the molecular and cytological approaches to the study of insect chromosomes, although inevitably perhaps the balance is tipped towards conventional evolutionary and population cytogenetics. A greater breadth and balance could perhaps have been attained by including other topics such as chromatin structure and superstructure, or recombinational mechanisms and controls, to mention two more obvious omissions.

The standard of presentation of the individual papers and the book as a whole is uniformly high. Unusually for symposium proceedings these days, it is printed (typeset) on high quality paper, well illustrated with diagrams and beautifully reproduced photographs and is robustly bound in hard covers, although on the debit side it could be argued that these desirable qualities probably contributed to the 15 month delay in its appearance.

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HUMAN GENETICS: POSSIBILITIES AND REALITIES. Ciba Foundation Symposium 66 (new series). Pp. xi+425. Price: $51.25 (Dfl. 105.00).

This book is the product of a symposium held in 1978 on new approaches, both actual and possible as implied by the title, in human genetics.

The list of participants (26, from whom the first authors of the 16 papers are drawn) reads like a Who's Who of molecular biology and genetics. Although a minority of them are clinicians, thoughts of medical applications of the topics being discussed are never far away. The other theme lurking in the background is well expressed by the Chairman of the symposium, Brenner, as "the causal analysis of development and the reduction of the complex phenotypes of higher organisms to the level of gene products". The contributions struggle from their different directions towards one or both of these two goals, the medical and the explanatory. They do not join up into a coherent picture and there remain far more "possibilities" that "realities" discussed; these features make the book extremely stimulating. A feeling of excitement, of powerful new tools to be used, runs through it. Pre-emininent among them are of course those based on recombinant DNA techniques, which are the subject of three contributions, from Walker,