

with in seven pages. Then follows the core of the theory—average effect, breeding value, resemblance between relatives and the partitioning of the variance. Selection is then described, first the simple theory including a short account of selection limits, then the theory of correlated characters and genotype-environment interaction. The use of information from relatives (family selection, etc.) is dealt with very cursorily. A chapter on inbreeding and crossing follows, and the final chapter describes a large-scale commercial breeding operation, with a brief account of the economics evaluated by discounted cash flow analysis. There are a few references and suggestions for further reading, but no index. Throughout the book the main points are illustrated by well chosen examples from farm animals, and these are a valuable feature of the book.

Professor Bowman has attempted what I think is an impossible task, to present a useful account of the subject in 74 pages. In the attempt to cover both the theory and the elements of its application in practice the explanations needed to give understanding have had to be condensed to almost non-existence. Any reader new to the subject will find it all very heavy going. He may get an idea of what it is all about, but he will gain scarcely any understanding of the theory, nor will he know what to do if faced with a practical breeding problem. For whom, then, is the book intended? It will, I think, be useful to students of animal breeding who have attended a full course of lectures and so gained an understanding of the subject, and perhaps to lecturers as a framework on which to build such a course. Though more restricted objectives would probably have made a more useful book, Professor Bowman is nevertheless to be congratulated on having produced something of value in his condensation of this large and complex subject.

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SOMATIC CELL HYBRIDIZATION. Eds. R. L. Davidson and F. F. de la Cruz. North-Holland Publishing Company, Amsterdam. Pp. 295+xvii+50 text figures, 4 plate figures and 58 tables. Dfl 60.00 (U.S. \$23.10).

This book comprises 33 papers which were given at a conference, sponsored by the National Institute of Child Health and Human Development, which was held in Winter Park, Florida, in March 1973. The subject matter is presented in four sections: Chromosome Segregation and Gene Linkage in Hybrid Cells; Viruses, Cell Membranes and Malignancy in Fused Cells; Regulation of Gene Expression in Hybrid Cells and Gene Expression in Heterokaryons. Each section commences with an excellent review paper by a leading expert in the field which is followed by individual research papers.

Unfortunately the review by Ruddle and many of the papers comprising the first section on gene linkage are, through no fault of the authors, already out of date. This particular field has been moving very fast and in the 18 months since this conference was held a number of new assignments have been made. Because of the rapid accumulation of data a number of authors, throughout the book, have rightly stressed the dangers that can arise when

interpreting the results of hybridisation experiments as it is already obvious that some of the earliest gene assignments were erroneous.

The next section on viruses, cell membranes and malignancy starts with an excellent review by Koprowski and Knowles and these authors are to be congratulated as, in a footnote, they state that their review covers material published up to November 1973—over 6 months after the conference was held. Although there is a very interesting paper by Wiener *et al.* on the fusion of tumour cells with host cells it seemed a pity that there was no major contribution on the very elegant experiments by Harris' group in Oxford on the analysis of malignancy by cell fusion.

The final two sections contain some very interesting papers on the expression of genes and how they appear to be controlled—not only genes existing in the parental lines but also the activation of previously dormant genes in hybrid cells and heterokaryons.

This book has been well produced on good quality paper and very few mistakes are obvious—with the exception of polyoma virus being placed in the adenovirus group in a table on page 72.

The results being obtained from somatic cell hybridisation experiments are of the greatest importance not only in constructing the genetic map of man but also in our understanding of many of the basic processes carried out by living cells. This book will therefore be of value to scientists of the many disciplines who are interested in the biology and genetics of cells.

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GENETIC CONTROL OF INSECT PESTS. G. Davidson. Academic Press, London and New York. Pp. ix+158+9 tables, 7 text figures, 9 plates. £4.00.

Throughout virtually all of man's history he has struggled against adversity to produce enough offspring to ensure the survival of his species. However, this situation has now radically changed and in the majority of human societies we find more and more people surviving to reproductive age. As yet there are few indications that our breeding habits are adjusting to such a novel situation, and the Malthusian menace may very soon become a reality. If we are ever to avoid world starvation then we must get to grips with this problem, and in the meantime aim to provide an expanding source of nutrition.

One obvious approach is to foster the development of techniques which will curb insect pests of food crops and domestic animals. Insecticides, as everyone knows, have proved to be one of the most effective agencies, indeed, they have been partially responsible for population increase following the control of some vectors of human disease! But insecticides have a tendency to contaminate the environment and in any case insect resistance to them is a growing threat to their efficiency. As Dr Davidson points out, it is probably these two factors which have stimulated the search for other methods, and in this book he deals with a new concept of insect control, namely the use of insects of agricultural, veterinary and medical importance to control themselves.

The first requirement of all genetic control methods centres on the mass rearing of vectors and maintenance of the colony in captivity. This is no