summary of X inactivation in mammals, and is the best offering on this subject available. Chapter 5 is an equally excellent and informative review of selective systems in somatic cell genetics.

Only chapter 2 fails to get a bouquet. Human behaviour genetics is a diffuse and difficult field, badly in need of rigorous and critical treatment. Unfortunately, the reviewers fail to give it either. An introduction eulogising Galton warns us that worse is to come, and it does. The discussion of schizophrenia pertains completely to the situation in the U.S.A. (*e.g.* no mention is made of the work by Fish or Kendall on diagnosis and the differences between the U.S.A. and U.K. in this respect). The single page devoted to the behavioural effects of chromosomal disorders is inadequate and lacks detail. On the other hand, five pages are devoted to a miscellaneous collection of observations on reading disabilities with little relevance to genetics. Throughout the review, other reviews are cited uncritically, without discussion of the original work, and much of what is written is irrelevant padding.

It is unfortunate that this contribution should mar what is otherwise an exceptionally useful volume. However, the other four chapters more than compensate for this and no library should be without volume 7 of this helpful series.

JACQUI STEWART
Department of Genetics, University of Leeds, Leeds LS2 9JT

BASIC IMMUNOGENETICS (2nd Ed.). H. Hugh Fudenberg, J. R. L. Pink, An-Chuan Wang and Steven D. Douglas. Oxford University Press, New York, 1978. Pp. ix+262. £3·95.

There are many reasons why all geneticists should be acquainted with the contents of this book. First, in no higher eukaryote is there a group of linked genes with related biological effects as well studied as the major histocompatibility complex (the H2 complex) in the mouse, and the understanding of the human equivalent is not all that far behind. It remains to be seen whether this complex will prove to be the paradigm for understanding the relationship in the genome, and the evolution, of other genes with related biological effects, but evidence from some of the well studied complex loci in *Drosophila* suggests that there may be a common theme underlying these systems.

Second, the evolution of the gene for the immunoglobulin polypeptides by tandem duplication of an ancestral gene with or without gene fusion, and the subsequent distribution of these through the genome, is well understood. This basic strategy is echoed not only by the haemoglobin genes but also by the genes for other proteins in a variety of higher eukaryotes.

Third, until the recent discovery of non-translated intervening DNA sequences in coding sequences, the biggest upset to our clean and simple view of the linear relationship between coding sequences and polypetides was the proposal that two genes coded for each immunoglobulin polypeptide chain.

Fourth, much of our understanding and much of the controversy between the neutralist and selectionist schools of evolution stems from the study of

polymorphism in natural populations. The earliest polymorphisms studied were the blood group polymorphisms in man.

All of these topics are covered in this book.

The authors define immunogenetics as the study of " inherited differences among individuals, or genetic polymorphisms " by immunological methods. But they go on, in the preface to the first edition, to say that they intend concentrating their attention " on areas where polymorphisms seem to be of particular importance ". Fair enough, but this does exclude some interesting, though little understood, examples which are omitted from all books on immunogenetics. The book in fact covers the genetics of the immunoglobulins, the major surface antigens of lymphoid cells and the human blood groups. It represents an up-to-date condensation of what is known of these topics with very little comment. The condensation makes heavy reading at times, especially for those not familiar with the terminology. This is particularly true in chapter 6, " Immunogenetics of the human blood groups " and I would have thought better of the book if this chapter had been left out (the topic is dealt with better elsewhere) with the earlier chapters expanded in its place, even at the expense of changing the title of the book.

Although the book fails to convey the excitement of the subject, reading it is a good way of learning the facts. It steers a way through the maze of T cells and B cells, of helper cells and effector cells. It presents the problems of antibody variability (although the authors could have risked a few more pages speculating how these problems might be resolved) and having read this book you will be familiar with the genetic relationships between the immunoglobulin genes. It is not " a good read " but it will teach you the " Basic Immunogenetics " declared in the title.

There are, however, a number of points in the book which will make a geneticist feel uncomfortable. In the glossary of immunologic terms, an allele is defined as " one of two genes controlling a particular characteristic present at a locus ". I cannot understand how allelic exclusion " may well be one of the basic mechanisms controlling differentiation ". If this were true then what accounts for differentiation in an isogenic stock? The authors repeat, uncritically, that several examples of somatic crossing-over have been described to account for allelic exclusion, yet to my knowledge no example of somatic crossing-over has been demonstrated in mammals. The well described somatic crossing-over in *Drosophila* probably depends on the observation that the *Drosophila* chromosomes may remain paired during the interphase. There is no evidence for such pairing in mammals.

The two gene-one polypeptide chain hypothesis is an iconoclastic one and while the evidence supports this proposal for the immunoglobulin polypeptides (although I think the evidence for this important proposition should have been reviewed in detail) it would be interesting to know whether this is an unique case or whether it is a strategy employed by other proteins. The authors write: " In contrast to the conventional ' one gene-one polypeptide chain ' mechanism governing the synthesis of *almost* [my italics] all other proteins examined, each immunoglobulin polypeptide chain is the product of two different structural genes. . . ." I would like to know what examples they are thinking of or are they hedging their bets?

Apart from one obviously incorrect legend the book is well presented with few mistakes.

In spite of my reservations about some of the genetics in the book, and I do not think that geneticists will have any difficulty spotting these errors, I recommend the book to all those who want to be familiar with the facts, if not the concepts, of immunogenetics.

DAVID B. ROBERTS

Genetics Laboratory, Dept. of Biochemistry, South Parks Road, Oxford OX1 3QU