GENETICS IN OPHTHALMOLOGY. By Arnold Sorsby. London : Butterworth & Co. (Publishers) Ltd. 1951. Pp. xi+251. 42s.

The scientist may consider that this book lacks precision, that ill-defined concepts are discussed on many pages, and that others are occupied by illustrations of clinical conditions which are incomprehensible to him. It is true that nowhere in the test is there a clear account of the present human situation. There was a time when it might be truthfully said that ophthalmological genetics was the most highly developed branch of medical genetics, but this is no longer the case. This honour now clearly belongs to the serologists, and although the blood-group systems are referred to briefly, the fact that at least nine of the twenty-four human chromosome pairs are identifiable is not mentioned.

The introductory chapters are too brief and too complex for the clinician to derive much benefit from them. The books by Ford or Fraser Roberts give a very much better introduction because they do not attempt so much. It is doubtful if there are many medical men who would find the following paragraph comprehensible without much more detail than is contained in the context.

> " A gene is so subject to total genic balance that the conception of dominance and recessiveness serves well for particular individuals or generations only, but not as an absolute measure. A gene, by itself, is neither recessive nor dominant. These states are the result of the interaction with the other genes and with environmental factors. Under experimental conditions one and the same gene in two different genetic environments may be either recessive or dominant. There are good grounds for believing that a mutant gene is frequently dominant on its first appearance, but becomes either completely eliminated or steadily more recessive as the accumulation of modifying factors by natural selection aids the necessary conditions which prevent the dominant mutant from expressing itself. The gene reaches full recessiveness when it can express itself only in the duplex state."

The problem of linkage is not made very clear and the medical reader might easily suppose that when two genes are linked there is a tendency for the particular alleles to stick together in subsequent generations. The fact that they occur separately as often as they do together in the population, and that this is an essential feature of linkage, does not emerge from the text. There is no reference to the extremely valuable work carried out by Hoogvliet, who published ten pedigrees segregating for both hæmophilia and colour blindness. In one of these it was possible to give sensible advice by using the relatively innocuous factor producing colour blindness as a marker for the more serious hæmophilic gene. This work carried on the best traditions of Nettleship and Usher. This cannot be said for all the examples given in the book.

There are several tantalising sentences to be found throughout the text. For example " The advice that would be given on the assumption that the patient suffers from the common form of recessive retinitis pigmentosa would be completely wrong, and disastrous, if it should prove that the patient's affection is transmitted in a dominant or a sex-linked manner." The reader is not told the advice to give.

It is still the first duty of the clinician, wishing to enrich our knowledge

of hereditary disease, to present his findings as objectively as possible. Factual knowledge is still scarce and theoretical speculations arising upon foundations of incomplete data must be treated with care, or indeed rejected outright. In the past clinicians were frequently criticised for a tendency to publish only those families which showed well-marked inherited anomalies, with the result that isolated examples tended to be neglected, and did not appear in the literature to the expected extent. The danger now developing is that inadequately worked out pedigrees will be placed on record in order to illustrate some preconceived theoretical situation, for example partial sex-linkage.

Abiotrophy is a term introduced by Sir William Gowers about fifty years ago to signify degeneration of tissues due to defective vitality. Hereditary optic atrophy, retinitis pigmentosa and certain forms of macular degeneration may be cited as examples. The author of this book has devoted much care and attention to the abiotrophic character of many genetic anomalies affecting the eye. He believes that it is not unlikely that some of the so-called senile degenerations are late abiotrophic manifestations, and that evidence is accumulating to show that senile cataract and primary glaucoma are essentially genetic affections.

The book is written with the zeal and enthusiasm of the advocate and the teacher. It is intended to arouse the interest of the clinical worker and it should attain this objective with ease. The selected bibliography is arranged at the end and follows the textual sequence. This makes for ease in reference and is a practice which might well be used more extensively. The illustrations and production are an attractive feature of the book.

W. J. B. RIDDELL.

METHUEN MONOGRAPH : The Measurement of Linkage in Heredity. By K. Mather, D.Sc., F.R.S. Second edition. London : Methuen. 1951.

It is very satisfactory that Professor Mather's small but closely packed monograph is again in print. The first edition was the only textbook entirely and explicitly devoted to the design of laboratory investigations in genetics and their statistical treatment, and it filled this role with distinction. Its especial merit lay in the successful fusion of two different and almost contradictory aspects. In the first place it had the character of a Laboratory Handbook in which designs of experiments (together with formulæ and computational procedures needed for their assessment) were provided " ready-made " (or in easily adaptable form) for the assistance of the research worker in a variety of situations. In addition, however, the principles of design and statistical interpretation were developed by particularly clear and simple reasoning in such a way as to bring out the reader's statistical horse-sense. This made it a book of exceptional value for the training of geneticists whether recruited from mathematics or biology. A mathematician of my acquaintance says that he first learnt statistics from it ; I myself was, and still am grateful for it, and I know it to have been of constant utility to many non-mathematical colleagues.

In the second edition the original text has been retained (with some extensions) so that the value of the monograph is undiminished. Some misprints should be noted which have survived without correction from the first edition : On page 100, 1936*a* should read 1949*a*. The item $(1+y'+2yy')$ appearing in the formula at the top of page 109 (and on