easiest for the layman to follow. There is a brief theoretical account, with typical pedigrees, of single gene effects, dominant and recessive, autosomal and sex-linked. This is followed by an account of chromosomal anomalies with photographs of affected subjects and of karyotypes.

Of the 3 chapters, that by Dr Gottesman on behavioural genetics would prove the most difficult for those without scientific training, especially the parts about trait variation, heritability and correlations between relatives in respect of graded characters such as intelligence. It is, however, of the greatest interest, lucid and informative. The explanation of the combined effects of nature and nurture is excellent and the reviewer is grateful for the statement that: 'The question of how much intelligence is due to heredity and how much to environment is meaningless since neither agent alone can produce the trait.' The chapter includes a useful introductory account of polygenic inheritance, with examples drawn from mental subnormality.

Dr Carter's chapter deals with the practical problem of genetic counselling and includes examples of a number of well-known diseases associated with mental subnormality, both genetic and chromosomal. The account is lucid and simple. Risk figures are given and a few brief case histories to exemplify counselling in practice. The book should prove useful and of interest to parents and others with limited training in biology or medicine. Much of it may also be helpful to psychologists and doctors.

B. W. RICHARDS

Aminoacidopathies, Immunoglobulinopathies, Neuro-genetics and Neuro-ophthalmology.

Edited by L. Beckmann and M. Hauge. (Monographs in Human Genetics, Volume 6.) 3rd International Congress of Neuro-genetics and Neuro-ophthalmology, Brussels, 25-29 August 1970; edited by J. François. (Pp. 218; 49 tables+26 figures. £7.15.) Basle: Karger; Chichester: John Wiley. 1972.

Volume 6 in the series of Monographs on Human Genetics is the proceedings of a conference held in 1970 on Neuro-Genetics and Neuro-Ophthalmology, where the two main chosen topics were aminoacidopathies and immunoglobulinopathies.

In the first section there has been some repetition, particularly concerning phenylketonuria. The late D. Hsia comments on the allelic variants in several of the aminoacidopathies and discusses the excess of phenyl-

ketonuric males ascertained in screening surveys. He reports briefly on the early work with somatic cell cultures, a field which has rapidly advanced since then. T. Gerritsen and F. Siegel describe animal models for hyperphenylalaninaemia and discuss the possible mechanisms of brain disturbance. If such mechanisms were understood one outcome could be helpful suggestions for treatment. J. Frézal reviews enzyme defects in the aminoacidopathies: some tables here would be helpful. There are two useful accounts of clinical manifestations: one by C. Hoofst and D. Carton on the ways in which these disorders may present in a paediatric department, emphasizing, as do other authors, how there may be no disease with an aminoacidopathy. J. François gives an excellent account of ophthalmological findings. The last in this section is a good review article by A. Barbeau on dopamine in the nervous system, a subject, where, again, several advances have been made more recently.

Probably the best article is that by S. Barundun, who presents for neurologists and ophthalmologists a beautifully clear account of immunodeficiency disorders. This is followed by an interesting chapter on slow viruses and neurological damage, where J. Hotchin discusses the occurrence of several strains of lymphocytic choriomeningitic viruses with different affinities for liver and brain; and the probable role in persistent infection of an auto-immune component.

The offered contributions include an account by F. Mollica *et al* of symptomless hyperprolinaemia in a family: an account by B. Neville of 4 patients with hypogammaglobulinaemia who developed progressive neurological disease; an account of a prospective study by C. Rose of 170 patients with optic neuritis, in which he concludes that all cases of optic neuritis are a manifestation of demyelinating disease; and a description by P. Thomas and D. Calne of two autosomal dominant forms of hypertrophic neuropathy. It is unfortunate that the editors did not insist on all authors reporting their results for this book; some summaries, presumably prepared in advance for the conference, mention methods only, as for example, the tantalizing bare three sentences on family studies of immunoglobulin levels by W. Billewicz *et al*.

This is a nicely presented and prepared monograph. However its field is too wide to be useful in its entirety to neurologists, paediatricians, or ophthalmologists. Certainly an account of the conference is valuable, but perhaps a hard-backed well-printed book is too lavish a way to do it.

SARAH BUNDEY