The next part, 'On the basis of disorder in the nervous system', begins with a sketchy section on inborn errors of metabolism. Much hope has been invested in the study of this group of conditions, many of which are identified specific enzymopathies, as a likely area in which to make discoveries concerning the interaction between biochemical change and psychological function. It is disappointing, therefore, that though the individual contributions are of high quality, they are pitifully few in number, and do not serve to cover this important field at all adequately within the context of a book devoted to the future of the brain sciences. James Austin, on inborn errors of glycolipid metabolism, provides particularly interesting matter regarding the direct bearing of altered metabolism on the structure and function of nervous tissue. This is getting close to the nub of the crucial problem of how genetically-determined biochemical disorders affect intellectual function, and it would have been fitting if more space could have been given to this theme.

A more appropriate allotment of space is given to the genetics and biochemistry of the psychoses. This opens with a full and critical discussion by James Stabenau of twin and family studies in schizophrenic and affective psychoses. This is followed by a number of competent reviews of biochemical changes that may be of aetiological significance in schizophrenia, involving mainly dimethoxyphenethylamine, urinary indoles, and immunoglobulin. Similarly, changes involving the biogenic amines, electrolyte balance, and hormones in affective psychoses are discussed. These sections give a good survey of the areas in which leads are being sought to an understanding of the constitutional bases of the psychoses.

Like the proceedings of most conferences, this book suffers from a certain patchiness in emphasis on detail and lack of comprehensiveness, though the contributions are consistently of high quality. The diversity of disciplines represented also leads to a rather lumpy whole. It is a book, parts of which would be interesting to readers of very many different disciplines, but it is unlikely to give sustained interest to the medical geneticist unless he has a particular interest in one of the specialized lines of biological approach to brain research represented here.

VALERIE COWIE

Some Inherited Disorders of Brain and Muscle.

Proceedings of the Fifth Symposium of the Society for the Study of Inborn Errors of Metabolism. Edited by J. D. Allan and D. N. Raine. (Pp. viii + 154; illustrated + tables. 40s.) Edinburgh: E. & S. Livingstone. 1969.

The choice of subjects and the high level of the contributions make this volume of Proceedings of exceptional interest. The complexities of the clinical aspects of muscular dystrophy were discussed by the President (J. D. Allan) and J. N. Walton, while the biochemical aspects were dealt with by R. J. Pennington, V. Dubowitz, B. McArdle, and P. Hudgson. These papers and the discussions on them—excellently summarized—occupy

half this volume and summarize admirably current knowledge and the problems at issue. The rest of the text roams widely over strictly biochemical studies (such as those by Raine and by Jatzkewitz on sphingolipidoses) and on biochemical lesions in such affections as Wilson's disease (J. M. Walshe) and inherited brain disorders (E. M. Brett). Well edited and well produced, this volume is more than a report of transient interest.

ARNOLD SORSBY

Chromosomale Aberrationen und Psyche. By W. Züblin. (Pp. iv + 159.) Basle, New York: S. Karger. 1969.

Most publications dealing with human chromosomal aberrations concentrate on the physical abnormalities. There is, therefore, added interest for a volume which attempts to assess the effects of abnormal chromosome constitutions on the minds of the patients.

The author, who is chief of the children's psychiatric service in the canton of Berne, set out to answer the question how far chromosomal aberrations correspond to specific psychiatric syndromes. The study is based on his own patients as well as a mass of published work which, with over 1200 entries, takes up a third of the pages. Even so, some important references are omitted. On the credit side, the text is very readable.

The author concludes that the psychiatric abnormalities produced by different chromosomal aberrations are non-specific. The results of different autosomal aberrations are such as would be found in any early-occurring brain damage. Moreover, if large numbers of sex chromosomes are present in excess, the effects produced are similar to those found in autosomal abnormalities.

The larger part of the text is concerned with the mental problems of patients with Klinefelter's and Turner's syndromes and their reactions to hormone therapy. The author thinks that the psychological differences between Klinefelter and Turner patients are largely due to their respective environments, because they will be judged by different criteria and, therefore, may be expected to react differently. Even if geneticists may not agree with all of Dr. Züblin's conclusions, they would do well to consider them.

URSULA MITTWOCH

Diagnosis and Treatment of Fetal Disorders. Proceedings of the International Symposium on Diagnosis and Treatment of Disorders Affecting the Intrauterine Patient, Dorado, Puerto Rico, October 29–31, 1967. Edited by Karlis Adamsons. (Pp. v + 304; illustrated. DM. 59.20.) Berlin, Heidelberg, and New York: Springer-Verlag. 1968.

This book is the product of an International Symposium on Diagnosis and Treatment of Disorders Affecting the Intrauterine Patient, held at Dorado, Puerto Rico, 29–31 October, 1967, in commemoration of the bicentennial of the Department of Obstetrics and Gynecology, College of Physicians and Surgeons,

Columbia University. For those who dislike the printed presentation of the verbatim proceedings of a congress as regurgitated by a tape recorder, let me hasten to add that this is not such a production. The discussion was not reproduced unless a particular contribution was felt to be of sufficient weight to be capable of standing as an independent communication. Individual speakers, however, were asked to include the substance of the discussions in their draft for publication. Such an arrangement leads to less rapid publication but the consequent improved quality and readability of the end-product more than compensates for the delay.

The diagnosis and management of abnormalities of the fetus '*in utero*' is a new branch of medicine which is not yet a specialty. The opening up of this field may be dated to the work of Bevis who, in 1953 in Manchester, obtained liquor amnii for prediction of the severity of rhesus iso-immunization. This great development received little recognition at the time, but it demonstrated that the fetus was not an inaccessible prisoner in its intrauterine environment. In its way it was similar to the landing of the first earth rocket on the moon; it was a prediction of great things to come in a region hitherto out of reach. Liley's introduction of intrauterine transfusion of the fetus severely affected by erythroblastosis might be equated with man's landing on the moon.

Other relevant developments have been Saling's use of fetal blood sampling in labour after rupture of the membranes and amnioscopy before labour; maternal urinary oestriol and other determinations to assess fetal well-being; obtaining liquor amnii for ABO blood group and nuclear chromatin determination together with chromosome analysis plus the controversial procedure of placental biopsy. What sort of techniques will develop in the future can only be guessed at. What is certain is that there has been a minor revolution in our thinking, and the fetus is now an object of diagnostic and therapeutic attention from a very early age.

There are two main preoccupations of the contributors: (a) the problem in late pregnancy or labour of discovering the state of the baby *in utero*—particularly with reference to oxygenation but also haemolysis in iso-immunization; (b) the problem in early pregnancy of deciding whether or not some fundamental fetal disorder may be present in cases where family history may suggest the likelihood. It is the second group that is likely to prove of particular interest to geneticists.

The geneticist may find himself misled by certain chapters where there is failure to differentiate clearly

between what is possible today and what might conceivably be achieved in the future. This is not said as a criticism but rather as a warning for the reader lest he expect his obstetric colleagues to perform all the diagnostic procedures referred to. Some of these are still purely speculative, while others, such as placental biopsy in the course of pregnancy, have been performed in particular units in certain parts of the world and are of such a nature that it is highly unlikely that an obstetrician in the United Kingdom would be willing to perform them.

In what may be termed a development area of this sort it is, of course, entirely appropriate that there should be speculation as a stimulus to initiative. The sections of particular relevance include a chapter on The Future of Antepartum Morphologic Studies by William Blanc ('morphologic' misleads as to the scope of this chapter); Prenatal Sex-Chromatin and Chromosome Analysis by Harold P. Klinger and Orlando J. Miller; and Placental Biopsy by Hermógenes Alvarez. There are also chapters which outline the current situations with regard to the rhesus problem.

Blanc's chapter is one in which the crystal-gazing component is particularly prominent, at times extending to the realms of fantasy. At one point it is implied that a neurological examination of the fetus is possible and that the fetal tongue may be inspected! On the other hand the contribution by Klinger and Miller is of a realistic nature. They draw attention to the fact that, despite all that has been written about the matter, only four successful cases of prenatal chromosome determination had been reported in the scientific literature at the time of writing!

This is certainly a book for the obstetrician's bookshelf. For the geneticist it might be adequate to borrow it for an evening.

J. S. SCOTT

Modern Biology. By Hans Joachim Bogen. Modern Science Series. Translated from the German by Harold Oldroyd. (Pp. 335; 182 illustrations. 45s.) London: Weidenfeld & Nicholson. 1969.

This book is a highly successful popular exposition of biology at the cell level: structure, biochemistry, immunity, and heredity are discussed with a wealth of illustrations in which colour has been used freely. A concluding chapter deals with the origin of life and the future of man. It can readily be recommended as an introductory text for medical students.