

**Research on Genetics in Psychiatry.** Report of a WHO Scientific Group. *Wld Hlth Org. techn. Rep. Ser.*, No. 346. (Pp. 20. 3s. 6d.) Geneva: World Health Organization. 1966.

The working party responsible for this report reviewed the present state of knowledge of the genetics of mental disorders, discussed present research trends, and adumbrated the problems of the future.

Under the first heading they took the reassuring view that research in many countries along genealogical statistical lines had produced results in fairly good agreement with one another. The difficulties arose mainly in interpretation which, apart from some particular syndromes, was usually undecided and debatable. Biochemical investigations, identifying the inborn error of metabolism, have had assured successes only in mental subnormality so far, though there are some very interesting leads both with regard to schizophrenia and the affective psychoses. Note was taken of the very striking advances that have been made by cytogenetical methods of investigation.

One of the great difficulties facing genetical research in the psychoses arises in attempting to define the class of individuals to be investigated. Psychiatric diagnosis is not always valid; it should as far as possible be based on a phenomenological approach. Clinical epidemiological investigations depend on agreed operational definitions being applied by workers in a variety of centres. WHO is currently supporting basic studies which should aid the standardization of psychiatric diagnosis. Emphasis is also given to the way in which work on twin pairs may provide information relevant to a variety of questions. The working party regarded it as a main task for the future to concentrate attention in isolating the effects of major genes, 'rather than to elaboration of non-disprovable hypotheses about the residual cases'.

On the cytogenetical side there is a strong recommendation for close co-operation between laboratories for the collection and comparison of very rare cases that are of great potential significance. This is already being attempted on a regional scale in France. The French organization has the three aims of pooling technical knowledge, the central collection and analysis of data on 'exceptional cases', and the preservation by refrigeration of stem cells from patients with a rare chromosome anomaly in a 'bank'.

A large number of schemes of investigation along biochemical lines are briefly mentioned. One of the more promising appears to be biochemical screening of high-risk groups combined with long-term follow-up.

Mention is also made of some tissue culture work which has already begun. Foetal neuroglial cells obtained at interruption of pregnancy have been studied, taking the material both from non-schizophrenic controls and from embryos where both parents were schizophrenic. In this case, as so often, one wonders what criteria were used for the diagnosis of 'schizophrenia' and how generally acceptable they would be.

Considering the huge area covered, one can hardly complain of the superficiality of a report which extends to only 20 pages. What does encourage one is the agreement of experts that so much that is fully practical can now be undertaken, and the fact that WHO will aid international collaboration in this basic subject.

ELIOT SLATER

**Mongolism. Ciba Foundation Study Group No. 25.** Edited by G. E. W. Wolstenholme and Ruth Porter. (Pp. ix + 99; illustrated + tables. 18s.) London: J. and A. Churchill. 1967.

This booklet represents the outcome of the Ciba Foundation Study Group on Mongolism, held in May 1966, and clearly indicates the value of these organized small conferences. There has been extensive literature published, particularly in recent years, on the subject of mongolism (Down's syndrome), excellently brought together in the publication by Penrose and Smith ('Down's Anomaly' 1966). This present publication is in no way an attempt to do the same but to present the individual papers read at the Study Group and also the spontaneous discussion which the papers aroused. It indicates the kind of research which is still very actively pursued in this field and is therefore of wide interest.

The preface by Lord Brain gives a most descriptive historical introduction, throwing light on the character and enthusiasm of John Langdon Haydon Down, whose classical description of the 'mongolian type of idiot' was published in 1866. The papers and discussions include a survey of the frequency of occurrence and related data on Down's syndrome in Japan (E. Matsunaga), an analysis of consanguineous marriages and mongolism in Sweden (H. Forssman and H. O. Åkesson), dermal patterns on finger-tips and toes (G. F. Smith), a suggested use of dermatoglyphic analysis (L. S. Penrose), DNA synthesis in mongol cells (U. Mittwoch), DNA patterns on 21/22 chromosomes in mosaic mongols (M. Fraccaro *et al.*), and abnormal granulocyte kinetics (W. J. Mellman, S. O. Raab, and F. A. Oski).

The data presented in Matsunaga's paper show

clearly a similarity in the relative occurrence of mongolism in Japan with that in Europe. The incidence cannot be less than 1 in 1000 live births; the risk increases with maternal age only and no effect of birth order or interval between pregnancies could be found. Forssman and Åkesson could find no support for the hypothesis that the operation of recessive genes may be sometimes responsible for Down's syndrome.

The dermatoglyphic analysis by Penrose is presented as a possible means of distinguishing between two similar syndromes, one as a result of trisomy-21 and the other trisomy-22. The evidence was unable to support or reject the hypothesis that two similar syndromes might be recognized as one, viz. mongolism, but it led to an intriguing discussion on the possibility of tetrasomy in man. The DNA replication patterns in the 21/22 group of mosaic mongols, as shown by Fraccaro *et al.*, are well presented. They demonstrate also the dangers of interpretation from such autoradiographic investigations. This contribution aroused discussion on the fate of cell lines in mosaic individuals.

The findings of Mellman *et al.* indicate that there may be a significant shortening of the circulating half-life of granulocytes in mongols. This, in turn, may be the cause for an increase in enzyme activity. An hypothesis that environmental factors, rather than genetic, might be the cause of such granulocyte disturbance is put forward. Finally, there is a very worth-while general discussion (in which appeared the only misprint I detected—the evening primrose, p. 92, is *Oenothera lamarckiana*). This is a most readable book containing valuable data.

S. WALKER

**Progress in Biophysics and Molecular Biology**, Vol. 16. Edited by J. A. V. Butler and H. E. Huxley. (Pp. 276; illustrated + tables. 84s.) Oxford: Pergamon Press. 1966.

For the past 15 years the annual appearance of a new volume of *Progress in Biophysics*, in its various guises and under its various editors, has been a significant scientific event. The present editors are to be congratulated on having produced a volume which at least maintains, and may even excel, the already high standard of this series. They, and the contributors, are to be complimented not only on the choice of subject matter, but also on the remarkably high standard of lucid writing maintained almost throughout this book. For example, it is well recognized that immunology is one of the most difficult subjects to explain to someone who is not himself involved in this branch of science, partly because of the self-contradictory nature of many of the terms used, and partly because of the intricacies of the subject. Yet N. A. Mitchison's essay on 'Recognition of Antigen by Cells' makes fascinating reading and many workers will want to refer to it. Similarly with the equally complex problems of interest to readers of this Journal, of molecular genetics and of genetic transcription. Each is dealt with authoritatively but clearly in two large articles, one by Sibatani on 'Genetic Transcription or DNA-dependent

RNA Synthesis' and the other by Silver on 'Molecular Genetics of Bacteria and Bacteriophages'. The former will be welcomed by many who want to understand the experimental basis of DNA-RNA hybrid helices, of the effect of primer-DNA, of ribosomal, of messenger, and of transfer RNA. In the latter, Silver discusses the processes of transformation, transduction, and conjugation in bacteria and bacteriophage, and then has a thoughtful and valuable section on molecular problems of genetics, including a discussion of double-stranded and single-stranded DNA and of the structure of the gene, of mutagenesis, and of the possible molecular mechanisms underlying genetic recombination. Various models are considered in illuminating detail. This thoughtful essay deserves to be read and to be retained for reference by all geneticists. The short article by Sherbet on 'Cybernetic Interactions in Epigenetics' is disappointing in that it seems mainly to be trying to restate, in terminology which is in current vogue, some of the intricate problems of nucleo-cytoplasmic interactions which must occur during embryological development.

Even workers in other fields of study will be glad to have the excellent reviews of Ambrose on the electrophoretic behaviour of cells, of Finean on the molecular organization of cell membranes, and of Caro on autoradiography by electron microscopy. Each author is outstanding in his own subject. The last chapter to be considered is that by Smith on the organization and function of the sarcoplasmic reticulum and T-system of muscle cells. This, too, is a valuable review; the micro-anatomy is of a high standard, but there is always in biology the suspicion that anatomists and function go ill together. This is seen, in Smith's chapter, by his ignoring all the literature on living, functioning, potentially 'striated' muscle cells in which striated fibrils were shown not to be required for contraction.

The only minor criticism of this valuable book is that the index is too inadequate to be functional.

JOSEPH CHAYEN

**Antibodies to Biologically Active Molecules. Proceedings of the 2nd Meeting of the Federation of European Biochemical Societies, Vienna, 21-24 April, 1967.** Vol. 1. Edited by Bernhard Cınader. (Pp. viii + 424; illustrated + tables.) London: Pergamon Press. 1967.

Immunology is yielding one of the most refined methods for the examination of proteins and, therefore, has become of special interest to the geneticist, particularly as much of it concerns molecular biology. Hence readers of this journal will be interested in these Proceedings of the Federation of European Biochemical Societies. Immunology has progressed from investigating the interaction of toxins and antitoxins to the more searching inquiry as to how an antibody interferes with the biological activity of an antigen at the molecular level. At present such investigations are mostly concerned with the study of enzyme, antibody, and substrate. More