Book reviews

Journal of Medical Genetics, 1977, **14**, 235-238

Modern Trends in Human Genetics—2.
Edited by Alan E. H. Emery (Pp. + ix 476; Figures + Tables. £13·00.) Sevenoaks, Kent: Butterworths. 1975.

As might be expected for the second volume of the series, which has the aim of giving a little more prominence to population and clinical genetics, a wide range of topics is discussed. Their interest and importance depend largely on the reader's own tastes. It is, however, surprising that there is no review of prenatal diagnosis even though the editor has dealt with this topic elsewhere.

From the clinical angle, the chapter on disproportionate dwarfism in the newborn includes a very helpful approach to the correct diagnosis. As Beighton points out, this is essential for accuracy in counselling the family subsequently. Raeburn sets in the perspective of the immune mechanisms the different disorders of leucocyte function. The clinical syndromes are delineated and there is a helpful section on the management of the patient and his family.

The current situation in treatment of genetic disease is reviewed thoroughly by Nadler and Booth. There is the anticipated rather depressing catalogue of failures. One area of progress is that some enzyme deficiencies can be corrected by large doses of vitamins, e.g. methylmalonic aciduria by B12. The requirements for successful enzyme replacement are given but the technical problems involved have yet to be overcome. Similarly, organ transplantation, which should perhaps offer the most hopeful prospect, has proved disappointing in practice—though this could be because transplantation has been undertaken late in the natural history when many changes are irreversible.

Miller and Yashuda provide an excellent survey of environmental factors in the aetiology of congenital malformations. They stress the difficulties involved in evaluating a possible association, rightly emphasizing on the one hand the need for due caution, especially with regard to the publicity media, and, on the other hand, the necessity for alertness in recognizing and reporting such occurrences. It seems likely that most associations will be disproved, but, unless the possibility is considered, the significant ones will be missed, with tragic consequences. They cover drugs, infective agents, and alterations in maternal metabolism, whether proven or postulated. One is left with the realization that too much of the data are inadequate, which is unfortunate because of the possibility of prevention or treatment.

In reviewing analytical aspects of genetic counselling, Murphy is careful to distinguish between the scientist with the time for leisurely analysis and the clinician with the need for a decision. Such comments as these set in correct perspective the main burden of his review which is to discuss the logic and logistics of pedigree analysis. This is applied in some detail to Mendelian traits, and, as a potentially valuable method, is well worth reading. Its clarity, however, would have been enhanced by having the fictitious pedigrees illustrated, though the ingenious system of names does help.

After an interesting introduction to Jewish history and demography, Goodman reviews the genetic diseases identified, emphasizing the striking differences in prevalence and gene frequencies in the various ethnic groups.

Harris covers the complex field of genetics and immunology in human leukaemia, concluding that in the majority of cases hereditary factors are difficult to discern. He suggests that a combination of susceptibility genes, suitable exposure to virus(es), and physical agents provide the multifactorial basis for the disease.

Borgaonkar discusses the advances and the limitations of the banding techniques before reviewing abnormalities of the different chromosome groups. Perhaps inevitably, this is a catalogue, though of course it has a very real usefulness. There is a salutary warning against preconceived notions as regards identifying an abnormality, but no comment is made on the help that may be derived from correlation with the clinical findings. Finally, there is a short section on the merits of the different techniques but time will probably be the final arbiter.

Chandley points out how little is known regarding oogenesis, while the well-known maternal age effect, as in Down's syndrome, has yet to be explained adequately. For meiosis in males, rather more information is becoming available, particularly with regard to the 13/14 translocation carriers, raising the intriguing question as to why only some are fertile, and, in the XYY males, why there is apparent loss of the extra Y chromosome. She concludes that production of pachytene maps should soon be practicable.

Other topics include radiation-induced chromosome damage and the assessment of genetic risk (Searle), hepatic phenotypes in somatic cell hybrids (Darlington and Ruddle), mutation rates in man (Conneally), genetic studies of isolates (Roberts), and artificial insemination (Richardson).

A recurring theme in this volume is the extent of our ignorance, despite recent advances, and this must provide the challenge to further work. It will be referred to regularly by most workers, not simply for the review itself, but also for the key references supplied, and, were it not for the price, £13·00, bought by them.

A. W. JOHNSTON

Handbook of Genetics.
Edited by Robert C. King. Volume 4; Vertebrates of Genetic Interest. (Pp. xiv + 624; Figures + Tables $59.40.) New York: Plenum. 1975.

The *Handbook of Genetics* is an encyclopaedia. Volumes 1 to 3 cover respectively bacteria, phages, and fungi; plants, plant viruses, and protista; and invertebrates. Volume 5 will deal with molecular genetics. The volume under review is concerned with 'vertebrates of genetic interest'. It contains 31 chapters, 20 of them reviewing genetical knowledge of species or groups used or useful for geneticists; 6 describing particular aspects of human inheritance (amounting to 95 pages); the rest summarizing such topics as blood groups in domesticated animals, coat colour gene homologies, and somatic cell genetics. Most chapters are written by recognized authorities in their particular fields. The specifically human topics include mitotic chromosomes by K. E. Buckton, immunoglobulins by J. A. Gally and G. A. Gutman, biochemical genetics by D. W. Hollister and D. L. Rimoin, and the editor on linkages and 'A bibliography of reference works bearing on human genetics: 1962–74'.

Inevitably the contributions are uneven. The best pack large amounts of information into a few pages, much of it in the form of tables: Margaret Green on the house mouse is particularly good. Other chapters are disenchantingly verbose.

The main question one asks of expensive collations of data like the *Handbook* is 'Is it useful enough to buy?' Leaving aside the impertinent question of whether one has enough money, the answer probably is 'yes', for all but the overdedicated specialist. Unfortunately most clinicians fall into this category—even though for wholly proper and necessary reasons. It would be refreshing and perhaps beneficial to find more medical geneticists getting ideas from work on non-humans. There is good precedent for this: E. A. Cockayne and C. A. Clarke catching butterflies, Fraser Roberts chasing sheep. The editor has managed to dragoon most of his contributors to present their material in roughly similar ways, so it is relatively easy to compare concepts.

It is difficult to be constructively critical of a book of this sort without nit-picking. For example, King's *Bibliography* lists most of the obvious books, but omits Carter's Pelican *Human Heredity* (1962), and Carter and Fairbanks' *Genetics of Locomotor Disorders* (1973) (though listing two other books by Carter), as well as Wynne-Davies' *Heritable Disorders in Orthopaedic Practice* (1973). Perhaps the computer had an aversion to anatomy? Again Kojima's *Mathematical Topics in Population Genetics* (1970) is in; Wallace's *Topics in Population Genetics* (1968)—surely as relevant—is not. Four of McKusick's books are recorded, but not *On the X Chromosome* (1964). Several collections of papers are listed, but not the nice *Human Populations, Genetic Variation and Evolution* (edited by Morris, 1972). There are similar aberrations in the list of human biochemical variants. For example, neither glutamic pyruvic transaminase nor esterase-D is listed as polymorphic, despite the fact that both had been described by 1973. None of these omissions are terribly serious in themselves, but together they undermine one's confidence in other data that may be missing.

Any allegedly complete compilation of data in a subject as expansive as human genetics has to be treated with caution. Notwithstanding, the fourth volume of King's *Handbook* can be thoroughly recommended to intelligent (i.e. cynically selective) users.

R. J. BERRY