retrieval, however, it has some fairly obvious limitations and it compares rather unfavourably both with computerised retrieval systems, some of which are far more flexible and efficient, and in some respects with specialised books that contain extensive bibliographies.

S H ROBERTS

Molecular Genetics in Diseases of Brain, Nerve and Muscle. Ed L P Rowland, D S Wood, E A Schon, S DiMauro. (Pp 481; £45.00.) Oxford: Oxford University Press. 1989.

This book is arranged in four sections. The first is a brief introduction to inheritance, and to the impact of molecular genetics on the field of neurological and neuromuscular disorders. The second section, more than one third of the book, describes the language and tools of molecular genetics. The third section, half the book, consists of chapters from distinguished research workers outlining their fields of work and describing their own recent contributions. The final section looks to the future, with discussions of gene therapy and of the ethical issues thrown up by the advances in molecular genetics.

The second section is designed as a primer of molecular genetics. I found it to be a succinct outline of the field that would serve as a refresher to those whose acquaintance with genetics had slipped, but it would be difficult to use it as a primer for the completely uninitiated. The density of information is necessarily too great for it to be digestible as a primer, and some topics are touched upon only sketchily. This is inevitable, given the constraints of space, but it has prevented the editors from realising their stated aim. To cover all of genetics from the structure of DNA, through gene expression, DNA polymorphisms, library construction and analysis, and on to linkage analysis in just 170 pages is perhaps not possible. The quality of the contributions is generally high, and the editors have obviously taken great care to ensure that the techniques mentioned later in the volume are described here.

The third section is the heart of the book, and covers many inherited neurological disorders: for only some

of these disorders has the corresponding gene product been identified. Each chapter describes the clinical disorder briefly, outlines the state of molecular knowledge, and then describes in more detail the work undertaken by the author(s). As a set of summaries of genetic knowledge (in most cases, as of early 1987) these are well written and will remain of interest for some time. What makes the volume exciting, however, is the description of the contributors' own work. In some chapters this is not emphasised, but I most enjoyed reading the accounts of work in progress or recently completed. The chapters describing genes whose product is known were generally longer and of more interest to me than were the others. The chapter on familial amyloidotic polyneuropathies, for example, was a lucid synthesis of molecular genetics, protein chemistry, and immunocytochemistry. The descriptions of some of the other disorders, those of unknown gene product, are perhaps less likely to retain their appeal. This is only to be expected, with the waning of the age of genetic linkage studies: a similar book in the future will have many fewer diseases in which the gene product remains unknown, or the gene locus uncertain.

I would warmly recommend this book to medical geneticists whose knowledge of scientific neurology warrants updating, and to neurologists and other clinicians interested in the genetic basis of neurological disorders. However, I would suggest some preliminary reading of elementary molecular genetics for those with little previous exposure. Medical students with an interest in the field, and hopefully with some background in molecular genetics, might also find some of the essays to be suitable general background reading.

ANGUS CLARKE

International Directory of Genetic Services. 9th edition. Henry T Lynch, Rodney H Hoden. (Pp 74.) New York: March of Dimes Birth Defects Foundation. 1990.

This well known Directory was first published in 1968 to assist with medical communication in the field of birth defects. Specifically, it was envisaged

that it would aid research by allowing identification of cognate researchers in other centres and also with the provision of counselling to distant branches of a family, particularly where they were resident in another country. The current edition contains information on 873 genetics units, but while this statistic is impressive, it serves to highlight marked deficiencies in genetic services in many countries. Of the 873 entries, 476 relate to centres in the USA and the remainder are distributed among 50 other countries with strikingly only four entries for the African continent and only a single entry for China. This imbalance might reflect a degree of underascertainment and this is in evidence for the UK where seven Regional Genetic Centres are not included, but I suspect the main problem is the apparent lack of genetic services in many countries throughout the world. Successive editions of this Directory will thus be required as this shortfall is remedied and I believe that we can all play a role in helping to make the Directory comprehensive by indicating omissions and duplications to the editors. It would also be helpful to have Fax numbers for the centres and I wonder if the option of supplying information on a computer disc would be worthwhile, particularly as the number of centres throughout the world expands.

The editors are thus to be commended for taking on this task which is of benefit to all of us who are involved in both research and service aspects of genetics. Copies of this new edition are available directly from the March of Dimes Birth Defects Foundation for a small fee which covers packaging and transportation.

J M CONNOR

Fanconi Anaemia: Clinical, Cytogenetic and Experimental Aspects. Ed T M Schroeder-Kurth, A D Auerbach, G Ober. (Pp 264.) Berlin: Springer Verlag. 1990.

The cover of this compact hard back volume describes it as "the first attempt to gather information on all aspects of Fanconi anaemia in one source." The cover also describes the book as a monograph which suggests an unusual interpretation of this term in view of the inclusion of 57 contributors. The

three who edit the volume are from Heidelberg, New York, and Essen respectively and the first two draw on their longstanding interest in Fanconi anaemia (FA) to contribute as authors, commencing with a review of clinical features based on 162 cases of FA known to their International Fanconi Anaemia register. The clinical section also contains two reviews of patient series in Holland and South Africa and two papers on therapy, one devoted to detailed aspects of bone marrow transplantation. These detailed sections are valuable for their discussion of the rarer problems, such as endocrine deficiency, in particular the frequent occurrence of hypothyroidism and growth hormone deficiency.

Section II contains seven papers on the cytogenetic aspects of the disorder in homozygotes and heterozygotes including a detailed analysis of the efficacy of prenatal diagnosis. In section III six papers explore the cellular defect with contributions on oxygen metabolism and the effects of microinjection and DN transfection studies. The fourth section has three papers devoted to complementation studies and the book ends with a short contribution from a couple who experienced the impact of this devastating disease in their own family.

The overall impression of this book is that it contains a wealth of detail, though the style shows the usual marked variation of a multiauthor book and the editors could have imposed themselves rather more. In particular, the repeated reference to original papers and basic description of the disease and its inheritance in many introductions gives the impression of a collection of essays rather than a coherent book. Criticism of repetition aside, this book is a valuable contribution and should find its place in the library of any genetic or paediatric unit responsible for the care of patients with this depressing yet fascinating condition.

JOHN BURN

Meiosis. Development and Cell Biology Monographs 22. B John. (Pp 396; £50.00.) Cambridge: Cambridge University Press, 1990.

In this excellent monograph on meiosis, Professor John provides an

authoritative account of a process which has fascinated him throughout a distinguished career. I can well remember a conversation we had together some years ago in Canberra when he remarked that it was his belief that cytogeneticists could generally be divided by their basic interests into 'somatic' and 'meiotic'. He certainly fell into the latter category, and the detailed and comprehensive coverage of the basic meiotic process across a range of plant and animal species provided by this book displays his true depth of knowledge on the subject. The reader is given a mass of information and data from a variety of species, some exotic and bizarre, others more familiar, the data to a certain extent reflecting the fact that a large part of the author's time has been spent in Australia, the marsupials and many native insects of that country being well represented. Cytogenetic, biochemical, and physiological aspects of meiosis are all covered, detailed accounts being given of the basic processes of synapsis, recombination (including conversion), chiasma formation, and chromosome segregation. Up to date information is provided on the synaptonemal complex, recombination nodules, and spindles together with recent biochemical findings regarding the processes of pairing and crossing over at meiotic prophase.

Overall, the book is one for the geneticist or cytogeneticist interested in the basic mechanisms involved in this complex biological process. It is perhaps of less interest to the medical geneticist grappling with meiotic events in humans, as the vast majority of the examples provided are gathered from species other than man. Nevertheless, the basic concepts described are equally applicable to all species.

The postlogue to the book points out the fact that every aspect of meiosis is beset with both controversial and unresolved issues. So although new information is available, a complete theory of meiosis is still lacking. Professor John, however, has provided a fine and detailed statement of the issues and problems, and his book admirably bridges a gap which currently exists on the library shelf. Together with the 327 pages of text, there are over 400 references and a well-prepared index. I could thoroughly recommend it to the reader.

ANN C CHANDLEY

Flow Cytogenetics. Ed Joe W Gray. (Pp 312; £33.00.) London: Academic Press, 1989.

This is the first book devoted to the use of flow cytometry for the analysis and sorting of chromosomes. Until recently, few laboratories worldwide have used flow cytogenetics, although the products of the Los Alamos and Lawrence Livermore laboratories in the form of flow sorted, chromosome specific DNA libraries are widely used in molecular biology. However, modern commercial flow cytometers are now capable of producing high resolution flow karyotypes and there is an increasing demand from molecular biologists for chromosome analysis and sorting. This book forms an invaluable reference text for centres embarking on flow cytogenetics and is interesting reading for established groups.

This multiauthor book has been written by many of the leading names in flow cytogenetics. The chapters fall into two main groups, those addressing the technical aspects of obtaining high resolution flow karyotypes and those describing applications. From the technical point of view, chapters on instrumentation, cell culture, chromosome isolation, and staining technology are well written and provide both practical information as well as detailed technical discussion of factors influencing the resolution of measurements. Although the information supplied falls short of providing specific protocols, adequate reference to published reports fulfils this need.

Sorting of chromosomes is well covered, including a chapter on pre-purification of chromosomes by velocity sedimentation and an interesting, if not widely applicable, chapter on the high speed chromosome sorter used to construct many of the gene libraries obtainable through the US National Laboratory Gene Library Project. A further chapter details the experiences of those involved in this project and describes the strategies used for cloning DNA from flow sorted chromosomes. The chapter on the statistical analysis of both univariate and bivariate histograms as applied to chromosome data documents carefully the accuracy of various methods for peak estimation.

Applications of flow cytogenetics are covered in two general chapters on the uses of univariate and bivariate flow karyotype analysis and more specifically