transverse limb defects in this study by Wynne-Davies and Lamb, there was one relative affected with a similar defect, a monozygotic twin. We feel that it would be a pity if the figures quoted by Drs Lindenbaum and Firth deterred other authors from reporting unusual recurrence of similar defects within a family.

M A LAMONT,
A J SALISBURY
Wessex Regional Counselling Service,
Department of Child Health,
Southampton General Hospital,
Southampton SO9 4XY.

BOOK REVIEWS

100+ Principles of Genetics. Anthony J F Griffiths, Joan McPherson. (Pp 387; £9.95). New York, Oxford: W H Freeman. 1989.

The main text of the book is 120 principles of genetics, covering classical, molecular, and population genetics, set out in general groups of topics that include genes and inheritance, mutation, gene structure and function, recombinant DNA technology, organelle genes, and quantitative and population genetics.

The text itself is very easy to read with each principle in dark, bold type at the top of the page, a limited amount of explanatory text, and one or more excellent black and white line diagrams. There are also 78 problems with worked solutions with references to the relevant principles.

Although the authors indicate that the principles can be read in numerical sequence, each page has multiple cross references to other principles as appropriate. If one followed these without adhering to the numerical sequence, reading this text could be like some children's books currently in vogue where each page offers a number of alternative choices making it difficult to know when one has or will finish the book!

The most serious drawback of this textbook, to my mind, is when difficulties of understanding might be

encountered. For example, the mathematical formulae in the principles dealing with population genetics are, in some instances, merely stated without demonstration of their derivation. In this eventuality, the reader would have to refer back to their basic genetics textbook. I feel the text would be greatly enhanced by cross references to standard textbooks or journals that lucidly explain particular topics to assist in this situation.

The authors indicate in the introduction that this book could be useful as a supplement to textbook(s) in fundamental genetics and might be used to update or review a basic understanding of genetics. I would accept that this book might be useful for the latter purpose but would not expect many students of genetics to purchase it for that purpose alone, even if it were also used for the former. A genetics textbook with a good summary at the end of each chapter or the liberal use of a highlight pen might suffice.

R F MUELLER

Genetics of Neuropsychiatric Disease. Ed L Wetterberg. (Pp 363; £50.00.) New York: Stockton Press. 1989.

This book presents the Proceedings of a symposium held in Stockholm in 1988 which focused on the application of genetics, particularly molecular genetics, to neuropsychiatric disorders. It is divided into four sections: on research methods, research models, applications to particular diseases, and the likely directions of future research.

Most of the contributors are well known in this field and have provided brief and to-the-point coverage of quite a wide range of topics, which will be of interest to psychiatrists, neuroscientists, and to geneticists who have a particular interest in disorders of the nervous system.

The first section of the book on methods contains very useful brief accounts of techniques of DNA analysis and linkage analysis, as well as presenting a gene map of diseases, enzymes, and proteins that may be of relevance to the understanding of neuropsychiatric disease. The same author, Wahlstrom, also contributes an informative chapter on the potential use of chromosome aberrations in mapping mental disorders. Other

chapters, such as that on the molecular genetics of PKU, are interesting but of less immediate relevance to general neuropsychiatry where the bulk of the work consists of far commoner conditions, such as schizophrenia and manic depressive illness. If the book has a principal weakness it is that these topics and classical approaches are not more extensively covered. The time honoured methods of family, twin, and adoption studies still provide the strongest evidence that abnormal genes are involved in the aetiology of abnormal behaviour. Therefore, it is a pity that, in the understandable enthusiasm for the 'new genetics', the more classic methodologies that have driven psychiatric genetics so far, and are still good for a few more miles yet, are largely overlooked.

Aside from this criticism, and the fact that collections of 'photoready' chapters are never quite as pleasing to the eye as a book set in uniform type, this volume is a useful addition to the literature and should have a definite place in the libraries of all departments and research units interested in this field.

PETER MCGUFFIN

Molecular Genetics of Muscle Disease: Duchenne and Other Dystrophies. British Medical Bulletin, July 1989, volume 45, number 3. Ed A J Buller, J Goodfellow, J M Newsom-Davies. (Pp 828; £25.00.) Edinburgh: Churchill Livingstone. 1989.

In his introduction to this second issue of the *British Medical Bulletin* devoted to muscular dystrophy, A J Buller observes that the magnificent advances in muscle research that have occurred in the last nine years have been partly the result of the support of applied research by the muscular dystrophy charities. It is not surprising that many chapters in this volume deal with recent advances concerning the Duchenne/Becker gene and with methods of examining gene transcription in muscle. M E Buckingham describes the enormous variety of muscle proteins, some owing to multiple genes, and others owing to differences in splicing the same gene. The current function, or evolutionary importance, of such diversity is unclear. The development of the primitive muscle cell, or myoblast, to

myotube is thus very complicated; however, its study in muscle culture will hopefully lead to an understanding of how dystrophin exerts such an important effect on muscle function, a theme taken up by H J Klamut *et al.* The animal models described by B J Cooper are also likely to be useful in understanding the pathogenesis of Duchenne muscular dystrophy, particularly the point mutation in mdx mouse which causes no clinical disease. L M Kunkel and E P Hoffman summarise the exciting work of analysing the dystrophin gene, and emphasise the curious feature of its size, which is disproportionately large for the small protein it encodes, and which is presumably the reason for its frequent mutations. D R Love *et al.* suggest that study of the dystrophin gene of mildly affected Becker patients might lead to the construction of an *in vitro* engineered gene that could be suitable for gene therapy.

S V Hodgson and M Bobrow describe how carrier detection is more accurate when DNA probes are used in conjunction with creatine kinase estimation, and how prenatal diagnosis is available for the majority of female carriers: a great advance. J T den Dunnen *et al.* report that field inversion gel electrophoresis is a rapid way of detecting rearrangements and deletions of the dystrophin gene and is useful in recognising female carriers. They find that 14% of new mutations are associated with germinal mosaicism in the mother.

There are further chapters on the management of muscular dystrophy, on myotonic dystrophy, and on the differential diagnosis of Emery-Dreifuss and other muscular dystrophies. A E Harding and I J Holt succinctly describe the intriguing findings in the clinically diverse mitochondrial myopathies. These are associated with a variety of biochemical abnormalities in mitochondrial respiratory complexes, some of which result from mutations in mitochondrial genes and others from mutations in nuclear genes. The authors were the first to describe heteroplasmy in humans, by showing that some patients with progressive external ophthalmoplegia or Kearns-Sayre syndrome had deletions of the mitochondrial genome in some, but not all, of mitochondria within individual muscle cells. Presumably this somatic mosaicism (or, more accurately, heteroplasmy)

accounts for some of the clinical diversity and for the rarity of inheritance from a parent.

This book thus ranges widely over many muscle disorders and will be valuable to geneticists and neurologists, and also to scientists trying to unravel the basic molecular and biochemical defects. It is compact and well presented and I thoroughly recommend it.

SARAH BUNDEY

Prenatal Diagnosis in Obstetric Practice. Ed M J Whittle, J M Connor. (Pp 274.) Oxford: Blackwell Scientific Publications. 1989.

I enjoyed reading this short book on prenatal diagnosis edited by Whittle and Connor, which covers many aspects of the subject, starting with the general principles of counselling, some principles of screening, and many fairly detailed chapters on structural abnormalities. There is a very brief chapter on DNA diagnosis of single gene disorders, but nothing here that can help an understanding of mathematics of precise risk prediction with linked markers where crossover is a possibility. The book contains a very large number of good ultrasound pictures. Unfortunately, as with so much writing on ultrasound, the authors work backwards from pathological diagnosis to the clinical appearances, instead of working forward from what is seen on ultrasound to the possible pathological diagnoses, giving an indication of which is most likely and an overall view of prognosis.

This is a competent book and will be of some value to people working in obstetrics. It is not sufficiently detailed for a sub-specialist trainee in the area and it is rather too detailed for a general practice readership. It would, however, be useful for an enthusiastic candidate for the MRCOG. One of the best features of the book is a list at the back of the various diseases which can be diagnosed by a chemical assay and another of the various structural malformations that have been picked up on scan.

Unfortunately, this book shares, with many other publications, an inflated view of the precise diagnostic accuracy of ultrasound. All sorts of unusual and specific conditions are claimed to be diagnosable by ultrasound. What happens in actual practice

is that an unusual appearance is noted on the scan. Then, after delivery, the precise diagnosis is made available. The authors then write up the case as if the condition was precisely diagnosable antenatally.

Nevertheless, notwithstanding this rather general error, I was quite impressed by this little book.

R J LILFORD

Chromosome Abnormalities and Genetic Counselling. R J M Gardner, G R Sutherland. (Pp 255; £26.00.) New York: Oxford University Press. 1989.

The primary aim of this book is to help cytogeneticists and clinical geneticists provide risk figures for the occurrence of chromosome abnormalities under defined circumstances, and to indicate the likely phenotypic outcome. This endpoint suggests that the text is a tedious list of facts and figures. On the contrary, the information is supplied in an informal but concise manner.

All clinical geneticists and cytogeneticists are familiar with the debates that can ensue on detection of a chromosome abnormality that is not associated with a well established syndrome. Sometimes appropriate reprints are to hand: more often, a review of previous publications is instigated, records (and memories) are searched, or colleagues contacted, to determine whether or not a similar case exists. The authors of this book have carried out all of these tasks and compiled the data so that they are readily accessible and comprehensive (there are over 500 references).

There is an introduction to the subject matter in the first three chapters, ensuring that the less genetically aware readership is reminded of the basic concepts of cytogenetics, the mechanics of meiosis, and the derivation and application of risk figures. Thereafter, each chapter is devoted to a particular aspect of cytogenetic abnormality. There are 12 chapters describing different types of chromosome anomaly that can be carried by one of the parents, where there is a possibility of transmission of an unbalanced form to their offspring. Four further chapters discuss the counselling problems associated with chromosome abnormality in a child when both parents have normal karyo-