broad topics can be extracted from the last 10 years of Annual Reviews Inc. publications to make up an attractive volume for the busy reader, and whether other Review Series follow suit.

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Methods in Microbiology, Vol. 17: *Plasmid Technology*. Edited by PETER M. BENNETT and JOHN GRINSTED. Florida: Academic Press. 1985. 336 pp. £25.00. ISBN 0 12 521517 7.

Plasmids have now been detected in nearly fifty genera of bacteria, including members of all the main bacterial groups, and it seems that no genus (and perhaps no species) will be found which has managed to do without them. So plasmids have a great intrinsic interest, due to the varied contributions they make to bacterial life and their ability to evolve for the benefit of their hosts, quite apart from their major contribution to genetic engineering progress. This book succeeds in giving at the same time both a brief survey of current knowledge on many aspects of plasmid biology, with useful historical information and references incorporated, and also a series of well-tried recipes for performing the main techniques available for studying and making use of plasmids.

The topics covered, after a general introduction on identification of plasmids at the genetic level, include conjugation, transformation by plasmid DNA, study of plasmid replication *in vivo*, isolation, purification and electron microscopy of plasmid DNA, use of restriction endonucleases, analysis of clones based on hybrid plasmids, the detection and use of transposable elements, minicell systems, and DNA sequencing. The articles generally assume a rather minimal technical experience in the reader, and include sufficient detail in describing procedures and notes on what is critical in the various techniques, for them to be useful to students and newcomers in the field. The simplified procedure for extraction with phenol (chapter 6), and the details of different transformation procedures (chapter 4) are good examples. The editors have also taken care to avoid too much duplication between different articles. The book is comparatively cheap for a hardback at £25.00, and should be of value as a handbook in many laboratories as well as on the shelves of Biology Department Libraries. It stands up well to the competition from the many books on genetic engineering which have recently appeared, and I don't think it will rapidly become outdated.

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Psychological Aspects of Genetic Counselling. Edited by ALAN E. H. EMERY and IAN M. PULLEN. Florida: Academic Press. 1984. 256 pp. £19.50 (Cloth). ISBN 0 12 238220 X.

Doctors are increasingly aware that most if not all aspects of clinical practice have psychological implications for the patient. Paradoxically, patient counselling receives little or no emphasis in the medical undergraduate curriculum and most learn piecemeal by practical experience. This is especially relevant to genetic counselling which if poorly performed can have disastrous consequences for the consultands and their familes.

This book has 17 contributors and covers a wide variety of topics which are broadly related to genetic counselling and reproductive planning. Certain messages are recurrent

including the need to counsel both parents; the timing and surroundings appropriate for counselling; the importance of interaction and non-verbal communication; and the need to avoid directive counselling. Of most interest to one directly involved in genetic counselling, however, were the differences in individual style which suggest that there is not just a 'right' way and a 'wrong way' to counsel. I was surprised that no one had considered videotaping genetic counselling interviews for self-assessment and that there was no mention of follow-up letters to the consultands. We routinely send a written account as a permanent reminder of the pertinant facts given at counselling and I am convinced that this could usefully be more generally applied in medical practice.

Good counsellors are part-born and part-made we are told and I can certainly recommend this book to counsellors who seek to attain their full genetic potential!

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Recombinant DNA and Medical Genetics. Edited by ANNE MESSER and IAN PORTER. Florida: Academic Press. 1983. 224 pp. £22.00 $33.00. ISBN 0 12 49222.

This book constitutes the Proceedings of the Thirteenth Annual NYS Health Department Birth Defects Symposium held in Albany, New York in November 1982. Hence many of the studies presented here have already appeared in standard journals. So we have to ask whether the articles presented here have value as summaries of strategies or developments in particular areas of genetics which have not been superseded and rendered obsolete by technical and conceptual breakthroughs in the interim. On balance I believe the majority of the articles pass this test.

One general criticism I have of these proceedings is of the overall lack of organisation. All told there are 14 review articles by recognized authorities in the areas they represent. There has been no attempt to place related articles together or in a logical order. Hence, two reviews on the use and analysis of DNA restriction fragment length polymorphisms (RFLP) flank two articles on the mechanism of *X* inactivation and the constitution of the mouse *Y* chromosome. A little more attention to layout would have improved the book considerably.

We can arbitrarily subdivide human genetic diseases into those in which the primary defect is understood and, often, the gene cloned, and into those where the primary defect is unknown. In the latter case probes which reveal RFLPs and which are assigned to a region of a chromosome are being used in family studies to try to map the chromosomal location of the disease loci. All the steps involved in such an analysis are reviewed in this book. Latt *et al.* present a very clear description of how DNA libraries can be constructed from individual human chromosomes that have been isolated by Fluorescence Activated Cell Sorting. Franke *et al.* provide a very well reasoned account of how polymorphic probes generated from such a library can be assigned to regions of chromosomes by the use of somatic cell hybrids containing incomplete fragments of chromosomes. These authors also discuss why it is important to map such RFLPs. The use of somatic cell hybrids is reinforced in a more rambling article by Shows *et al.* who also demonstrate the potential power of *in situ* hybridisation to map genes.

Unfortunately there is little in this book about the use of such mapped polymorphic DNA probes to construct genetic linkage groups and to look for linkage with disease loci in families. This area is one in which considerable progress has been made since the meeting was held. There is a useful, but rather limited article by White *et al.*, pioneers in the use of RFLPs in human genetics.

Even when the gene involved in the basic defect is known and cloned this can be just the starting point for analysis aimed at classifying the plethora of mutations in the one

gene which can lead to the disease phenotype. This is well illustrated for the β thalassaemias which are a heterogeneous collection of mutations in the β globin cluster. Kazazian *et al.* show how RFLPs in this region can be a powerful aid to subdividing these mutations into classes. Orkin discusses how β thalassaemia can be caused by mutations which affect various steps in the flow of information from gene to polypeptide. He illustrates how research into the nature of these mutations not only provides information about the disease but also gives insights into the control of gene transcription and mRNA splicing. The article by Phillips *et al.* demonstrates how RFLPs in the growth hormone gene region can be used to determine whether various types of hereditary dwarfism are caused by defects in the gene itself or unlinked genes.

In addition to these articles there are useful reviews of the major histocompatibility complex (Seidman *et al.*, Orr & de Mars) and the origin of antibody diversity (Huang & Hood). Orr and de Mars demonstrate an elegant strategy for mapping genes and functions within the human MHC. They have used irradiation followed by selection with antibodies to these cell surface markers to isolate deletion mutants within the cluster. The one article which appears somewhat outdated and inconclusive is that on mechanisms of X-inactivation by Migeon *et al.*

I was impressed by the molecular analysis of *X-Y* translations in the mouse by Eicher *et al.* This analysis has allowed mapping of critical functions to regions of the *Y* chromosome. Such an approach is also being taken in humans.

The article by Lerman *et al.* is the most pioneering in nature. They show than denaturing gradient gel electrophoresis can be used to separate DNA fragments several hundred nucleotides long which differ only by one base substitution. They provide an erudite explanation of the biophysical basis of this behaviour of the DNA fragments. Since the Albany meeting this group has used this technique to identify regions with point mutations in β-globin genes. The potential of this approach to identify sites of mutations is obvious.

The first chapter of the Proceedings is a useful introduction to most of the techniques described frequently in the book and necessary for the molecular geneticist. These include the construction of recombinant DNA libraries and Southern blot analysis. These proceedings should provide a valuable introductory text and reference source despite the limitations I have outlined.

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