*mu* transposition (Craigie *et al.*), conjugative transposons (Clewell *et al.*). In terms of the individual contributions, this volume is the equal of the Shapiro book. But where the SGM book shows up relatively badly is in the overall choice of subject matter: there are some odd additions, and some surprising omissions. In the former category, I should place, for instance, two separate chapters on site-specific recombination (which, except that the systems discussed are carried on transposable elements, have little immediate relevance to transposition). And in the latter category, there is no chapter on Class II bacterial transposable elements, which are of great importance in the problem of antibiotic resistance and which, in the words of one of the editors (K. Chater in the chapter on Streptomyces), "may well be . . . a major agency by which genetic information has been disseminated horizontally between groups".

So, I have some reservations about the book as a general text on transposition. But, what it does do it does very well and, for anyone interested in transposition, it is necessary reading.

JOHN GRINSTED
*Department of Microbiology*
*University of Bristol*

**18th Stadler Genetics Symposium. Chromosome Structure and Function. Impact of New Concepts.** J. Perry Gustafson and R. Appels (eds). Plenum, New York, 1988. Pp xvi + 326. Price £39.70. ISBN 0 306 42933 0.

This optimistically titled volume reports the proceedings of the 18th Stadler Genetics Symposium, which by careful detective work can be deduced to have been held at the University of Missouri, Columbia in 1987. Compounding this air of mystery, there is virtually no information given on the origin, history, scope or purpose of the Stadler Symposium series. This omission is unfortunate since it cannot be assumed that younger workers in this area are aware of Stadler's legacy to Genetics.

In a very brief foreword, we are informed that the symposium covers "a broad spectrum of studies on chromosome structure and function". This is an understatement! With such a large canvas to cover, it is inevitable that the coverage is patchy. The result is a collection of papers which lack a distinct coherent theme. Having said that, many of the individual contributions present valuable reviews, and in some cases original material on important topics relating to chromosome organization and function.

Although they are not grouped together, four papers are primarily concerned with aspects of the linear differentiation of eukaryotic chromosomes, including both major heterochromatic blocks and the finer euchromatic bands of *Drosophila* polytene chromosomes. These papers cover general aspects of chromosome organization and banding (Burkholder), non-histone proteins in polytene chromsomes (Elgin *et al.*), the genetics of constitutive heterochromatin (Hilliker and Sharp) and chromosome analysis in wheat (Gill and Sears). To these can be added a further paper on cladistic analysis applied to chromosome banding data which may be of interest to taxonomists but is uninformative on chromosome structure and function.

A further sub-set of three papers present detailed molecular analyses of particular genetic loci, including the rDNA of maize (Phillips *et al.*), chorion gene amplification in Drosophila (Orr-Weaver and Spradling), and the R-nj allele in maize (Dellaporta *et al.*). Other aspects of chromosome organization and function are covered by useful surveys of replicons in higher plants (Van't Hof), meiotic chromosome pairing and recombination (Maguire) and a particularly fascinating and inspiring survey of recent work on kinetochore organization and function (Nicklas).

This leaves a residue of three papers covering topics as diverse as molecular mapping of plant chromosomes (Tanksley), transgenic Arabidopsis (Redei *et al.*) and genetic engineering of crop plants (Fraley *et al.*). Although these papers are interesting and informative in their own right they are at best of only marginal relevance to the declared theme of this symposium.

Ultimately one must ask whether this volume gives a reasonably balanced coverage of the admittedly broad title of "Chromosome structure and function" since prospective purchasers may assume that this is the case. Regrettably the answer must be no, since several possible topics of relevance and interest are excluded to accommodate contributions of little or no relevance to the theme suggested by the volume's title. Nevertheless there is much of interest here. While a broad balanced coverage is not achieved, several of the individual contributions deserve to be widely read by teachers and researchers in this rapidly advancing field.

GARETH JONES
*School of Biological Sciences*
*University of Birmingham*

**Eukaryotic Chromosome Replication. Proceedings of Royal Society Discussion Meeting.** R. A. Laskey, G. R. Banks and P. M. Nurse (eds). Royal Society, London. 1988. Pp 175. Price £36.00. ISBN 0 854 03339 4.

The papers given at this meeting were first published in the *Philosophical Transactions of the Royal Society*, ser B, **317**, 393–574, and later as a separate volume of 180 pages. The title is something of a misnomer, for nearly half of the pages in the Symposium Volume are devoted to prokaryotes, and the photograph on the glossy cover

is a deliberate delusion; it shows a scanning electron micrograph from a human HeLa cell, but the only photographic illustration of chromosomes *within* the volume shows the immunolocalization of topoisomerase II in metaphase chromosomes of an organism that is not even named!

Although the balance of papers is so distorted, a heavy weighting being given to the molecular biology of replication in prokaryotes, and including an outstanding review of this field by B. M. Alberts, there are at least glimpses of significant studies on a few eukaryotic systems. Amongst these latter, J. J. Blow *et al.* demonstrate the remarkable potentialities of *in vitro* work that shows how purified DNA and nuclei, including those of demembranated sperm, can be induced to replicate in *Xenopus* egg extracts. There are two papers on the initiation of DNA replication in yeast chromosomes, but nothing on the replication of telomeres, a problem that is specific to eukaryotes and where work on yeast has been signally informative. Neither of the last two papers, on the bending of DNA in nucleosomes by A. A. Travers and A. Klug, and the relation of chromosome structure and gene expression, by J. Mirkovitch *et al.*, though of intrinsic interest, bear directly on the topic of the symposium, and I find it extraordinary that this last offering discusses a loop mode of chromosome organization without a single reference to work on lampbrush chromosomes, where evidence for such an organization has been known for nigh-on 90 years!

H. G. CALLAN
*Department of Biology and Preclinical Medicine*
*University of St. Andrews*

**Textbook of Human Genetics, Third Edition.** Max Levitan. Oxford University Press, Oxford. 1988. Pp. 497. Price £30.00. ISBN 0-19-504935-7.

There are many general textbooks covering the introduction of human genetics, so a new edition must aim to fulfil a particular need in order to find its niche in the market place.

This book has a total of 18 chapters covering a wide range of topics from Chapter 1 on simple Mendelian inhertance through to Chapter 18 where the whole of genetic counselling and prenatal diagnosis are covered in a single chapter. Perhaps it is this latter fact which indicates that the main interest in the book lies in promoting an understanding of the concepts of genetics rather than in describing their outcome. The explanations of the fundamentals of both basic and human genetics treat the subject very firmly as a science and not as a collection of symptoms. Thus the pages are liberally endowed with equations and formulae which serve to illustrate the underlying principles of genetics which many other more superficial texts merely take for granted, and the student whose concept of genetics is descriptive syndromology may find daunting. Much of the book is excellent, particularly the chapters on polygenic inheritance, immunogenetics and the mathematical concepts such as mating laws, consanguinity and gene frequencies. The latter are all given precise treatment with carefully thought-out examples to illustrate the more complicated areas and formulae.

Naturally with all this in a book of less than 500 pages something has to be left out and it is in the description of human conditions and the chromosome chapters where it is at its weakest. If you require a detailed text on syndromology or developmental genetics then this is not the book for you. Neither does it delineate screening procedures, counselling or prenatal diagnosis or even describe common inherted diseases in any detail. Chorionic villus sampling for example is dismissed in a single paragraph of 13 lines.

The book is well laid out, has some references (a detailed bibliography is not a requirement in a general textbook) and a very lively test-yourself-by-answering those questions section. There are a few, though not many, clinical photographs, illustration of points is mainly by diagrams which are clear and well set out.

The cytogenetics chapters, although well written, were disappointing. Surely by 1987, when this book was published, no text should be illustrated with non-banded karyotypes. Any routine cytogenetics laboratory would be able to provide high quality photographs to illustrate translocations, inversions, ring chromosomes, etc. Surely if the cri-du-chat syndrome is due to $5p^-$ then an unequivocal picture of a no. 5 chromosome is required to illustrate it, similarly with trisomies 18 and 13, and particularly anomalies of the sex chromosomes. Even an overview in a fundamental textbook should reflect modern technological standards when they are routine.

So, with its strong scientific background, this book would be extremely useful to students of biological science with an interest in human genetics, to science students specialising in genetics and to medical students with a liking for fundamental processes and mathematical derivations. After all, why should the average medical student not know how a lod score is calculated?

TESSA WEBB
*Department of Clinical Genetics*
*University of Birmingham*