respecting cytogenetics laboratory would accept the statement on p. 85 that "the laboratory report usually specifies only the group affiliation of the supernumerary chromosome (*G*)—for example 47 *XY* + *G*."

The upward bend continues with a good description of multifactorial inheritance and an excellent chapter on prenatal diagnosis. More emphasis could have been placed on the very commonness of the polygenic conditions such as neural tube defects but empirical risks are well handled.

After a well-organised chapter on those most baffling of genetic problems mental retardation and mental illness come three short pieces on the non-starter subjects consanguineous marriage, exposure to mutagens and teratogenic effects during early pregnancy. While genetic advice based on extrapolation from mouse data may not seem to be adequate, it is still the best available. This type of problem does occur relatively frequently and accurate negative information is always the most difficult to find.

Finally, in its last Chapter the authors deal with psychological and social considerations. Their arguments seem rather weak and belated after the previous subject matter. This book is one for the scientific genetic counsellor rather than the psychological one!!

T. WEBB,
Department of Clinical Genetics,
University of Birmingham

GENETIC ENGINEERING 4 (1983). Edited by R. Williamson. Academic Press, London. 185 pp. £11·80.

This latest volume of "Genetic Engineering" contains three articles which explore in depth various aspects of *in vitro* recombinant DNA technology. The first article by Lathe, Lecocq and Everett is entitled "DNA Engineering: the use of enzymes, chemicals and oligonucleotides to restructure DNA sequences *in vitro*". Approximately half of it is concerned with how fragments of DNA can be joined together in novel combinations despite, in some cases, their initial lack of blunt or complementary cohesive ends and how the ends of these fragments can be altered prior to joining, either so as to achieve desired changes in DNA sequence in the vicinity of the fragment ends or simply to make possible the juxtaposition of two genetic regions. The authors have been very thorough in documenting the tricks of the trade, both published and unpublished, which ingenious workers have devised over the years. It should provide a source of inspiration to most people faced with some seemingly intractable problem of hybrid plasmid construction. The rest of the chapter is a description of current methods of localised and site directed mutagenesis which again is thorough and useful.

The second article, by Craig and Hall, covers the application of recombinant DNA technology to characterisation and expression of polypeptide hormones. Inevitably this includes basic eukaryotic gene (cDNA) cloning technology (already covered in this series) but gives a useful perspective on the problems of cloning hormones (sometimes minor products of not very abundant sub-populations of cells). Of importance in this field is the way that nucleotide sequence information for cDNA clones can be of significance in discovering new hormone-like polypeptides contained within the prohormone precursor protein for the hormone of interest.

Finally, Harris has written an article on expression of eukaryotic genes in *E. coli*. After an introduction to prokaryotic gene expression signals and problems of expression of eukaryotic genes in prokaryotes the author deals in turn with the different promoter systems (*lac*, λP_L, *trp*, *bla*) available and examples of how they have been exploited. Harris covers both successes and failures of current techniques and ends with an interesting discussion of conclusions and future prospects. He also includes a useful table listing those eukaryotic genes so far expressed in *E. coli*. While there is some overlap with the article of Craig and Hall the subjects of the articles are sufficiently different to justify inclusion of both.

All of the articles are written clearly, are very readable and are well referenced. In line with this series as a whole the articles do not go into methodological details except where this is necessary to appreciate the principles being described. Each article appears to be comprehensive in covering its particular subject area and as up to date as one can reasonably expect. I was aware of only a few very minor errors and typographical mistakes. The print is bold and easy to read and each article is well presented with many subsections, each informatively entitled. The figures on the whole are easy to follow.

This "Genetic Engineering" series is popular, and rightly so, but I am slightly disappointed that this volume does not include a cumulative index showing contents of previous volumes. I should also point out that this volume does not have its own internal subject index, which some might regard as a shortcoming. Despite these minor points I would strongly recommend this volume.

C. M. THOMAS
Department of Genetics,
University of Birmingham

THE INCONSTANT GENE. Lawrence S. Dillon. Plenum Publishing Corporation. Pp. vii+581. Price: $65.00

The major part of this book seems to be concerned with a detailed documentation of differential gene expression. While the title implies an emphasis on variation between genes (*i.e.*, DNA), only one chapter discusses this phenomenon, and this is in the context of gene activity changes in immunity. The other six main chapters are devoted to changing gene expression during gametogenesis, fertilisation, early embryogenesis, adult organ differentiation (muscle, liver, blood), in bacteria, fungi, and higher plants, and during various cyclical cell activities (cell cycle, circadian rhythms, ageing). Each of these main chapters contains detailed documentation of what is known about the diversity of structures and populations of molecules in various differentiating cell types or stages of development. This style of presentation can seem rather hard to digest, since it is not orientated towards specific questions, nor is each section accompanied by a summary or statement of general conclusions. To some extent this may reflect the limited state of our present knowledge.

I believe the main value of this work will be as a directory to the extensive literature on the consequencs of differential gene expression. In this respect, the book has the merit of covering work in a great variety of