

Oxford surveys on plant molecular and cell biology, vol. 1. B. J. Mifflin (ed.). Oxford University Press, Oxford. 1984. Pp. 235. Price £20; \$45 (US); £24, elsewhere.

Molecular genetics of plants and animals. Miami winter symposium, Vol. 20. K. Downey, R. W. Voellmy, F. Ahmad and J. Schultz (eds). Academic Press, New York. 1983. Pp. xxii+603. Price \$48.00 (US).

I was slightly embarrassed during my undergraduate days to admit that, as a mature macho male, I was studying Botany. An embarrassment that never really left me as a graduate investigating meiosis in wheat. Botany was for girls; and wheat, in the early seventies, never had that magic ring to its name associated with *E. coli* and *Drosophila*. Despite the fact that all that stuff and nonsense had been knocked firmly out of my head many years ago, not the least at the hands of the formidable Irene Manton, reading these two books on plant (and a little animal) molecular biology reminded me again of such not-too-distant attitudes. On the positive side plant molecular biology and molecular genetics is one of the fastest growing disciplines on both sides of the Atlantic (and in Australia, Jim), and yet there is still a sense of unconscious inferiority and apology creeping out of some of the papers in these two books, in particular from the latter. Ben Mifflin who leads a large research group in Rothamstead Experimental Station and is editor of the Oxford book (the first in what promises to be an important and illuminating series) clearly pin-points one of the reasons for the persistence of this defensiveness to the low status of botany in schools and universities, coupled to a general lack of appreciation of biological phenomena which are unique to plants and which should be the envy of zoologists and bacteriologists. Taken together these factors militate against a large influx of first-class and inventive molecular geneticists into botany—a problem which Mifflin's series is aimed boldly to rectify. Similar views are held by Jim Peacock (reported in a panel session on "Horizons in agricultural research" printed verbatim in the Miami Winter Symposium), who as Section Head of Plant Molecular Biology at the CSIRO, Australia, is in a position to state realistically that some of the problems are due to the poor quality of science and scientists working in the area. Like Mifflin he urges that "the new genetics and new techniques" which are revolutionising all branches of biology should be inserted into all programmes. "Quantitative genetics has given us polygenes. To some extent this is an admission of ignorance. We are only just now beginning to be able to analyse the so-called polygenes in ways which might enable us to manipulate them."

Peacock's last remark brings us to the heart of the matter. Because of the enormous influence plant breeding has had on the tempo and content of plant research, the discipline has tended to limit itself to the quantitative analysis of phenotypes and their assumed underlying

Mendelian polygenic "factors". Plant physiology too was often an adjunct to the requirements of breeders, and getting down to the structure and behaviour of the genes, that made the enzymes, that made the hormones, was not of primary concern. These two books are testament to the happy fact that a lot of this has changed for the better (both for fundamental and practical purposes), leaving the discipline as a whole crying out for top-quality molecular analysts to continue and expand the good work.

Mifflin's book should not age too quickly; although the Miami book (with one or two exceptional papers) is of very ephemeral quality. The difference between the two being that the first contains solicited informed reviews together with shorter "news and views" pieces on current developments, whilst the latter contains too many rather tedious blow-by-blow accounts of sequences, gels, blots and plots (laboratory notebooks with titles and references) with little background information as to their relevance to the uninitiated. The first book contains two reviews of particular lucidity and wide-coverage: A. Binns' account of the molecular biology of cells infected with *A. tumefaciens*, strains of which carry the Ti "tumour-inducing" plasmid; and P. Harris and colleagues on cell-cell recognition with reference to the pollen-stigma interaction. The second book starts with its two best papers: Melvin Calvin on the path of carbon from stratosphere to cell, and Richard Flavell and colleagues on higher plant genome structure and the dynamics and genome evolution, and then runs downhill all the way. Flavell's paper is up to his usual high standards of presentation and is unique in making the important point (that needs constant reiteration in meetings of molecular biologists) that evolution is not only about the initiation of novelty but also about its spread. He points out that alongside selection and drift, the molecular turnover of genes can also provide a mechanism of spread. I say "Amen" to that and add that turnover and the ensuing fluctuations in gene sequence, copy-number and position of multigene and non-genic DNA families might also be the elusive polygenes of biometricians. Genetics is a rum business.

G. A. DOVER
Department of Genetics
University of Cambridge

Catalog of chromosome aberrations in cancer (second edition). Felix Mitelman. Alan R. Liss, Inc., New York. 1985. Pp. xv+707. Price £75.00.

It can be seen at a glance that this book is not intended as light bedtime reading! It is a catalogue comprising an impressive list of 5345 acquired karyotypes associated with particular neoplastic conditions. One section is devoted to each of the autosomes in turn, with the sex chromosomes at the end. The list is subdivided within