

Integration and Control of Metabolic Processes: Pure and Applied Aspects: edited by O. L. KON, Cambridge University Press, for the ICSU Press, 1987. 595 pp. £40.00.

It is remarkable how many symposium proceedings still get published, where there is no clearly defined audience and which have no obvious archival value. The book under review is a typical example. It is the proceedings of the Fourth Federation of Asian and Oceanic Biochemists Congress held in Singapore in December 1986. It contains 42 papers, and the restriction on length of the individual review articles limits their value considerably. The range of topics is so wide (from gene structure and expression through marine biochemistry to protein engineering) that it is difficult to see who will want to read it all. Are there any general biochemists left who would wish to keep up with all these research developments? I doubt it. For the plant biochemist, there are four disparate offerings: an up-to-date review of the phytochrome molecule by P. H. Quail and co-workers; a short account of leaf senescence by Kenneth Thimann; an 11 page offering on recent work on the *Rhizobium* legume symbiosis by an Australian team; and a research paper by H.

Uchimaya on DNA-mediated transformation in tobacco cell culture. These are all very well in their way but one can easily go to other sources for recent reviews of these topics.

Even to the aesthete, the book has little to offer. There is a rather dull green cover and the text is from camera-ready copy based on a bewildering range of type faces. There is also lack of uniformity in whether a review has an abstract or not and whether the references are with or without titles. The poor editor can do very little about these matters, though I did notice a few corrections to spelling mistakes (made in a different type face) in some of the contributions. One saving grace is that it is not outrageously expensive at £40.00. There are also some famous names, e.g. Alexander Rich and Peter Mitchell, among the contributors. Anyone wishing to sample the flavour of modern biochemistry at the molecular level could do worse than dip into this volume, but one can hardly recommend it for library purchase.

School of Plant Sciences,
University of Reading.

JEFFREY B. HARBORNE

Developmental Mutants in Higher Plants: edited by H. THOMAS and D. GRIERSON, Society for Experimental Biology Seminar Series No. 32, Cambridge University Press, 1987. 288 pp. £39.50.

The relative difficulty of producing viable mutants in higher plants as compared to the ease of doing this in micro-organisms has led to the general neglect of the biochemical genetics of higher plant systems. This is a pity since it is clear from the little work that has been done in this area, as discussed in the present book, that we can learn a great deal from the investigation of such mutants. In the study of flavonoid biosynthesis for example the crucial breakthrough in characterising the enzymes of the pathway came from cell culture studies and yet only a knowledge of the genetics of the pathway has made it possible to guess at the likely substrates of these enzymes and to place the enzymes in an ordered sequence. An elegant demonstration of the continuing importance of higher plant mutants is in the recent paper of Reddy and co-workers published in *Plant Science* (1987) 52, 7. These authors were able to show that dihydroquercetin reductase, which catalyses the penultimate step in anthocyanin synthesis, is coded for by the A1 locus in *Zea mays*, by detecting this activity in a protein translated *in vitro* from the RNA product of the full length A1 cDNA. Floral pigmentation and its environmental control in *Antirrhinum majus* is the subject matter of the second chapter in this book. *Antirrhinum*,

like *Zea*, is a fascinating plant to work with because of the presence of transposable elements in some of the structural genes for anthocyanin biosynthesis. This review by workers from the John Innes provides an excellent account of recent studies on anthocyanin regulation in this plant.

Hormone mutants have been of considerable value in understanding the effects of hormones of plant growth and in delineating the pathway of biosynthesis. Work on hormone mutants is discussed in several chapters, e. g. by I. B. Taylor on ABA-deficient mutants in tomato, by R. Horgan on IAA mutants in crown gall tissue, and by J. L. Stoddart on GA mutants. Mutant genes in storage protein synthesis have also been investigated in recent times and a review of work in barley by Peter Shewry and his co-workers at Rothamsted is included here. There is also an excellent article on tomato ripening mutants by the junior editor and his co-workers at Sutton Bonington.

This book, then, covers an area of plant research which has not been extensively reviewed in the recent years. It brings together biochemical, physiological and developmental studies on a wide range of higher plant mutants. While not completely comprehensive—there is little on round and wrinkled peas—it does serve to focus attention again on the unique value of mutant studies and it deserves to be widely read.

School of Plant Sciences,
University of Reading.

JEFFREY B. HARBORNE