Book Reviews

Isozymes: current topics in biological and medical research Volume 15. Genetics, development and evolution. Mario C. Rattazzi, John C. Scandalios and Gregory S. Whitt (eds). Alan R. Liss, Inc., New York, 1987. Pp. xii + 290 Price: £42.00. ISBN 0 8451 0264 8.

The Isozymes series of volumes which began in 1977 is a useful and comprehensive source of review articles covering more or less the entire field of isozyme research. Ideally volumes in such a series should deal with one major theme of isozyme research enabling the editors to put together an integrated and balanced collection of papers. Volumes 14 to 16 represent the proceedings of The Fifth International Congress on Isozymes held on the island of Kos, Greece in May 1986. Volumes 14 and 16 are subtitled 'Molecular and cellular biology' and 'Agriculture, physiology and medicine' respectively. According to the forward there were 250 participants, 40 symposium presentations, as well as workshops and poster displays at the conference. As the number of papers in volumes 14-16 is also 40 involving about 100 authors, it would seem that the editors had the unenviable task of putting together all the symposium papers under just three headings. Thus we have great diversity assigned to three broad niches without the benefits of selection.

In volume 15 the diversity is manifest in two ways. First there is great variety of subject, for example, a theoretical paper on tree construction, papers on genetic mapping in barley, the mink and of DNA repair genes in man, and papers on evolution of specific isozyme systems in *E. coli*, yeast, and the tomato. Second there is unevenness in approach with some quite general reviews, for example, on heterosis, on the use of isozymes in systematic studies, on the metabolic significance of allozyme variation, mixed up with studies of specific isozyme systems in specific organisms. There is, however, no sloppiness in presentation, the volume is well and carefully produced with the same format for all papers.

I enjoyed reading those papers which coincided with my own research interests in evolutionary genetics, to study the rest was more painful. Although individual papers may be interesting and useful as works of reference I am not persuaded by this volume that there is any particular value in publishing conference proceedings.

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Single cell marking and cell lineage in animal development. R. L. Gardner & P. A. Lawrence (eds). The Royal Society, London. 1986. Pp. 187. Price: £41.00 (U.K. address) £44.00 (overseas address). ISBN 0 85403 261 4.

Over the past hundred years embryologists have endeavoured to understand how individual animals emerge from single cells and multicellular organisations. One of the important tasks in these studies is to follow cell lineages during development, helped in recent years by molecular genetics. Each species offers particular advantages and disadvantages for such studies. This is exemplified by work on *Caenorhabditis elegans* which has about 1000 cells and development follows a highly stereotyped pattern, compared with the mouse which has a more protracted and complex series of events involving cell mingling and interactions and where cell lineage is a less important developmental determinant. Many other species fit in between these two extremes. One view suggests that the differences in development strategies employed in different species are simply variations on developmental mechanisms already established in nematodes. This book is an account of comparative embryology and the diverse methods adopted in such investigations. I can assure readers that they will find this book highly rewarding but it needs hard work to extract maximum benefits. This is mainly because multi-author volumes like this do not provide any continuity between chapters or concepts.

In my view, Stent's overview on the role of cell lineage in development is perhaps the most readable and interesting. He discusses the broad concepts of development precisely and effectively, in a style worth emulating. This chapter serves as an introduction and sets the scene for the rest of the book. There are chapters covering studies on nematodes, the only organism for which the complete cell lineage is known with the sole help of Nomarski optics. Studies on the leech demonstrate that despite the overtly segmented form of this species, the segmental boundaries do not correspond to the borders of clonal restriction. Many aspects of *Drosophila* development are covered, this species being the major focus of attention over a number of years. Concepts defining segments, parasegments and compartments are discussed together with considerations of objective principles of pattern formation or 'internal representation' of the fly, as well as the role of homeotic genes. Work on amphibians describes the use of labelled cells introduced into blastocysts as a means of fate mapping, and the influence of different cell combinations on their abilities to mingle is particularly interesting. Development in birds is described using the familiar