Book reviews

Cell Activation: Genetic Approaches. Advances in Regulation of Cell Growth. (Vol. 2) James J. Mond, C. Cambier and Arthur Weiss (eds). Raven Press, New York. 1991. Pp. 350. Price £78.00 Hardback. ISBN 0 88167 819 8.

As the title indicates this is the second volume in a 'new' series on the regulation of cell growth. The first was published in 1989 and so it would appear that additions will be made on a biennial basis. The editors and editorial advisory board are all distinguished USA resident scientists and so it seems reasonable to anticipate that the series stands a good chance of becoming well established. This volume contains 14 chapters on a wide range of subjects; it begins with a review of the structural requirements for presentation of an influenza viral antigen to antigen-specific cytotoxic T lymphocytes. Subjects covered in the subsequent chapters include the regulation of gene expression in *Dictyostelium*, the role of *c-fes* in myeloid differentiation, transactivation of gene expression by CREB proteins, identification of G protein mutants, CD28 signal transduction pathway in T lymphocytes, adrenergic receptors, the function of CD4 and CD8 in T cell activation, the developmental regulation of *egr-1*, use of transgenic systems for analysis of the function of *src* kinases, segment polarity genes in *Drosophila* and signal transduction through the T cell antigen receptor.

As I started to read the individual chapters I found myself questioning the aims of the volume, why the individual chapters and subjects were chosen and what audience the editors intend for the book. The editors do not allude to such questions in their brief three-sentence preface. The title of the volume suggests that their intention is to present a group of articles to illustrate some of the different genetic approaches which have been used to analyse signal transduction pathways. However, it soon became evident that the diversity in the subject material, in itself no bad thing, was less desirably matched by a diversity in style and format of the writing such that the presumed aim was not achieved. The diversity is best illustrated in the first two chapters. Chapter 1, in which the use of HLA-A2 mutants to analyse structural requirements for viral peptide presentation to cytotoxic T cells is described, is an eight-page review of work from the authors' laboratories, cites 19 references, reads like a research paper and, for me, was almost totally inaccessible. Its potential saving grace, namely the opportunity to describe the elegant methodology used in such studies in a manner understandable to those who are not fully conversant with the intricacies of MHC, was not procured. By contrast, Chapter 2 is almost four times as long, cites 148 articles and provides a beautifully lucid account of the signal transduction processes involved in the regulation of morphogenesis, cell-type differentiation and gene expression during multicellular development in *Dictyostelium*. After an excellent introduction the article focuses on how the role of

the cAMP receptor and associated G proteins, which are involved in the process of aggregation, have been analysed using molecular biological techniques. I found it an enlightening view of the world of research in *Dictyostelium* (and an impressive world it is too). The remaining chapters include examples from across the spectrum of quality; clear and well presented articles are interspersed with others in which the content, style and illustrations leave much to be desired. For me, this variation in the quality of the contributions had the overall effect of reducing the value of the book and left me wondering what the editors had asked from the contributors and why they did not do something to smoothen the dramatic heterogeneity (or perhaps they did?). So, all in all, I have very mixed feelings about the book. I suspect that there is demand for a series which covers the progress of research in the control of cell growth particularly if, as in this volume, it covers a broad range of subjects and so aids cross-fertilization of ideas and methods. It will be interesting to see if *Advances in Regulation of Cell Growth* survives and matures into such a series.

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Plant Evolutionary Biology. L. D. Gottlieb and S. K. Jain (eds). Chapman and Hall, London. 1988. Pp. 429. Price £57.00 Hardback. ISBN 0 412 29290 4. Price £25.00 Softback. ISBN 0 412 29230 5.

The development of evolutionary biology has been characterized by fragmentation of its subject matter and the establishment of numerous subdisciplines. Once created, these subdivisions tend to evolve independently and become increasingly specialized. Fragmentation and specialization are encouraged by a research environment in which intimate knowledge of narrow subjects is more highly rewarded than a less detailed understanding of a broader range of topics and a teaching environment in which information is dispersed in self-contained modules with insufficient emphasis on integration.

Specialization within evolutionary biology has the undesirable side-effect of suppressing the synthetic approach which is vital for the balanced development of the discipline. It is therefore fortunate that there have been evolutionary biologists with the conviction to reject specialization and to embrace the findings of disparate subdisciplines in order to

produce a broadly based synthesis of ideas within which the major themes of evolution can be recognized and developed. In the field of plant evolution, this role had been fulfilled for many years by G. Ledyard Stebbins. In the early 1950s he was jointly responsible for the new evolutionary synthesis which has subsequently been modified and enriched as data from more recent research have been absorbed and assimilated. It is a tribute to the robustness of the evolutionary themes which he originally outlined that, in 1986, they should form the framework for a conference on plant evolutionary biology. The papers delivered at that conference have been compiled to form the present volume.

The book gets off to a flying start with a chapter by Stebbins himself on the importance of the comparative approach in evolutionary studies. He displays an enviable grasp of the relevance of recent results from molecular biology to our understanding of plant evolution and focuses attention on the major gaps which remain in our comprehension of the process. The genetics of development and ecologically based studies of natural selection are the two areas which he regards as warranting far more attention in the future.

The remainder of the volume comprises a series of self-contained chapters on plant evolution, written from a wide variety of perspectives: contributions from molecular genetics, developmental biology, taxonomy, ecophysiology, biophysics, population and ecological genetics and ecology are all represented. With few exceptions, the chapters are clearly written at a level which allows the general reader rather than merely the specialist to gain a balanced and contemporary picture of the subject. Juxtaposition of chapters from different subdisciplines of evolutionary biology serves to highlight both the discontinuous and patchy nature of our knowledge

and the lack of intellectual commerce between subdisciplines.

In common with other symposia volumes, the book includes editorial commentaries intended to smooth the reader's transition between subject areas and to provide an input of ideas from the editors. I must confess that I find the practice of including editorial commentaries extremely irritating. Their presence implies that the reader is incapable of understanding or integrating the authors' chapters, or that the editors, given a chance, could have written a better chapter themselves. I would like to put in a plea for editors to remain editors rather than contributors and to ensure that the symposia contributions which they publish can stand on their own without being propped up by editorial commentaries.

Aside from this rather personal quibble, I feel that Gottlieb and Jain are to be congratulated for having the vision to assemble, in a single volume, contributions on plant evolution taken from such a wide variety of perspectives. One can only hope that multi-disciplinary texts, such as this, will help to create an intellectual atmosphere in which biologists can follow Stebbins' example and adopt a broad and integrative approach to the study of evolution. Such developments will be crucial if, in the years ahead, the evolutionary synthesis itself is to evolve.

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