

Cell to cell interaction; Report of the Karger Symposium edited by M.M. Burger, B. Sordat and R.M. Zinkernagel; Karger; Basel, 1990: xix + 252 pages; SFr198.00, £86.10.

Max Burger and fellow editors attracted a distinguished gathering of cell biologists and immunologists to a Symposium held to commemorate the centenary of the Karger publishing house of Basel and this collection of papers is the result. Although the session titles were neurobiology, oncology and immunology, these headings were very freely interpreted by the participants, as is usually the case on these occasions. For example, the neurobiology section kicked off with a paper on retinoids and their effect on tracheal epithelia and other non-neuronal organ tissues. And this was followed up by Springer's excellent account of lymphocyte cell surface molecules and their role in the migration and targeting of these wanderers. This presentation in fact set up a definite flavour to the proceedings. Of the papers given: 2 concerned neurobiology; 4 discussed growth factors and extracellular matrix; 3 related to oncology; and 9 were immunological in theme.

It was evident from the oncology section, which was dominated by new growth factor work, that the current area of excitement is the growing realisation that cell-cell interactions mediated by known cell surface molecules are greatly affected and modulated by growth factors. Current work suggests that this is achieved both by affecting the synthesis of new cell surface molecules and their activation after synthesis. The immunology section contained readable reviews on T and B lymphocyte interactions, but for my money, the article of most interest was Avrion Mitchison's unique view of the immune system comprising a historical perspective, current knowledge of its mechanism of action and, fascinatingly, his opinion of the gaps and uncertainties in our knowledge.

Mitchison's line of 'I only believe what I see' was strongly attacked by one claiming 'many years of friendship', Melvin Cohn, who has a detailed theory of self/non-self discrimination at stake. The resulting fracas is recorded here warts and all. For those who would like to see the whole article/exchange, the page numbers are 201-237.

The main criticism of this volume is one that can be levelled at most collections of symposium papers — that it fails to review its topic area for the general reader. Usually, keynote speakers are expected to make a token stab at this and so it was with eagerness that I turned to Jean Paul Thiery's contribution on cell adhesion molecules tucked in at the back. Disappointingly, it turned out to be a brief account of the discoveries made in Gerald Edelman's laboratory between 1975 and 1983. Integrins, not discovered by Edelman's group were mentioned but only because the group had collaborated with that of Kenneth Yamada on the β -1 types.

Finally, it should be pointed out that at over a dollar a sheet, this volume is grossly overpriced. Pretty well all the information contained therein is out in the journals now. And since, apart from the immunology, little effort was made to review the fields covered it cannot be recommended to the non-specialist. However, I feel very fortunate to be in possession of my free copy simply to have access to the immunology papers. Perhaps on this score, it is worth purchasing if your library happens to have an unexpected cash surplus.

C.J. Chesterton

Methods in Plant Biochemistry, Volume 5. Amino Acids, Proteins and Nucleic Acids (Series Editors: P.M. Day and J.B. Harborne); Edited by L.J. Rogers; Academic Press; London, 1991; xi + 341 pages; £49.95.

This new series, currently consisting of seven volumes, is intended to complement the highly successful 'The Biochemistry of Plants' series from the same publishers, as well as to fulfil the need for an up-to-date text on biochemical methods as applied specifically to plants. It is inevitable that comparisons with the earlier series will be made, as well as with the various laboratory manuals which have been published over the past few years (particularly the excellent series from IRL/Oxford).

The present volume consists of eleven chapters covering a range of nitrogen-containing compounds. The first three chapters are devoted to low-molecular weight compounds: non-protein amino acids, purines and pyrimidines and derivatives, and cytokinins. The latter are N^6 -substituted purines and are therefore logically included on the basis of the chemical relationships. However, they might be more usefully considered together with other plant hormones (auxins, gibberellins, abscisic acid and ethylene) in a separate volume.

The chapters on RNA and DNA are focused on methods that relate specifically to plants (for example the isolation and analysis of organellar nucleic acids), although some general methods such as Southern blotting are also included. They provide a good in-

roduction to plant nucleic acids but are not intended to replace more detailed laboratory manuals.

The remaining six chapters discuss specific groups of plant proteins, and here the width of coverage is disappointing. Two chapters are devoted to photosynthetic membrane proteins, and one chapter to phytochromes, chromoproteins from macroalgae, cell wall proteins and enzyme inhibitors from seeds. This narrow range of topics presumably results partly from overlaps with other volumes, which cover enzymes of metabolism and membranes. However, it is surprising to find no contributions on seed and tuber storage proteins, which have been widely studied over the last decade. Similarly accounts of proteases (e.g. papain) and the various defence-related proteins (e.g. chitinases, glucanases) could also have been included, and perhaps even a general introductory chapter on methods of broad application (protein determination, electrophoresis, immunoblotting, microsequencing etc.).

All of the chapters are by acknowledged authorities, and include excellent introductions to the historical background, general properties and classification of the compounds discussed. The amount of experimental detail varies, with some chapters including laboratory protocols. However, in general the emphasis is on

understanding the principles of separation in relation to the properties of the compounds rather than on detailed methods. The quality of production is high (as is usual with Academic Press), but the rather arbitrary choice of topics and division between volumes

means that it will be of more value as part of a library series than for purchase as an individual volume.

P.R. Shewry

New Techniques of Optical Microscopy and Microspectroscopy; Edited by R.J. Cherry; Macmillan; Basingstoke, 1991; xii + 279 pages; £55.00.

One goal of modern biology is to understand the structure and function of individual molecules, or small arrays of molecules in single cells. New techniques which permit investigations of living cells and which are, of necessity, based on optical microscopy, are gradually superseding the imaging of fixed tissue. This interesting little book brings the reader up to date with what is currently possible and whets their appetite for those exciting images which remain hidden just below the horizon.

Inevitably the sophisticated approaches described have a strong technical element — something never easy to convey in a general text. The opening chapters address such matters with considerable sympathy. They convey the excitement of novelty, last year's fantasy is today's reality! And at the same time do justice to the detailed quantitation necessary to support qualitative observation. Very often in biology new discoveries, which fascinate and excite, are accepted without recourse to rigorous measurement. Enchantment by trinkets is no substitute for a studied understanding of the facts!

The chapters devoted to particular applications differ considerably in quality and interest. Many topics are addressed: nanoparticle video microscopy, microscope laser light scattering spectroscopy, differential polarization microscopy, time-resolved fluorescence microscopy, fluorescence photobleaching, ion content of single cells, imaging of membrane potential. The key is that techniques looking for a problem are much more difficult to present than problems in urgent need of a solution. So if you are not very

interested in haemoglobin aggregation in sickling red cells it is hard to be that enthusiastic about the latest developments in laser light scattering. But surely everybody wants to know about spatial variations of intracellular calcium as well as of membrane potential! On the whole I felt positive about most of the applications especially where the attempts at quantitation were rigorous; hypotheses, good or bad alike, can only develop into theories (which can take a long time) or die on the basis of established facts.

I have two substantial complaints. Firstly the illustrations are very disappointing, it is quite incongruous for a book on microscopy only poorly to reproduce the relevant images. Could not proper plates have been produced as they were in Chapter 10? Secondly the index looks completely out of place. At the end of a pleasantly produced book it is astonishing to find the index in a different typeface, with letters fused to their neighbours making many entries difficult to decipher. The index content was reasonable but its appearance was a strong disincentive to using it to find reference to particular problems.

At £55 I do not think this book will find its way onto the private shelves of many scientists. It is, however, a valuable resource for those contemplating a problem which they think might just have a microscopic solution. It will be difficult to find on the shelves of the library because someone else will always be reading it.

C.L. Bashford