

*Photosynthesis II**Encyclopaedia of Plant Physiology; volume 6 (new series)*

Edited by M. Gibbs and E. Latzko  
Springer-Verlag; Berlin, Heidelberg, New York, 1979  
xx + 578 pages. DM 198.00, \$108.90

Photosynthesis is badly dealt with in standard textbooks of Biochemistry. For students of Biochemistry or Plant Science at honours level this defect can be partially remedied by a study of Gregory (*Biochemistry of Photosynthesis*, 2nd ed (1977) Wiley, London, New York). This book provides an excellent account of the light reactions but its coverage of the Calvin cycle and its associated metabolic pathways in chloroplasts is rather thin. Also, since its publication, our knowledge of these subjects has increased enormously. A book dealing with such processes would be a valuable edition.

The present volume is such a book. It examines in detail the enzyme of the Calvin cycle and their regulation, C<sub>4</sub> and CAM metabolism, photorespiration, synthesis of starch and sucrose and the role of chloroplasts in assimilation of nitrogen and sulphur. Each chapter is authoritatively written by active workers in the field.

Multi-author works often suffer from repetition and a lack of co-ordination between chapters. The extensive cross-referencing between chapters in the present book and the apparent uniformity of style says a great deal for the effects of the editors. This

book is well-worth reading by honours students and also by research workers in the field. It has excellent subject and author indexes. The only criticism one can level is that it is difficult to gain an overall view of such problems as the regulation of the Calvin cycle in illuminated leaves. How can one balance, for example, the relative importance of light-generated thiol compounds (chapter 22), activation of ribulose diphosphate carboxylase (chapter 17) and the effects of changes in stromal pH and Mg<sup>2+</sup> concentration (chapter 19)? The editors wrote an excellent introduction to the book!: perhaps on conclusion a summary would have been a valuable addition.

Some of the processes discussed in this book were also covered in volume one of the excellent series *Topics in Photosynthesis* (edited by J. Barber, (1976) Elsevier/North-Holland, Amsterdam, New York). The present volume scores, however, in that all the necessary information about chloroplast carbon, nitrogen and sulphur metabolism is gathered together in one place.

B. Halliwell

*Cell Populations*

## Methodological Surveys(B): Biochemistry, volume 8

Edited by Eric Reid  
Ellis Horwood; Chichester, 1979  
viii + 240 pages. £18.50

This volume, which is described as 'desk guide', contains papers presented at a meeting in Guildford

in 1978. Many of the contributions are concerned with the isolation and fractionation of cells from liver,

but other tissues are considered including kidney, the mucosa of the gastro-intestinal tract, the pancreas, and fat pads. There are also articles on the recovery and isolation of free-living cells such as marine microalgae and parasitic protozoa.

Many of these articles are useful. The very first by Sir Hans Krebs and his colleagues contains important comments on the methods of determining the metabolic competence of isolated cells. Some are comprehensive — if rather uncritical — reviews of the literature. Others attempt to describe techniques for the isolation and fractionation of cells. None of these articles is complete in itself, in the sense that it contains sufficient detail to enable the reader to carry out experiments without reference to the original sources. The book is valuable only as a guide to the work that has been done. A wide variety of techniques and methods is surveyed, mostly rather uncritically and there are glaring gaps. It cannot be used as a laboratory handbook.

On the face of it, it seems a good idea to assemble a group of experts to discuss a topic, which everyone would agree is important, and to extract from them manuscripts which are used as the basis of a book. When the topic is a set of related techniques, such a

policy will work only if there is clear leadership and a coherent editorial policy and control. Manifestly this is not the case with *Cell Populations*. Pages *vi* and *vii* of the editor's preface contains a comment on the nomenclature of cell types, which reveals a degree of confusion both in the minds of the editor and the authors of the articles in this book. These comments in the introduction are symptomatic of the state of affairs with the main articles. Many of these are excellent, for example that of P. O. Seglen on the preparation of isolated cells from liver and other tissues, or M. J. Owen and M. J. Crompton on the isolation of lymphocytes. But, inevitably, the authors view the problems in different ways, and apply different standards of judgement, often highly subjective. This volume, which could be of considerable value to research workers seeking an introduction to the subject of isolating homogeneous preparations of cells, would have been greatly improved if it had been written by a single author who could bring together a clear consistent judgement of the wide-field surveyed by this book. The importance of this field is indisputable.

A. P. Mathias

### *High Performance Liquid Chromatography*

by H. Engelhardt

Springer-Verlag; Berlin, Heidelberg, New York, 1979  
xii + 248 pages. DM 64.00, \$25.20

High performance liquid chromatography (HPLC) has been developing at an ever-increasing rate during the 1970s, as did gas chromatography during the previous decade. The introduction of small diameter (about 10  $\mu$ m) solid support particles has led to columns with higher efficiency of separation, but this in turn has necessitated higher pressures to force the solvent through the column packing. Many impressive separations can be achieved in a short time with proteins, peptides, nucleotides, vitamins and other complex biological molecules which cannot be separated by gas chromatography because it is not generally possible to make suitably volatile compounds from

these. However, HPLC has also been successfully applied direct to small molecules which were formerly separated by gas chromatography after derivatization.

This volume represents the translation of an enlarged and revised second edition of a German text. It presents a good overall introduction to the subject with practical details and enough theory to guide the newcomer to this field in selecting and changing experimental conditions with rationale, rather than hit-and-miss methodology. The fundamentals of chromatography are followed by a description of equipment with particular emphasis on columns and support materials. The lack of sensitivity of detectors