Photosynthetic Oxygen Evolution

Edited by H. Metzner
Academic Press; London, 1978
xvi + 532 pages. £18.00

The splitting of water to provide electrons and protons to subsequently reduce CO_2 to organic matter in plants (and incidentally evolve O_2 as a by-product) is the most important reaction in life – it has been in the past and will probably continue to be so in the future. But . . . we don't know how the plant does it! If we could understand the mechanism of how visible light can split water we may be able to mimick photosynthesis in the future and construct artificial solar energy systems.

However, for the present we know some of the components required by the photosystem II of chloroplasts to split water and evolve oxygen, viz. manganese, bicarbonate, chloride, a *P*-680 reaction centre, a chlorophyll *a*/*b* light harvesting complex, and the ability to accumulate or stabilize the 4 charges (from 4 photons) required for each mole of oxygen evolved. The aim of the symposium held in Tübingen in September 1977 (the progenitor of this book) was to bring together photochemists and photobiologists to discuss the state of the art as they saw it and to suggest ways of 'cracking' this most intractably difficult of all reactions in photosynthesis.

The book is a good compilation of research in most of the key laboratories (a few are regretably missing). There are also a few chapters surveying the field; these are especially useful to newcomers – and to oldtimers who often forget the fundamentals of the problem. It seems important that research workers in various disciplines collaborate in tackling this water-splitting reaction. Data has been slow in coming and the research has often been discouraging. Now it looks as if this research is attracting much more interest and there is evidence of multidisciplinary approaches. Hopefully the next such symposium will show some real advances in knowledge.

This volume is well produced and the subject index is useful. In our laboratory it has already proved its worth. Let us hope that the next symposium volume includes all the laboratories actively working on this intriguing problem.

D. O. Hall

Chloroplast Development

Developments in Plant Biology: Volume 2

Edited by G. Akoyunoglou and J. H. Argyroudi-Akoyunoglou
Elsevier/North-Holland Biomedical Press; Amsterdam, New York, 1978
xvi + 888 pages. $98.00; Dfl 220.00

This book represents the proceedings on the international symposium on Chloroplast Development that was held on the island of Spetsai, Greece, with 150 participants in July 1978.

The 108 contributions are arranged in 5 unequal sections:

I. Structure and Function of Chloroplast Membranes (2)