

Hall, D.O., Rao, K.K.: **Photosynthesis. 6th Ed.** – Cambridge University Press, Cambridge – New York – Melbourne 1999. ISBN 0-521-64257-4 (hardback), 0-521-64497-6 (paperback). 214 pp., GBP 11.95, USD 19.95.

The volume of this successful textbook has increased during the 27 years from its first edition (for review see *Photosynthetica* 7: 207-208, 1973) from 68 to 214 pages. It is true that many new endeavours enriched the knowledge of photosynthesis since that time. Nevertheless, I do not think that the statement on the introductory pages of this book that "the emphasis of the Studies in Biology will be on subjects covering major parts of first-year undergraduate courses" is true any more. Or, may be, the actual British students are so clever that they understand all information presented in this volume. Of course, the sixth-edition book consists of two parts: basic information contained in chapters 1 to 7 that are fairly easy to read, and the more complicated chapter 8 that informs on new findings in photosynthesis.

Unfortunately, the senior author of this book, Prof. D.O. Hall, untimely died on 22 August 1999 (for obituary see *Photosynthesis Research* 62: 117-119, 2000). It is a heavy loss to the world of photosynthesis, because he was not only an excellent researcher and teacher, but also a promoter of modern use of products of photosynthesis to feed and heat our world. And he was also a fine, friendly man.

The first seven chapters explain the importance of photosynthesis, its history and development of ideas, composition of the photosynthetic apparatus, absorption of photons and its utilisation by two photosystems, photosynthetic electron transport and photophosphorylation reactions, fixation of carbon dioxide and the C₃, C₄, and CAM pathways, and basic principles of bacterial photosynthesis. I appreciate that all types of photosynthesis are explained in parallel and compared, from radiant energy conversion in halobacteria to the ecological adaptation of Crassulacean acid metabolism in some higher plants. The explanations are understandable to every reader, all illustrations are well chosen and help to understand the text.

Chapter 8 gives information on new developments in 19 most important topics, from the morphological ones to those of biochemistry and biophysics of photosynthesis. Even some side topics are present here, such as the phy-

tochromes. Chapter 9 is a mere collection of 39 references useful for laboratory experiments in various branches of photosynthesis research. Of course, the basic methods are presented in previous chapters, often with instructive illustrations (scheme of oxygen electrode, infrared gas analyser, EPR spectroscopy, types of microscopes, two procedures of chloroplast isolation, estimation of chlorophyll content, scheme of difference spectrophotometer, preparation of photosystem-enriched membranes, formation of NADPH₂ and ATP, determination of ¹⁴C-labelled photosynthates, measurements of photosynthetic rate, etc.). Some apparatuses (mainly those produced in Great Britain) are shown on colour plates (five from the 16 pages) or as black-and-white photographs in the text. Nevertheless, some other device models are probably used in the world more often than those shown here (e.g. the apparatus used to measure chlorophyll fluorescence induction produced by *Walz* is certainly more popular among researchers than that shown on plate XI).

Appendices contain a list of used abbreviations and prefixes, a selection of references for further reading (I feel sorry that only one article published in our journal was selected for this list, namely that of P. Hoffmann in *Photosynthetica* 35: 1, 1998), and a good subject index.

Unfortunately, physiological side of photosynthesis is not adequately explained in this textbook. For example, there is no information on the changes in photosynthetic activities and composition of photosynthetic apparatus during plant and leaf development—these differences certainly affect results of many published papers in plant physiology and biochemistry. Some illustrations, especially those showing spectra, are not exact: see the peaks in Figs. 4.4b and 4.5. There are not too many misprints (on p. 39, m instead for M for molarity). Why the non-SI unit Einstein is not clearly refused (p. 9)?

Generally, this is a very good basic textbook of photosynthesis and I recommend it especially to foreign students to learn the correct terms and phrases used in photosynthesis papers.

Z. ŠESTÁK (*Praha*)