Blankenship, R.E.: **Molecular Mechanisms of Photosynthesis**. – Blackwell Science, Oxford – London – Edinburgh – Malden – Carlton – Paris 2002. ISBN 0-632-04321-0. 321 pp., GBP 29.50.

The author of this textbook is well known to everybody working in photosynthesis thanks to his long service as Editor-in-Chief of the journal "Photosynthesis Research". Those who work in bacterial photosynthesis, know also his pioneering work in this research field. And, last but not least, he has been successfully teaching at the Arizona State University in Tempe. All these activities are reflected in the voluminous textbook (the real volume of its text is optically diminished by the fairly small size of letters used) that deals with all questions connected with chemistry and physics of photosynthesis. Mentioned, but not discussed in detail, are photosynthetic processes based on rhodopsins, and all aspects of physiology of photosynthesis.

The text is divided into eleven chapters. The first chapter is an overview of basic principles of photosynthetic energy storage. Photosynthetic prokaryotes and eukaryotes and their photosynthetic organelles are the next topic. Chapter 3 briefly explains the history of discoveries in photosynthesis. The focus is on those discoveries that helped to build the platform on which all the following information stands. The next three chapters are devoted to photosynthetic pigments, their chemical nature, presence, biosynthesis, spectral properties, and functions in antenna and reaction centre complexes and energy transfer processes. Well-selected models of structure of these pigment-protein complexes are shown here. Chapter 7 deals with electron transfer pathways and their components, chapter 8 with chemiosmotic coupling and ATP synthesis. Chapter 9 explains carbon metabolism pathways (individual chemical reactions forming the carbon fixation and photorespiration cycles being given in tables). Chapter 10 is on the genetics, formation, and regulation of photosynthetic systems, a very actual topic of recent research. The most voluminous chapter 11 explains various hypotheses and models of origin and evolution of photosynthesis.

All chapters are supplemented with instructive figures, tables summarising main facts, and lists of references to important books and articles cited in the text (and hence recommended for further reading). Information on basic methods of photosynthesis research is included either in the respective chapters or in the Appendix that deals with radiation, energy, and kinetic effects. The appendix thus helps those with training in biophysics not sufficient to understand some processes. A good general index is supplemented that includes also names of the most important researchers in photosynthesis. Four pages printed in colour (between pp. 118 and 119) bring six clear structural models.

The text brings information on the recent discoveries in photosynthesis. The author shows his long-time pedagogical experience, because the rather complicated facts and mechanisms are explained in a very understandable manner. With only a few exceptions (Fig. 5.2) he chose clear figures for demonstration. Of course, all kinds of photosynthetic bacteria are in his focus, but I appreciate this fact: some textbooks on photosynthesis deal with bacteria only briefly, not showing the great progress made in this field during the last decade.

I only do not understand why the author uses some units that do not belong to the SI-system of units, such as Å and E. SI-units nm and mol could easily replace them. I also do not understand why the term "light" is used for all kinds of radiation. Light is a term based on human seeing. Plants and other photosynthetic organisms see the individual regions of radiation differently than do human eyes, hence only the term photosynthetically active radiation is correct when dealing with photosynthesis. I think that especially for radiation areas that are not visible by our eyes, such as "UV-light" or "far-red light", the term "light" is funny.

Nevertheless, these comments do not devalue this excellent textbook. The well-known book of Hall and Rao brings basic information to all students, but the reviewed Blankenship's textbook gives necessary information to those who intend to study all aspects of photosynthesis, not only its molecular mechanisms but also its physiology and ecology. Knowledge of the molecular mechanisms is an inevitable basis for understanding the main metabolic process of nature.

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