Jones, R.L., Somerville, C.R., Walbot, V. (ed.): **Annual Review of Plant Physiology and Plant Molecular Biology. Vol. 46.** - Annual Reviews, Palo Alto 1995. 630 pp.

The collection of 23 review papers on various topics in plant physiology and genetics is started by life and science history of R.H. Burris, well-known by his studies on nitrogen fixation.

Plant physiological reviews deal with respiration during photosynthesis, including the sources of redox equivalents for oxidative phosphorylation, peroxisomal requirement for redox equivalents, and photosynthetic nitrate assimilation (S. Krömer), signalling and regulation roles of calcium ions (D.S. Bush), peroxisomes' formation, functions and their incorporation of proteins (L.J. Olsen and J.J. Harada), chemoperception, transduction and interactions of microbial signals (saccharides, peptides, proteins, lipophilic substances, *etc.*) in plant cells (T. Boller), apoplastic water and solute movements (M.J. Canny), cellular mechanisms of aluminium toxicity and resistance (L.V. Kochian), the structure and functions of Golgi apparatus (L.A. Staehelin and I. Moore), life history of photomorphogenesis and physiological and ecological roles of phytochromes (H. Smith), cell cycle control by cyclin-dependent protein kinases, cyclins, phytohormones and other substances (T.W. Jacobs), regulation of metabolism of transgenic plants, especially of photosynthetic rate, formation of saccharides and their partitioning (M. Stitt and U. Sonnewald), polysaccharide-modifying enzymes in plant cell wall (S.C. Fry), and biochemistry and molecular biology of isoprenoid biosynthetic pathway (including cytokinin, gibberellic acid, quinones, chlorophylls, carotenoids - J. Chappell).

The genetic topics include sexuality in the green alga *Chlamydomonas*, incorporating also chloroplast DNA inheritance (U.W. Goodenough *et al.*), genetic control of maturation, and germination of seeds, with attention to function of gibberellic and abscisic acids (D.R. McCarty), regulation of chloroplast gene expression (transcription, RNA processing, mRNA stability, translation - S.P. Mayfield *et al.*), genes controlling flower development (experiments with mutants and transgenic plants of *Arabidopsis* - M.F. Yanofsky), molecular genetics of plant embryogenesis (mainly experiments with *Zea* and *Arabidopsis* - D.W. Meinke), molecular description of plant genomes (model systems were *Arabidopsis*, *Oryza* and *Lycopersicon* - C. Dean and R. Schmidt), heterologous gene expression in bacterial, fungal, animal and plant cells (W.B. Frommer and O. Ninnemann), light-regulated gene transcription (phytochrome, cryptochrome and UV-B radiation as photoreceptors, regulatory DNA sequences, DNA-binding proteins - W.B. Terzaghi and A.R. Cashmore), genetic control (genes, mutants) of starch synthesis in maize endosperm (O. Nelson and D. Pan), and molecular biology of plastids of rhodophytes and chromophytes (genes and genomes, protein import, evolution, nitrogen metabolism, *etc.* - M. Reith).

As this overview shows, there is almost a balance of plant physiological and molecular biological topics in this volume. The quality of all reviews is as usually very high (many well-known authors are among the contributors), they contain large lists of full references (from 71 to 219 items per paper), the author index includes all cited authors, and the subject index is very detailed. As usually, an important source of information for every library devoted to plant sciences.

Z. ŠESTÁK (*Praha*)