

Merchant, S., Briggs, W.R., Chander, V.L. (ed.): **Annual Review of Plant Biology. Volume 56 (2005).** - Annual Reviews, Palo Alto 2005. 575 pp. ISBN 0-8243-0656-2.

Comparison with the previous volume of this series shows two major changes. First, only the first editor continues in editorial work, this time as Editor, second, both the size of the book and its graphical design had changed. The pages are broader (ca. 185 mm instead of 150 mm), the used good quality glazed paper enables colour print of figures, subtitles, under-print, and other aesthetic tricks. Main texts are arranged in two column, main references are printed in bold and are commented, *etc.* Volume 55 contained 23 reviews, while the reviewed one contains only 20 reviews. Clear instructions for research online are printed on end-papers. This enables current individual subscribers' online access to full-text articles, PDFs, reviews in advance (six months ahead of print publication), bibliographies, *etc.* This improvement will certainly increase the already high impact factor of this book series. The presented references can be downloaded to a citation manager which presents a great help to researchers and students. They will certainly welcome also the possibility of advanced search to all volume of all series (at present 31) of Annual Reviews back to the year 1932. Teachers can also download figures in three sizes. References in bibliographies link out to sources of cited articles online. The broad page margin contains legends to figures, explanatory notes of terms, *etc.*

The introductory review describes life and research history of Peter Starlinger, a well known German geneticist. The following review describes phytoremediation, *i.e.* the use of plants and associated microbes for environmental cleaning, and shows the important plant species, new and well known technologies, application for various pollutant classes, *etc.* Formation and function of calcium oxalate is reviewed next presenting also fine microphotographs and models.

The following five reviews are more or less connected with photosynthesis. The first of them deals with starch degradation, its metabolic pathways in leaves and storage organs, enzymes, products, and control of flux. CO₂ concentrating mechanisms in algae are reviewed next. The article describes the function of carbonic anhydrase and further enzymes, specificity in cyanobacteria and

individual algae classes, modulation by environmental factors such as CO₂ supply, irradiance, or nutrients, and evolutionary conclusions. Solute transporters of plastid envelope are the next interesting topic which is connected with genomics and bioinformatics. A large table classifies putative envelope transport proteins and their functions. In the review on abscisic acid biosynthesis and catabolism carotenoids function as biosynthetic precursors. Its metabolism is specified for seeds, fungi, lower plants, and also for abiotic stress adaptation. The review on redox regulation deals with thioredoxin, glutaredoxin, redox signalling, regulation linked to photosystem 2, NADP, or oxygen, *etc.*

Endocytotic cycling of plasma membrane proteins and molecular physiology of development of legume seeds are the next two topics. The following review is on cytokinesis that partitions cytoplasm between nuclei. Evolution of flavours and scents is a question interesting not only in food industry, cosmetics, or pharmacy, but its biochemical and genetic basis is of general importance. The main demonstration types are *Rosaceae*, *Clarkia breweri*, and sweet basil. Next review deals with chromatin structure, remodelling, and dynamics. Shoot branching in monocots and dicots brings another important topics. The next reviewed inteins are protein splicing elements important in protein purification and biofiber production. The following chapter deals with microsporogenesis and microgametogenesis, stamen development, anther cell differentiation, plant meiosis, and pollen development. Plant-specific calmodulin-binding proteins represent another modern topic of plant physiology and biochemistry. Next question is that of self-compatibility in *Brassicaceae*, *Solanaceae*, and *Papaveraceae*. The following review deals with physiology, genetics, and molecular basis of vernalization. The last review is on the function of phytopathogenic bacterial type III effectors in plants.

Hence the selection of topics is certainly broad and the book accompanied as usually with perfect subject index will certainly serve in all plant physiological, biochemical, and genetic laboratories.

Z. ŠESTÁK (Praha)

Campbell, A., Anderson, W.W., Jones, E.W. (ed.): **Annual Review of Genetics. Volume 39.** - Annual Reviews, Palo Alto 2005. 689 pp. ISBN 0-8243-1239-2.

The introductory chapter (written by R.E. Michod) is dedicated to John Maynard Smith, one of the most original thinkers in evolutionary biology of the post neo-Darwinian synthesis age. The readers of *Biologia*

Plantarum may find interesting the reviews: Molecular signatures of natural selection (R. Nielsen), Orthologs, paralogs and evolutionary genomics (E.V. Koonin), and The moss *Physcomitrella patens* (D. Cove). Other