Jones, R.L., Somerville, C.R., Walbot, V. (ed.): **Annual Review of Plant Physiology and Plant Molecular Biology. Vol. 49, 1998**. - Annual Reviews, Palo Alto 1998. ISBN 0-8243-0649-X. 841 pp., Individual per copy price USA $ 60.00, other countries $ 65.00, institutional price USA $ 120.00, other countries $ 130.00.

The 27 series of yearly volumes that bring excellent reviews in various fields of science are very popular and often cited (*cf.* the high impact factors of all of them). The reviewed book contains 29 reviews on various topics of plant research.

As usual, the introductory article belongs to the history of science. Ian Sussex describes here his life in science and his main research results (without references) in the field of meristem organisation, leaf and flower development, and embryogeny. Five reviews deal with photosynthesis topics: post-translational assembly of photosynthetic metalloproteins, *i.e.*, Fe-S centres, cytochromes, plastocyanin, and Mn-centre of photosystem 2 (S. Merchant and B.W. Dreyfuss), photosynthetic cytochromes *c* in various types of plants (C.A. Kerfeld and D.W. Krogman), protein targeting to the thylakoid membrane (D.J. Schnell), carotenoid biosynthesis, mainly from the point of view of genetics and enzymes (F.X. Cunningham, Jr. and E. Gantt), and with the sulfolipid sulfoquinovosyl diacylglycerol, an S-containing glycerolipid associated with photosynthetic membranes (C. Benning). Plant development is the topic of five reviews: on genetics of ovule development (C.S. Gasser *et al.*), development and body architecture of *Acetabularia* including draft chimeras and mRNA presence (D.F. Mandoli), genetic control of flowering time in *Arabidopsis* (M. Koornneef *et al.*), brassinosteroid regulatory functions (S.D. Clouse and J.M. Sasse), hormone-induced signalling during moss development (K.S. Schumaker and M.A. Dietrich), and abscisic acid that is important in seed maturation, germination, and adaptation to abiotic environmental stresses, *e.g.*, in regulation of stomatal aperture (J. Leung and J. Giraudat).

Plant components is another important topic of three reviews: they deal with plant cell wall proteins (extensins, arabidogalactans, proline- and glycine-rich proteins, hydroxyproline - G.I. Cassab), boron in plant structure (complexes with polysaccharides) and its functions in cell walls and membranes and in interfering with enzymatic reactions (D.G. Blevins and K.M. Lukaszewski), lignin biosynthesis (R.W. Whetten *et al.*), and fatty acids and their modifications (J. Shanklin and E.B. Cahoon). Antioxidative systems are represented by ascorbate and glutathion that are active in stress tolerance (G. Noctor and C.H. Foyer). Another metabolic topics are calmodulin, important metabolic messenger, and the related binding proteins (R.E. Zielinski), and traffic ATPases (called ABC transporters) and their functions as metabolic pumps that realise excretion, transport of substances such as glucose conjugates, chlorophyll catabolites, bile acids, phytochelatins, *etc.* (P.A. Rea *et al.*). A very special review is on phytoremediation which solves partially the problems induced by soil and water contamination (D.E. Salt *et al.*). It deals with phytoextraction of metals and their phytovolatilization, and with phytoremediation of organics.

In all the above reviews, genetic aspect is very important. This aspect prevails in further papers that deal with pre-mRNA splicing (J.W.S. Brown and C.G. Simpson), plant transcription factors and their interactions with proteins, DNA, *etc.* (C. Schwechheimer *et al.*), genome sequencing in *Synechocystis* - the paper contains also a list of photosynthetic genes (H. Kotani and S. Tabata), methylation of cytosine residues in DNA (E.J. Finnegan *et al.*), molecular genetic analysis of cytochrome P450-dependent monooxygenases which catalyse NADPH- and O_2-dependent hydroxylation reactions (C. Chapple), cation transport in plants (T.C. Fox and M.L. Guerinot), meiotic chromosome pairing, recombination, and segregation (R.K. Dawe), nuclear control of development of plastids and mitochondria (P. Leon *et al.*), and genetics of light-regulated plant promoters (G. Argüello-Astorga and L. Herrera-Estrella).

It is redundant to say that also this volume is supplemented by perfect author and subject indexes, and that it is a must for every plant science library.

Z. ŠESTÁK (*Praha*)