Jones, R.L , Sommerville, C.R., Walbot, V. (ed.): **Annual Review of Plant Physiology and Plant Molecular Biology. Vol. 45.** - Annual Reviews, Palo Alto 1994. 731 pp. US$ 52.00. ISBN 0-8243-0645-7.

Starting with the reviewed volume, this well-cited annual review has partly changed its editors - W.R. Briggs was replaced by C.R. Sommerville. This change is not reflected in the contents or quality of the reviews - they are excellent again and cover various fields of botany (genetics 5; tissue, organ, and whole plant events 3; biochemistry 13; cell differentiation 4; acclimation and adaptation 2). The prefatory chapter is by J. Bonner, who gives an account of his life and experience in science (unfortunately, without a list of references to his papers and books). It is really a pleasure to read this chapter: perfect style, understandable explanations and amusing stories show how splendid his education in writing essays (p. 3) was.

The molecular biology papers deal with genetics of root development, messenger RNA 3 end formation, plant mitochondrial genome, geminiviruses and their uses as extrachromosomal replicons, and gene expression regulated by abscissic acid and related to stress tolerance. Two next reviews deal with plant growth and development: transduction of blue radiation signals (includes, among others, light-induced phosphorylation of plasma membrane proteins, phototropism, cytochrome *c* reduction, gene expression, electric potentials, and stomatal regulation), and cytokinin accumulation and action (biosynthesis, metabolism, receptors, mutants, gene expression, transgenic plants). A special review deals with undetected bacterial contamination of cell cultures and plant tissues used in the laboratory, which may induce false experimental results. Among these bacteria, *Methylobacterium mesophilicum* (called PPFM) plays an important (and often overlooked) role; it is seed-transmitted!

The biochemistry section includes reviews on plasma membrane proteins, auxin binding proteins and storage proteins, alkaloid (nicotine, tropane, isoquinoline and indole alkaloids, mutants, and physiological regulation) and carotenoid (genes, genetic control, regulation of expression) biosyntheses, on higher plant ribonucleases, on mitochondrial glycine decarboxylase complex, and on malate compartmentation, and four reviews on photosynthetic topics. These reviews describe diurnal regulation of Calvin cycle (including carbon allocation and export, inhibition by end products of photosynthesis), inhibitors of photosynthetic enzymes/carriers, photosynthetic role of carbonic anhydrase in various plant phylla, and use of the photoacoustic method in photosynthetic studies.

The section on cell differentiation includes reviews on hormone-induced changes in orientation of cortical microtubules, on protein import into mitochondria, on integration of carbon and nitrogen metabolism in cells, and on endocytosis in plants (formation of closed vesicles with cytoplasm). The following review deals with photoinhibition of photosynthesis, concentrating on its effects on productivity of the field and open ocean. The last review is on taxol, a novel diterpene isolated from various species of *Taxus*.

Vol. 45 does not deviate from the well-known model of the Annual Reviews series. The quality of the reviews is high, they are well edited, and the author and subject indexes are perfect. As usually, the amount of figures illustrating the text is rather low, and some American authors do not know well the European literature. I would like to recommend supplementing the author index items also with numbers of pages, where the respective references are present.

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