

Callow, J.A. (ed.): **Advances in Botanical Research**. Vol. 19. - Academic Press, London - San Diego - New York - Boston - Sydney - Tokyo - Toronto 1993. 344 pp., US\$ 65.00. ISBN 0-12-005919-3.

Vol. 19 of the well-known series that brings information in all fields of botanical research, contains four voluminous review articles. The first of them (by S. Aldington and S.C. Fry) is on oligosaccharides, *i.e.* those oligosaccharides that even at low concentration are biologically active in plants. They function as a kind of growth regulators, in defence mechanisms (elicitors of phytoalexin synthesis), in controlling enzyme activities, *etc.* Essays, bioassays and purification methods, structure and individual physiological functions of these substances and their mechanisms are explained in detail (over 400 references). The question whether plant hormones are involved in root to shoot communication is solved in the next review (by M.B. Jackson). The paper describes first various kinds of hormonal message (*e.g.*, in transpiration stream), regulation of the root/shoot ratio, effects on leaf senescence, shoot growth, photosynthesis, water relations, stomata physiology, and flowering. Special parts are devoted to cytokinins, gibberellins, ethylene, and abscissic acid. The amount of references is large again (*ca.* 360).

The shortest of the contained reviews (by G.I. McFadden) is on chloroplasts in cryptomonads in connection with their phylogeny. Ultrastructure, chemical composition (pigments, storage products, carboxylases) and genetics (DNA, RNA, genome) of these chloroplasts is described in detail and documented in schematic drawings and fine ultramicrographs. Special attention is given to the nucleomorph, a small organelle in cryptomonads that is of a nucleus-like status. The eukaryotic endosymbiont of cryptomonads is most likely a red alga. The review sums information of 182 original papers. Last of the reviews (214 references), again with fine ultramicrographs, is on the alteration of generations, namely on the gametophyte-sporophyte junction in land plants (R. Ligrone *et al.*). The authors overview bryophytes to seed plants and explain the importance of embryonic phase for the life-cycle, and the taxonomic significance of placenta in bryophytes for phylogeny. Mitochondria and plastids in these cells are well formed.

As every good scientific book, the reviewed one is supplemented with an author index and a subject index (including also plant names in English and Latin). As can be seen from the above overview, the reviews deal with interesting, not often discussed topics.

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