

Eschrich, VV.: **Funktionelle Pflanzenanatomie**. Springer-Verlag, Berlin - Heidelberg - New York - London - Paris - Tokyo - Hong Kong 1995. 393 pp. 425 figures. Hard-cover DM 78.00. ISBN 3-540-59131-1.

In this textbook on plant functional anatomy plant anatomical structures are dealt with as related to their functioning. Plant functions are explained with respect to plant environment necessary for plant life, and with respect to the strategies enabling plant growth and reproduction. The main components of the book are the precise figures and drawings, and the fascinating photographs and microphotographs of very high quality. The text of the textbook is lucid and concise. The Volume is divided into 11 chapters, a list of references and a combined subject and plant index.

In the first two chapters the structures involved in water uptake, mainly root rhizodermis and root hairs, cortex, endodermis, growth of roots, root nodules, mycorrhiza, *etc.*, and water transport (xylem, water storage tissue, cuticle and transpiration, protection against water loss) are treated. It follows chapters on structures involved in gas exchange (*e.g.*, epidermis and stomata, the CO₂ pathway to the chloroplasts, intercellular systems, periderm and lenticells) and structures important in light absorption, light conversion in photosynthesis, in phototaxis of chloroplasts, phototropism, light adaptations, photomorphogeny, *etc.* The next complex dealt with is the transport of nutrients - the structures involved in nutrient uptake and transport, the apoplastic and symplastic phloem loading, *etc.* A further chapter is devoted to plant leaf structures and functions during leaf development and leaf differentiation from the bud to the fully developed leaf and the senescent one. Special interest is concerned on secretion and the structures which function in production of resins, latex, gums, crystals, *etc.* The mechanisms and structures involved in reactions to gravitation, light, temperature, drought or flooding, electricity, *etc.*, are dealt with. Growth is one of the most important activity in plants, therefore special interest is concerned on meristems like cambium. The functioning of mechanic tissues in stabilizing plant body is related to secondary xylem and phloem, sclerenchyma, sclereids, *etc.* The last chapter concentrates on plant reproduction and the structures involved in reproduction processes. Some unessential misprints should be corrected in a reedition of the book in the future, *e.g.*, on p. 37 in Fig. 1.56 Seitenwurzel, on p. 135, 2nd line aufbaut.

In conclusion, this textbook is a very helpful and instructive tool for students and teachers for its plenty of excellent figures of high scientific and artistic value. Frequently these pictures threw new light on many structural and functional aspects of the plant body.

I. TICHÁ (Praha)