Gunning, B.E.S., Steer, M.W.: **Bildatlas zur Biologie der Pflanzenzelle. Struktur und Funktion.** 4., neubearbeitete Auflage. (Translation by Zaar, K. and Jurzitza, G.) - Gustav Fischer Verlag, Jena - Stuttgart - New York 1996. VIII + 131 pp. DM 49.80.

This is the completely overworked 4th edition of the well-known book Plant Cell Biology - an Ultrastructural Approach written by Prof. B.E.S. Gunning from Canberra, Australia and by Prof. M.W. Steer from Dublin, Ireland. The book was firstly published in 1975. The 4th edition appeared under a new title Plant Cell Biology, Structure and Function, and was immediately translated into German. The new edition was necessary for substantial progress achieved in the last decades in microscopy, and preparation and detection techniques, *e.g.*, in cryomicroscopy, confical microscopy, immunofluorescence techniques, immuno-gold-localization, *in-situ*-hybridization, monoclonal antibodies.

The book has a short introduction on the general organization of the plant cell and the principles of conventional light microscopy, transmission and scanning electron microscopy, the preparation of the objects and the interpretation of the pictures. Furthermore, the main structures and functions of the plant cell are shortly described and the most important terms in cell biology explained. On 60 tables where on the right side are the photographs and on the left side the correspoding explanatory text, step by step the individual components of the plant cell are presented from the structural and functional point of view. Starting with cell surface, primary cell wall and plasma membrane, nucleus membrane and chromatin, nucleolus, endoplasmatic reticulum, polyribosomes, dictyosomes, the book continues with transport of protein in the cell endomembrane system, secretion in the root cap, coated vesicles, vacuole and plasmolysis, contact between cell wall and cytoplasm, mitochondria and plastids and semiautonomy of these organelles, microbodies, the cytoskeleton and its role in the cell cycle, in the formation of the cell wall, during mitosis, in inequal cell division and in plasmodesmata, xylem and floem formation, waxes and cuticula. The last part of the picture atlas is concerned on pollen grains, pollination, pollen tube growth, megaspore development, fertilization and embryogenesis.

It is fascinating to read and to examine the book. The concise text and the perfect microphotographs create an excellent aid for teaching and study. I like very much the comparison of the same object by different methods, *e.g.* light microscopy and immunofluorescence (Table 34*d,e*). Let us hope that the nice pictures and the mystery of the plant cell will encourage further students and young research workers to start with studies on the structure and ultrastructure of plant cells and tissues with the aim to elucidate their functioning.

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