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BOOK REVIEW

BAKER, D. A., HALL, J. L. (ed.): **Ion Transport in Plant Cells and Tissues**. — North-Holland Publishing Company, Amsterdam—Oxford, American Elsevier Publishing Company, Inc., New York 1975. 437 pp., 130.00 Dfl.

Thirteen authors from Australia, the Federal Republic Germany, France, Great Britain, and the U.S.A. wrote twelve chapters of this monograph dealing with various aspects of ion transfer in plants. The individual chapters are well united and thus give a good survey of the topic.

First chapter, written by the Editors, deals with the history of ion transport research, basic methods of investigation, and physical bases and kinetics of the phenomena. The same authors wrote Chapter 2 on cell membranes, summing up the research techniques, data on chemical composition of membranes, their structure, energy coupling and transport (including also a comparison of plant and animal ATPases), membrane permeability, selectivity and potentials. The following two chapters continue a detailed description of functions of cell organelles: Chapter 3 (J. B. HANSON and D. E. KOEPPE) stresses the importance of mitochondria, and Chapter 4 (P. S. NOBEL) is on chloroplasts. Both chapters underline the importance of bioenergetics of the passive and active influx and efflux processes, mainly their connection with the phosphorylation processes. In the chapter on mitochondria special attention is given to the relation of structure and function, while the chloroplast chapter also describes the light-dependent water movement inducing volume changes of chloroplasts, and the importance of photosynthesis. Ion fluxes and their connection with carbon and nitrogen assimilation, pH regulation, *etc.* in the cells of microalgae, multicellular and giant algae are reviewed by J. A. RAVEN (Chapter 5). The following three chapters describe ion fluxes in important plant tissues, *i.e.* storage tissues (W. A. CRAM) and roots, excised or intact (R. G. WYN JONES; W. P. ANDERSON). Chapter 9 (M. G. PITMAN) analyses the transport processes in a whole plant, taking into account the supply of nutrients, transpiration (similarly to Chapter 8), phloem translocation, *etc.* The ecological adaptation of plants to a high salt content in soil is the topic of Chapter 10 (T. J. FLOWERS) on halophytes and 11 (U. LUTTGE) on the salt glands as organs of salt excretion. The latter is illustrated with very good photographs, well printed on glossy paper. The last chapter (D. A. THOMAS) deals with the role of ion fluxes in stomatal movements, energy sources regulating this mechanism, and the dependence of stomatal opening on other agents, *e.g.* CO₂, abscisic acid, phytotoxins, or inhibitors of photosynthesis or respiration.

The editors succeeded in preparing a good source book for students, university teachers and research workers. All chapters are supplemented with lists of references. The book has a good author index; in the subject index (including also plant names) I missed some items, *e.g.* photosynthesis. A list of contributors' addresses and a list of abbreviations are at the beginning of the volume.

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