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BOOK REVIEWS

Ion transport in plant cells and tissues.
Editors: D. A. BAKER and J. L. HALL. 450 pages, illustrated. North-Holland Publishing Company, Amsterdan and New York 1975. Price US $ 54.25/ Dfl. 130.00

The book reflects the more general trend in botanical research today to come to a synthesis of knowledge on a particular process, the various aspects of which are studied by specialists of different disciplines. Ion transport in multicellular plants is such a process, built up from sub-processes on the molecular and sub-cellular level, which are subject of investigation of biophysicists, biochemists, and physiologists. The book presents the whole spectrum of ion transport in plants from the molecular to the whole-plant level. Its chapters are written by acknowledged experts and concern general principles, membranes, mitochondria, chloroplasts, algal cells, storage tissues, excised roots, long distance transport in roots, whole plants, halophytes, salt glands, and stomata. The multi-author character of the book means of course, that the synthesis of knowledge is not presented as such to the reader but that he more easily gets access to specialistic views and literature on subjects, of which – it is true – excellent review articles exist but usually written for people with a specialistic knowledge only.

Relevant discussions of the structural counterparts of the various transport processes, such as membranes, various organelles, plasmodesms, vascular bundles, etc., of course have not been omitted and have been included in this treatise. In this respect, especially the contribution of U. Lüttge on "salt glands" is well balanced: physiology and morphology of the subject both get ample attention.

According to the preface S.I. units have been used throughout the text (the familiar mM being replaced by Mol m^{-3}). Although in general such an attitude is to be hailed, one may wonder what merit is in giving the size of giant algal cells (p 126) as being 10^{-3}m, or even 10^{-1}m, in stead of the much simpler 1 or 100 mm. The mm is certainly not an obsolete unit, in contrast to for example the kcal. Remarkably, however, the latter is nevertheless extensively used as a unit of energy in the contribution of P. S. Nobel on chloroplasts, in stead of the official J. Reviewer appreciates the emphasis in this book on the sub-cellular aspects and the energy requirements of ion translocation, and as far as the higher plants are concerned the role of the root system. But in view of the undoubtedly large significance of phloem transport in ion movements in higher plants, the four pages of text consecrated to this subject are quite insufficient and not in agreement with the vast literature existing on the redistribution of ions within shoots.

Especially the Dutch reader may stumble over repeated inaccuracies in the spelling of some names: Van Deenan in stead of Van Deenen, Vrendenberg in stead of Vredenberg; but these errors are exceptions.

Apart as a source of information and inspiration for the research-workers in the field of ion translocation, this book will be of much value for use at universities. It will meet many requirements of the advanced student, as well as of his teacher concerned with the preparation of courses on ion movements in plants. Certainly it can be recommended. Its price is high, but not unreasonably so in view of the large number of photographs and other illustrations, which the book contains.

J. VAN DIE

L. RENSING, R. HARDELAND, M. RUNGE & G. GALLING: *Allgemeine Biologie. Eine Einführung für Biologen und Mediziner*. Verlag Eugen Ulmer, Stuttgart 1975. 411 pag. 190 pl. DM. 23.80.

"Allgemeine Biologie" gives, starting from cellular level, the topics of the science of biology. The book deals with cell biology, genetics, development, evolution principles of organization, organization of plant and animal, ecology and behaviour. An accentuation of the molecular, physiological and ecological organization has been pursued by the authors. Well known, good investigated and classic examples of human level also are selected.

Due to the more molecular and physiological interest some aspects have got a more intensive presentation. In some cases, as in the description of the process of protein synthesis, the clearness which is present throughout the book, diminishes. On some points, as in fertilization in higher plants and in some cases of terminology ("tetradenstadium") the text needs correction. This kind of errors are inherent to the brevity of the description which is inevitable in this kind of books.

As an introduction for a general information on modern biological topics, it is a very useful book.

The limitation of the book is already given in its title "Allgemeine biologie". Because of the use of the word 'general' it is for real biologists a sign of serious simplification. The reader does not get any idea of the complexity and variability of biological phenomena.

M. T. M. WILLEMSE

N. E. NANNENGA-BREMEKAMP: *De Nederlandse Myxomyceten*. Editor: Koninklijke Nederlandse Natuurhistorische Vereniging. 1974. Printer: Thieme en Cie B.V., Zutphen. Price: via the postoffice, Giro 13028 KNNV, Hoogwoud, Hfl. 70.–; otherwise Hfl. 75.–. 440 pgs., 13 plates and over 400 figs. bu the author.

It is a pleasure to review "The Myxomycetes of the Netherlands", as it is a work of outstanding quality. All the Myxomycetes known from the Netherlands are described (over 200 species). It is the result of more than 30 years work on the group by the author, who collected over 70 species "new to the Netherlands" of which some 20 were "new to science". In the extensive introduction a simple method is described for making permanent slides, and instructions on how to collect and keep Myxomycetes are given, e.g. where to look for them, how to treat a collected plasmodium in order to obtain normal sporangia and how to obtain specimens when the weather is unpromising for collecting out of doors. In the taxonomic part comprehensive descriptions are followed by critical notes in which related species (whether or not known from the Netherlands) are compared. Each species is fully illustrated in instructive, beautiful drawings by the author, mostly from specimens in her large private collection. In the plates the spores of the Physarales and Stemonitales are shown. The excellent keys (some illustrated) make it a useful book for the amateur as well as the student of mycology.

It is a pity that this excellent book is in Dutch (for the benefit of the Dutch Natural History Society members). It is the first Myxomycete monograph to appear in half a century in Western Europe. As the Myxomycetes are cosmopolitan, and as new ideas and critical remarks are expressed in the notes following the species- descriptions; this is a work of mondial importance and should be translated in English.

J. C. SOBELS