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BOOK REVIEWS

A. BOROS & M. JARAI-KOMLODI: *An Atlas of recent European Moss Spores*, Akadémiai Kiadó, Budapest 1975. 466 pag., 237 pl.; $30.–.

In their introduction the authors state that moss spores have received little attention in the palynological literature, and that a better knowledge of moss spores would greatly enlarge the number of pollenanalytical results. Mosses give good information on ecological conditions of the age in which the spores fossilized. These are the main reasons for the compilation of the book. After a short chapter on methods and spore morphology and a literature list, the special part contains descriptions and photomicrographs of spores of 1 *Anthoceros*, 22 Hepatics and 214 Mosses, arranged according to families.

The selection of the species has been made "to represent all families and genera of the European moss flora which are of importance on the circumboreal territory, furthermore the authors attached great importance to the fact that the mosses existing on moorland whose relics may be expected mostly in peat and other deposits should be represented, in the highest possible number" (Introduction p. 10). Also mosses producing spores in abundance in other habitats are included. Accepting these arguments as reasonable, one is surprised that a very common and wide-spread moss, *Hypnum cupressiforme* is not included!

Each species name is followed by synonyms, if any, the area of distribution, data on the ecology and on spore formation (i.e., if sporogonia are common or rare), a description of the spore morphology (size, shape, structure and ornamentation), data on cytotaxonomy (i.e. the number of chromosomes, when available) and a citation of the locality of the specimen, from which the spores are described. All descriptions are accompanied by several (often 5–10 or more) photomicrographs, usually in different optical cross sections; sometimes a small line drawing of the ornamentation is given. The spores of *Anthoceros*, 6 Hepatics and 7 Mosses are also depicted by SEM-photographs; the selection of the species for these photographs is not clear but most are made from species with larger spores.

The size of the spores is indicated in mean value and size range, but only on the paper cover it is stated that all photomicrographs have been magnified uniformly 1000 times. Measuring a number of spores from the photographs unfortunately could not confirm the statement.

The arrangement of the families is more or less in the usual taxonomic order. Paging through the book one comes under the impression that size, shape and ornamentation of moss spores in general is not of much importance to bryological taxonomy. Moreover, although several species can be excepted, identification of a large number of species from their spores in palynological preparations will remain extremely difficult and time consuming. I doubt very much if this, otherwise very beautifully produced work, will contribute to a more frequent use of moss spores in palynological data.

Notwithstanding these rather negative conclusions the work is a valuable contribution to our knowledge of details of bryological morphology.

P. A. FLORSCHÜTZ

Le Contrôle de l'Alimentation des Plantes Cultivées. Edited by P. Kozma. Vol. I, 613 pages, illustrated. Vol. II, 393 pages, illustrated. Akadémia Kiadó, Budapest 1975. Price U.S. $60.–.

The book contains a collection of about 100 illustrated papers which were read at the third European and Mediterranean Colloquium on the Control of Plant Nutrition held at Budapest in 1972.

The first section concerns some of the more general aspects of the accumulation of inorganic plant nutrients within the tissues, and also contains contributions to the interpreta-

tion of plant analytical data as indices of the nutritional status, problems of analysis, sampling, sample preparation, etc.

The other sections are centred each on one of a variety of crop species such as cereals, forages, vegetables, ornamentals, viticulture, temperate and subtropical fruits with great emphasis upon the relation between plant composition, use of fertilizers, and crop yield. Each section ends with a re-consideration of the problem.

The papers are published in English, French, German, Italian, Russian, and Spanish, with a summary in two languages. Experimental results dominate the general principles but the work is valuable for agricultural chemists in related fields concerned with the effect of fertilizers which should be so selected and applied as to give the highest yield and quality that can be expected.

Paper, printing and binding are of excellent quality.

W. DIJKSHOORN

A. C. ZEVEN and P. M. ZHUKOVSKY: *Dictionary of cultivated plants and their centres of diversity. Excluding ornamentals, forest trees and lower plants*, Centre for Agricultural Publishing & Documentation, P.O. Box 4, Wageningen. 1975. Clothbound, 8°, 219 pp., unnumbered maps and figures. Dfl. 45.–.

The second author has pursued the work of Vavilov in several works published in the U.S.S.R. (1962–1971). The aim of the present work is "to give the reader a quick reference to the centre of diversity of a cultivated plant species"; for some important crops also related wild species are cited. Ornamentals, timber trees and lower plants are not incorparated.

The book consists mainly of two parts, the first an introduction of general remarks on domestication and a discussion on the number and delimitation of the "centres", and whether they are primary or secondary. The last concept includes also recently made centres, as e.g. for *Amygdalus persica* and *Aleurites fordii* the U.S.A. are mentioned as secondary centre. There has been much literature on the centres and maps illustrate various opinions. Dr. Zeven, who undersigned the introduction, wrote that "possibly some megacentres still have to be enlarged till at least they cover most of the world's surface", which in my mind gives them a doubtful importance, especially if one wants to correlate such centres with origins of civilisation. This stems from the fact that domesticated plants are in various categories, and such correlation is naturally bound to the few staple foods only.

The second part of the work is an enumeration of domesticated plants arranged according to the 12 centres of Zhukovsky's work of 1970 and Dr. Zeven enlarged the original number of 700 species to 2300 cultivated plants; they are not necessarily domesticated. Under each centre they are enumerated alphabetically according to families, the latter following Shaw's delimitation (in Willis, Dict.), even for Vitidaceae, a name contrary to the Code. Under each species a very brief mention is made where the plant occurs and for what purpose. In all cases known the chromosome number is given, sometimes in great detail (*Aegilops*, *Mentha*); it is to me questionable what purpose this has for the general reader.

The assemblage presented I find not very accurate to the aim, and it gives the impression that a fair number of potentially useful plants have been entered which are not cultivated, for example *Rhus succedanea* and *Evonymus japonicus*; of these there is of course no end. *Maclura pomifera*, *Hibiscus syriacus* and *Soleirolia* are merely mentioned as ornamentals; *Albizia montana* and *A. sumatrana* are mentioned as cultivated as a green manure and shade tree, but if this category is fully included the work is quite incomplete. Why a large number of Eucalypts are mentioned is also unclear, as the bulk is grown for timber. *Comphrena globosa* is entered under a curious category of plants without an identified centre, and cited as an ornamental and as a fetish plant, but surely it cannot have been the intention to include all fetish plants in this book?

In general the nomenclature is correct: *Lycinum*, Styraceae, Stilagninaceae and Pandaceae

(all on pages 54 & 56) are probably printing errors, but *Pistacia vera* is under Phytolaccaceae an *Methysticodendron* is long recognized as a mere monstrosity of a *Brugmansia* (cq. *Datura*).

Dr. Zeven has certainly used several standard works for consultation, but I dearly miss in the bibliography those of Heyne, De Nuttige Planten van Ned.-Indië, Ochse-Bakhuizen van den Brink's Indische Groenten en Vruchtenteelt, De Candolle, Origine des plantes cultivées, and F. v. Mueller, Select Extra-tropical Plants.

Though dictionaries always contain a compilation of useful information I feel the present one has several shortcomings in composition. Paper and binding are good and the price is very moderate.

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