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R. Agerer (Editor). *Colour atlas of ectomycorrhizae [Fasc. 4]*. (Einhorn-Verlag, Eduard Dietenberger GmbH, Schwäbisch Gmünd. 1990.) Pp. 40, 48 Pls. with black-and-white photographs, 16 Col. Pls. Price: DM 56.80.

The fourth issue of this loose-leaf colour atlas of ectomycorrhizae comprises an extended key to the 83 species of mycorrhizae treated thus far. An extra key is provided for the identification of boreal and temperate European forest trees by the anatomy of their roots. This key is elucidated by 16 pages of good half-tone photographs. In this issue 16 ectomycorrhizae are described and amply and nicely illustrated in colour and black-and-white photographs. In the end in this atlas a total of 200–300 plates are envisaged.

T.E. Brandrud, H. Lindström, H. Marklund, J. Melot & S. Muskos. *Cortinarius, Flora Photographica. Vol. 1*. (Cortinarius HB, Svamp Konsult, Matfors, Sweden. 1990.) Pp. 44, 60 Col. Pls., in ring binder. Price: £ 35.50 excluding postage.

This is the English edition of the first volume of an atlas, published in Swedish in 1989, presenting colour photographs and descriptions of European species of *Cortinarius*. The work is planned in 5 volumes, each with about 60 plates to be kept in 3 solid and nice ring binders.

The genus *Cortinarius* is subdivided into the subgenera *Cortinarius*, *Telomonina*, *Myxaciium*, and *Phlegmacium*, each divided in a number of sections, 44 sections in total, in the atlas separated by coloured sheets. *Dermocybe* is considered a section of subgenus *Cortinarius*. The loose-leaf system makes it possible to publish coloured plates in the order in which they become available and to change the arrangement later on if that would become desirable. One of the major aims of the project is to attain the greatest possible agreement on taxonomy and nomenclature among scientists working on *Cortinarius*. On each plate are figured a number of basidiocarps in different stages of development, including views of an underside and an upperside of a pileus and a longitudinal section of a young basidiocarp. Below each plate a terse description is given, followed by habitat indications and commentary notes. The photographs, taken indoors in diffuse artificial light are of an extremely good quality and render this publication now already indispensable for anybody seriously interested in *Cortinarius*.

H. Dörfelt & H. Görner. *Die Welt der Pilze*. (Urania-Verlag, Leipzig/Jena/Berlin. 1989.) Pp. 264, including 163 Col. Photogr. Price unknown.

Although this work comprises a large set of attractive colour photographs of more than 150 species of mainly macromycetes, more important is the textual part which forms an up to date introduction into mycology. There are five chapters in which are discussed respectively the history of mycology, structures and functioning of structures, life-strategies, useful and harmful fungi, the systematic arrangement, and the protection of fungi. Many adequate draw-

ings occur scattered throughout the book. On the final 16 pages, following the colour plates, not only an extensive index is given, but also quite a number of tables giving the reader clear surveys of several subjects treated, e.g. fertilization-types, developmental types of basidiocarps, etc.

This is an instructive, modern introduction into mycology for amateurs who want to know more than just names.

M. Moser & W. Jülich. *Farbatlas der Basidiomyceten. Colour atlas of Basidiomycetes. Lief. 8.* (Gustav Fischer Verlag, Stuttgart, New York. 1990.) Pp. VIII, 30, 80 Pls. with 147 Col. Figs. Price: DM 98.-.

The eighth issue of this loose-leaf colour atlas of Basidiomycetes starts with an advice of the printer for the arrangement of the plates. A new index of the first eight issues is included. Also generic descriptions in four languages are provided for *Cystolepiota*, *Hohenbuehelia*, *Lepiota*, *Leucocoprinus*, *Leucocortinarius*, *Limacella*, *Byssocorticium*, and *Cystostereum*. The plates in this issue contain colour photographs of varying quality, illustrating 68 species of agarics and 41 species of Aphyllophorales and Gasteromycetes. Only for the agarics a direct reference is made to herbarium vouchers.

A. Nogršek. *Ascomyceten auf Gefäßpflanzen der Polsterseggenrasen in den Ostalpen.* (Bibliotheca mycologica 133, J. Cramer in der Gebrüder Borntraeger Verlagsbuchhandlung, Berlin, Stuttgart. 1990.) Pp. 271, 149 Text-figs., 9 black-and-white Photogr. Price: DM 120.-.

This thesis is an ascomycete flora of the *Caricetum firmae*, a plant association of calcareous soils in alpine and (sub)arctic regions. On 34 species of vascular plants typical of this cushion forming plant association 52 genera of Ascomycetes with 128 species are found and documented. The inoperculate discomycetes are excluded. Especially *Carex firma*, *Dryas octopetala*, *Poa alpina*, *Sesleria varia*, *Salix reticulata*, and *Silene acaulis* proved to be a rich substratum for pyrenomycetes. On cushion plants more Ascomycetes develop than on other plants in the same area, because of the favourable microclimate in cushions. Material for this study was collected from Austria, Switzerland, and the northern parts of Sweden and Norway. Each species is fully described and often also depicted. A complete set of keys for the determination of genera and species is provided.

F. Pando, M. Dueñas, C. Lado & M. T. Tellería. *Cuadernos de Trabajo de Flora Micológica Ibérica 1. Información bibliográfica. I. España Peninsular e Islas Baleares.* (Consejo superior de investigaciones científicas. Real Jardín Botánico. 1990.) Pp. 154. Price unknown.

The 'Cuadernos de Trabajo de Flora Micológica Ibérica' is intended to be a series of publications supporting the project 'Flora Micológica Ibérica' (started in 1988) by making available to every student of the myco-flora of Spain the bibliographical and other data being compiled during the work on this flora project. The first volume contains 2281 references to literature on the fungi of Spain and the Baleares. The next volume will contain a similar list for Portugal.

G.J. Samuels and collaborators. *Contributions toward a Mycobiota of Indonesia: Hypocreales, synnematos Hyphomycetes, Aphyllophorales, Phragmobasidiomycetes, and Myxomycetes*. (Memoirs of the New York Botanical Garden 59, Bronx, N.Y., U.S.A. 1990.) Pp. 180. Price: US \$ 40.65 (US \$ 39.30 in the U.S.A.) including postage.

This is the scientific report of the mycobiota (fungi) collected by Dr. G.J. Samuels in a period of six weeks in 1985 during an expedition ('Project Wallace') to the equatorial rain forests of the Dumoga-Bone National Park in Minahassa, North Sulawesi (Celebes), Indonesia. Approximately 500 specimens of fungi were collected. In this volume, after an introduction (by G.J. Samuels), we find contributions on Hypocreales (by G.J. Samuels, Y. Doi & C.T. Rogerson), synnematos hyphomycetes (by K.A. Seifert), polypores (by L. Ryvarden), Phragmobasidiomycetes (by B. Lowy), and Myxomycetes (by M.L. Farr). In the first two contributions, which form the main part of this volume, also the study of many herbarium specimens, especially from the O. Penzig herbaria at Bogor and Padua, is included. Several keys to included genera and species are provided. It is to be hoped, that more of such excellent contributions toward the little known mycoflora of Indonesia will follow.

B. Senn-Irlet, K.M. Jenssen & G. Gulden. *Arctic and alpine fungi – 3*. (Soppkonsulentent A/S, Oslo. 1990.) Pp. 58, 25 Text-figs., 25 Col. Pls. Price: NOK 200.-.

This is the third of an illustrated, loose-leaf series dedicated to the arctic and alpine mycoflora. Each volume contains descriptions, drawings of microscopical characters, and very good colour photographs of 25 species of agarics. While in the first two volumes species were treated from southern Norway and Spitsbergen, this volume contains species collected in the alpine zone in Switzerland. Several species were not depicted in colour before. The series is rather expensive, but one of the best of its kind.

N. Smith Weber. *A morel hunter's companion. A guide to the true and false morels of Michigan*. (Two Peninsula Press, Lansing, Michigan. 1988.) Pp. 209, 12 Text-figs., 72 Col. Pls. Price: US \$ 14.95 (excl. shipping).

This guide gives help and inspiration to all those who are interested in morels (*Morchella* species) and false morels or lorchels (*Gyromitra* species). Both the amateur and the professional mycologist will find all kinds of information on these popular spring fungi, which otherwise will be difficult to find. Things worth knowing about can be found in 13 chapters on subjects like: tips for successful morel hunting, mycophagy, toxicology, cooking and preserving morels, growth, cultivation, classification, and descriptions of genera and species (with identification keys). Although mainly based on situations in Michigan, the booklet will also be useful in other areas and countries. The good colour photographs were made by Mr. J.A. Weber.

M. T. Tellería. *Annotated list of the Corticiaceae, sensu lato (Aphylophorales, Basidiomycotina), for Peninsular Spain and Balearic Islands.* (Bibliotheca mycologica 135, J. Cramer in der Gebrüder Borntraeger Verlagsbuchhandlung, Berlin, Stuttgart. 1990.) Pp. 152, 1 Text-fig. Price: DM 70.-.

This list compiles the accepted taxa of the corticiaceous fungi s.l. recorded for Spain and offers a base for automatic data processing in this group of fungi. The structure of the database is described. The list is a precursor of 'the Iberian Mycological Flora'. The definition of the corticiaceous fungi s.l. in this book agrees rather close with the resupinate non-poroid Aphylophorales in Jülich & Stalpers (1980). In the alphabetic catalogue all the generic, specific, and infraspecific taxa recorded for peninsular Spain and the Balears are listed. For each taxon nomenclature, type, distribution in Spain, substratum, herbaria with specimens, and sometimes observations are given. Some 217 publications were consulted for this project.

R. Treu. *Charakterisierung und Identifizierung von Ektomykorrhizen aus dem Nationalpark Berchtesgaden.* (Bibliotheca mycologica 134, J. Cramer in der Gebrüder Borntraeger Verlagsbuchhandlung, Berlin, Stuttgart. 1990.) Pp. 196, 38 black-and-white Pls. Price: DM 120.-.

In this thesis 19 ectomycorrhizae from the subalpine zone near Berchtesgaden (Germany) are described and illustrated in detail. Sixteen of them could be identified by finding mycelial connections between fruit-bodies and mycorrhizae. Of the morphological, structural, and chemical characters studied, the structure of the mycorrhizal mantle and of the rhizomorphs proved to deliver the most valuable criteria for the distinction of mycorrhizae. A key to the mycorrhizae described is provided. Generic characters are given for the mycorrhizae of the genera *Suillus*, *Lactarius*, and *Russula*.

R. Tröger & P. Hübsch. *Einheimische Großpilze. Bestimmungstabellen für Pilzfreunde.* (VEB Gustav Fischer Verlag, Jena. 1990.) Pp. 247. Price: DM 34.-.

This is an illustrated key, based on macroscopic characters, for the determination of species of central European macro fungi. In 109 double-page tables an enormous dichotomous key is constructed with text and 814 schematic drawings. The key leads to about 700 species. For each species beside the German and scientific names, the edibility is given. For corresponding illustrations in colour reference is made to plates in five well-known books on central European mushrooms.

A. Ulken. *Marine thraustochytrids and Chytridiomycetes in the North Sea area and in selected other regions.* (Bibliotheca mycologica 137, J. Cramer in der Gebrüder Borntraeger Verlagsbuchhandlung, Berlin, Stuttgart. 1990.) Pp. 93, 55 black-and-white Pls. Price: DM 90.-.

This book is meant to provide a guide to the identification of the exclusively marine Thraustochytriales and the Chytridiomycetes of brackish environments. The geographical area covered in this book is mainly restricted to the North Sea with its estuaries and intertidal regions of the Wadden Sea. Also some samples from very remote areas, like tropical mangrove swamps and the Antarctic Ocean, are treated. The taxonomy of marine fungi is difficult because of the small number of characters, which also show a rather wide range of variation. It has not been possible to designate the position of these fungi within a phylogenetic tree of microbes. The 34 species studied are listed with annotations on occurrence in nature, physiology, growth in culture, and life cycle. Of each species a complete series of photomicrographs, representing its life cycle, is given. A peculiar way of listing complete literature references under each taxon treated causes long lists with many repetitions in the main part of the text.

R. Watling & N.M. Gregory. *Crepidotaceae, Pleurotaceae and other pleurotoid agarics*. (British Fungus Flora part 6, Royal Botanic Garden Edinburgh. 1989.) Pp. 187, including 9 pp. of line-drawings. Price: £ 10.- (+ £ 1.- postage overseas).

Another fascicle of this well-known flora. Its contents deviate strongly from those of the ones published already, as not a systematic entity is treated but a rather diverse assemblage of agarics with pleurotoid basidiocarps including such agaricoid genera of the Aphyllophorales as *Plicaturopsis*, *Schizophyllum*, and *Lentinellus*. In total 32 genera belonging to 9 families are keyed out and treated completely or as far as they contain pleurotoid species. This somewhat odd set-up conflicts with the concept of a modern flora but the result may be of considerable value for amateur mycologists.

B. Wittmann-Meixner. *Polyploidie bei Pilzen unter besonderer Berücksichtigung der Boletales. Möglichkeiten eines cytofluorometrische Nachweises*. (Bibliotheca mycologica 131, J. Cramer in der Gebrüder Borntraeger Verlagsbuchhandlung, Berlin, Stuttgart. 1989.) Pp. 163, 23 Figs., 33 Tables. Price: DM 80.-.

The author reports on a cytofluorometric method making it possible to establish the degree of polypoidy in fungi as, within certain limits, the intensity of fluorescence is proportional to the DNA contents of nuclei. First it is shown that in *Pythium*, *Puccinia*, *Coprinus*, and *Pleurotus* there is a relation between the chromosome numbers found in literature and the relative nucleus-DNA quantities found by cytofluorometry. Then the number of nuclei per cell and the polyploidy level of 128 species of the Boletales are registered. All levels of ploidy between $1 \times$ and $10 \times$ have been found, but most polyploids are even-numbered. A connection between ploidy and environment is indicated. Finally the degree of the mean relative nucleus-DNA contents within the frequent ploidy level $2 \times$ is shown to be, to a certain degree, correlated with the supposed level of evolution in the Boletales.

Zhao Ji-Ding. *The Ganodermataceae in China*. (Bibliotheca mycologica 132, J. Cramer in der Gebrüder Borntraeger Verlagsbuchhandlung, Berlin, Stuttgart. 1989.) Pp. 176, 84 Text-figs. Price: DM 70.-.

'Lingzhi', the Chinese for *Ganoderma lucidum*, is a very popular fungus in China, since it brings prosperity and good fortune.

The author has studied the Ganodermataceae of China for about 20 years and has summarized the results in this book. Many species are wood-rotting, some are pathogenic, others are valuable in medicine. In this taxonomic study, after a short introductory part, 86 species of *Ganoderma*, *Amauroderma*, *Haddowia*, and *Humphreya* are treated. Keys to genera and species are provided. Each species is fully described and of most species the essential microscopical structures are depicted.