

## REVIEWS

L. R. HESLER & A. H. SMITH, *North American species of Hygrophorus*. (The University of Tennessee Press, Knoxville, Tenn. 1963.) Pp. xvi + 416, 126 text-figures + full-colour photograph on cover. Price: U.S. \$ 12.00.

The genus *Hygrophorus* is perhaps one of the most attractive among the genera of the Agaricales. It is surprising, therefore, that no full treatment of this genus in Europe has ever been published. Doubtless, European mycologists will be strongly stimulated by this American monograph in which 244 taxa are described and 116 illustrated by excellent black and white photographs. Of these 244 taxa, 41 are new to science: about 65 occur also in Europe.

The European mycologist will be astonished by the strikingly high number of taxa in this monograph. The "Flore analytique" of Kühner & Romagnesi covers 80 species and varieties of *Hygrophorus* and there are 86 in the second edition of Moser's "Die Röhrlinge, Blätter- und Bauchpilze". Though the actual number of taxa of *Hygrophorus* in Europe may be much higher (Orton's treatment of *Hygrocybe* in the "New check list of British Agarics and Boleti" is already an indication), it is not to be expected that Europe will have more than half as many species as North America.

Hesler & Smith's monograph is cloth bound and printed on coated paper. The subject matter is arranged in a very surveyable way. The first 45 pages comprise chapters on the history of the genus; on macroscopical, microscopical, and chemical characters; on the ecology, geographical distribution, and seasonal occurrence; and on phylogeny and classification. The chapter on microscopical characters is illustrated with elucidating drawings.

The synopsis on pages 4 to 6 makes it clear that the authors have treated the genus *Hygrophorus* in its widest sense. *Hygrocybe*, *Camarophyllus* sensu auct. (renamed *Camarophylloopsis*), and *Limacium*, currently mostly considered subgenera, as well as Singer's genera *Hygrotrama* and *Hygroaster*, are all lowered to the rank of section. *Hygrophorus marginatus* (the type species of *Humidicutis* Sing.) is placed in section *Hygrocybe* series *Conici*. This may be understood by reading the report on the occurrence of clamp-connections in *Hygrophorus* sensu lato on page 31.

To my mind the sections were allotted one rank too low. This was done to emphasize the outstanding position of *Hygrophorus angelesianus* (p. 47: "... at first sight a typical member of the section *Camarophylloopsis* . . .") with its amyloid spores (which, however, occur also in section *Amylohygrocybe*) and flesh that colours red in KOH solution. In this way subgenus *Pseudohygrophorus* with only one species (i.e. *H. angelesianus*), became opposed to subgenus *Hygrophorus* with more than 200 species. In my opinion it would have been a preferable solution if all the sections had been treated as subgenera like subgenus *Pseudohygrophorus*.

The introduction of the sectional epithet *Camarophylloopsis* Hesl. & Sm. for *Camarophyllus* sensu auct. is not a lucky one because Herink (1959) has already published it as a generic name for a different group with *H. schulzeri* as type species. The

authors seem to have overlooked Herink's paper (probably due to its publication in a not very well known journal) although it is cited in their bibliography. In this publication several innovations relating to the taxonomy of the *Hygrophoraceae* were introduced.

The remaining part of the book contains the keys to the infrageneric taxa, the descriptions, and the photographs: it is closed by an extensive bibliography and index. The keys attract attention by their simplicity and seem to work quite well. The descriptions impress one as being at the same time concise and yet giving all the essential information.

One must appreciate that the authors have tried to compare their American material of species originally described from Europe with European material. That they have not completely succeeded is probably due to the difficulty of locating good collections accompanied with sufficient descriptions taken from material in fresh condition. It is a pity that the authors did not study *Hygrophorus* material from Sweden, such as has been issued in Lundell & Nannfeldt's "Fungi exciccati suecici", the more so because many European species were published by Fries.

By omitting the pre-Friesian authors in the author's citations of the names, a part of the history of the *Hygrophorus* species is suppressed; for instance *H. psittacinus* is a species of Schaeffer and *H. ovinus* one of Bulliard. The type-localities of these species, the names of which were re-validated by Fries, are in fact in Bavaria and France respectively and not in Sweden as one would deduce from the author's citations in Hesler & Smith's book. The type of *H. psittacinus* is in fact represented by Schaeffer's plate 301, of *H. ovinus* by Bulliard's plate 580 (excl. fig. a, b).

These few remarks certainly do not detract from my great admiration for this attractive and clearly written monograph for which such an enormous amount of material was studied. It is to be hoped that more monographs on agarics of this high quality will appear in the future.

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E. GÄUMANN, *Die Pilze. Grundzuge ihrer Entwicklungsgeschichte und Morphologie*. Zweite, umgearbeitete und erweiterte Auflage. (Birkhäuser Verlag Basel und Stuttgart. 1964.) 541 pp., 610 figures. Price sFr. 66.—.

This second edition of a work of the same title published in 1949 is in fact the fourth edition of an earlier work. Many mycologists will still remember Gäumann's "Vergleichende Morphologie der Pilze" issued in 1926 and which reached a wider appreciative public when it was published in a translated and revised edition by C. W. Dodge (1928).

Now that several text- and handbooks on Fungi are available the appearance of still another raises the question of what the particular merits of this one are. The introduction states that it 'tries briefly to expose the more important facts of the "Entwicklungsgeschichte."' However, it must be said at once that 'Stammesgeschichte' (phylogeny) is also very strongly emphasized, perhaps too strongly for

those who are inclined to distrust phylogenetic speculations, especially if these are presented as an established fact as is very often the case in this book. If there is one extensive group of which very little is known about fossils (which in addition are only very exceptionally suitable for finer taxonomic discrimination) and of other factual evidence, this is first of all the Fungi and the phylogenetic thread must of necessity be one largely derived from imagination. It would seem best at present to treat the taxonomy of the fungi quite separately from often oversimplified considerations on their phylogeny and not to mix the two subjects indiscriminately as is done in this work.

In some instances the author has kept to his earlier views without taking more recent ones into account; for instance in connection with the primary divisions of Fungi no attention is paid to F. Moreau's considerations in "Les champignons", 1952-4. This work is not even cited although it is undoubtedly of great importance in the context of this book. — Few mycologists will now agree with the view still defended by Gäumann that the swollen bodies on the *Tulasnella* basidium are sessile spores; still fewer will not be surprised to read that these basidiospores "ja, normalerweise nicht, wie die echten Sterigmata, eine Basidiospore, sondern bloss eine uncharakteristische Konidie [tragen]."

It should not be denied however that this well-edited book has its great merits and will come in as a handy companion for those who want a rapid and profusely illustrated account of a group in order to learn the essential information on it quickly.

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