

Book Reviews

GINNS, J. & M. N. L. LEFEBVRE (1993). *Corticulous Corticioid Fungi (Basidiomycota) of North America (Systematics, Distribution, and Ecology)*.– Mycologia Memoir No. 19 of the Mycological Society of America, APS Press, St. Paul, Mn 55121–2097, USA, 247pp; ISBN 0–89054–155–8 (hardback); Price U.S. \$58, Elsewhere \$72.

In der vorliegenden Publikation werden ca. 1160 Taxa corticioider, rinden- und holzbewohnender Pilze aufgelistet, die aus 659 amerikanischen und kanadischen Literaturquellen zusammengetragen wurden. Nach dem von den Autoren vorgelegtem systematischen Konzept verteilen sich die im Index erwähnten Pilzarten auf 21 Ordnungen und 54 Familien der Basidiomycota.

Bourdot & Galzin (1928) galt für mehrere Jahrzehnte als das klassische Handbuch für die Bestimmung europäischer corticioider Pilze, deren Systematik und Oekologie, verglichen mit anderen Basidiomycetes, nur in Teilbereichen als adäquat erforscht gegolten haben. Diese Situation änderte sich (nach 1950) mit den ersten Arbeiten von J. Eriksson. In der Folge wurde durch die sog. skandinavische Schule eine solide systematische Basis geschaffen, die sich stimulierend auf die Erforschung der in der temperierten Zone der Nordhemisphäre vorkommenden saproben und parasitischen Corticiaceen auswirkte. Die in den vergangenen Jahren auf breiter Front einsetzende Forschung (Artenlisten in regionalen Floren, Gattungsmonographien, autökologische, genetische und physiologische Studien, etc.), hat das Niveau systematischer Kenntnis für die einzelnen Taxa in kurzer Zeit signifikant angehoben, sodass die früher als extrem komplex eingestuften Corticiaceae heute mit der modernen Literatur vergleichsweise „einfach“ geworden sind.

Die Zahl der im Buch verarbeiteten Einzeldaten ist nicht erwähnt, aber dieser Katalog steht qualitativ bezüglich Information an einsamer Spitze. Alle erwähnten Gattungs- und Artnamen (Teleomorph, Anamorph) sind mit vollen Literaturangaben zitiert. Im weiteren wird für jedes Taxon sowohl das Basionym als auch seine Synonyme angegeben. Die geographischen Verbreitungsangaben sind relativ grossräumig angegeben, d.h. auf 17 Distrikte bzw. Provinzen in Kanada und die einzelnen Staaten der USA. Die als Substrat in Frage kommenden Angio- und Gymnospermen werden alphabetisch aufgelistet. Die ökologischen Angaben sind weitgehend differenziert und beziehen sich z.B. detailliert auf „entrindetes Holz von Ästen oder Stämmen lebender oder toter Bäume, Bauholz oder Wurzeln“. Ausserdem wird in bekannten Fällen auch der Holzfäuletyp erwähnt.

Die unter dem Kapitel „Culture Characters“ zusammengetragenen Daten sind besonders erwähnenswert. Diese Datenbank stützt sich (mit Referenzen) auf 68 in vitro (Rein-) Kulturmerkmale, wie Nachweis extrazellulärer Oxidasen, morphologische Strukturen der Hyphen, Keimung der Basidiosporen (und asexueller Sporentypen), Wuchsverhalten auf Agar, somatische Kompatibilität des Myzels und Kernzahlen in Hyphenkompartimenten. Der Informationskatalog zu jedem Taxon wird mit Literaturzitaten bzw. mit kritischen und ergänzenden Bemerkungen abgeschlossen.

Zehn Seiten des Buches werden Taxa mit ungültigem nomenklatorischen Status oder zweifelhafter Systematik gewidmet. Daneben werden auch eine Reihe von

neuen Kombinationen vorgeschlagen. Der praktische Gebrauch dieses Nachschlagewerkes wird zudem durch das Gattungs-, Art- und Art-Gattungs-Register der berücksichtigten Pilze wesentlich verbessert.

Aus meiner Perspektive hätte die Benutzerfreundlichkeit des Handbuchs in zwei Punkten wesentlich verbessert werden können. Erstens mit einem Schlüssel (bzw. Referenzhinweise für Literatur) für die Bestimmung von Taxa in artenreichen, systematisch schwierigen Gattungen bzw. Gattungskomplexen (z.B. *Athelia-Atheliopsis*, *Dacrymyces*, *Hyphoderma*, *Hypochnicium*, *Peniophora*) und zweitens mit einem Index der Wirtspflanzen als Matrix für corticioide Basidiomycota.

Die in dieser Checkliste vorgelegten (z. T. mit Codes stark komprimierten) Daten stützen sich bezüglich Nomenklatur, Systematik, Oekologie und Biologie der erwähnten Taxa auf einer ungewöhnlich breiten Basis von modernen Konzepten und Forschungsergebnissen ab. Aus diesen Gründen kann dieses Handbuch von Ginns & Lefebvre sowohl dem systematisch und autökologisch interessierten Fachmykologen als auch jedem praktisch orientierten Phytopathologen, Biologen und Förster uneingeschränkt empfohlen werden.

E. Horak
Zürich, Schweiz

Literatur

Bourdot, H. & Galzin, A. 1928. Hyménomycètes de France. M. Bry, Sceaux. 764 S.

Hawksworth, D. L., P. M. Kirk, B. C. Sutton & D. N. Pegler (1996). Ainsworth & Bisby's Dictionary of the Fungi, 8th Edition. – CAB International, Wallingford, Oxon, UK; ISBN 0 85198 885 7 (hardback); 637pp; Price £ 30.00.

Twelve years have elapsed since the publication of the seventh edition of the Dictionary. During this period molecular biology tools have been applied to research in mycology, leading to new conclusions in phylogeny and systematics. The changes are reflected in many new or updated entries and recent literature references that are included in this new edition of the Dictionary.

But then, what is new? The format and the printing size are larger, so that the text is much easier to read. The Dictionary also contains almost 200 pages more than the previous edition. The figures at the end of the seventh edition, e.g. growth forms and thallus structure in lichens, types of vegetative propagules in lichens, or conidiomatal types have been partially replaced by better ones drawn on a larger scale. Some new line drawings have been added, for example there are now illustrations of the predehiscence state of asci, their apex components, a flow chart of metabolic pathways, schemes with the new terminology of the *Aspergillus* and *Penicillium* conidiophores. All illustrations have now been inserted close to the respective entries. At the end of the Dictionary, keys to the recognized fungal phyla (Ascomycota, Basidiomycota, Oomycota, Zygomycota), and to the families are provided. The keys are based on the system proposed by Eriksson & Hawksworth (1993) and are followed by a list of accepted and cited genera that include also mitosporic and fossil fungi. I am convinced that the addition of the keys and the lists will prove to be very useful.

Many new terms and longer entries have been introduced for a number of terms such as *cladistics*, *classification*, *coevolution*, or *phylogeny*. The definitions of *Fungi*, *Kingdoms of fungi* are adjusted to reflect the present state of the art. Table 4 presents the classification of higher fungi: it is now two pages long and takes into account the new proposals made since 1983. *Computing* or *Internet* are today also common in mycology and are listed in the new Dictionary. There are, however, no entries or cross references under *data bases*, *data files*. *Molecular biology* is dealt with in great detail and the basic techniques of this discipline are also outlined. *Acid rain*, *AIDS*, *endophytes*, *food and beverage mycology*, *food spoilage*, *mycopesticides* are only a few examples of new and longer entries. This shows that also applied mycology, ecology and distribution have been considered by the authors.

Very likely the most debatable new term introduced is *mitosporic fungi* for the assemblage of fungi that can not be assigned to any meiotic (sexual) state. This term was much debated previously and in the Dictionary it replaces terms such as conidial fungi (not listed any more) and Deuteromycotina (referred to mitosporic fungi). On the other hand, I could find no reference for meiotic fungi or any entry for meiotic resp. mitotic states. The entry *states of fungi* does not refer, or give a cross reference to, either term but only to the various morphs, an omission in my opinion. I am not very happy how the mitosporic fungi are further treated in the Dictionary. According to Table 7, their number is approx. 14,000, the third largest group within all the *Fungi* representing a considerable part of the them. They do not, however, appear in the key to the fungal phyla. Mitosporic fungi may have no place in the current scheme of phyla and classes, but in practice they indeed exist and play an important role in fungal ecology, food and industrial mycology. Therefore their omission in the key is not understandable: they cannot just be omitted because they do not fit in a scheme! The terms "mitospore" as well as "meiospore" are also introduced. Mitospore is defined as being "(of ascomycetes and basidiomycetes), any non-basidiosporeous or -ascosporous propagule". It is confusing, on the other hand, that the term conidium is still maintained as a "specialized asexual spore..." without any cross reference to mitospore. Also, conidial nomenclature is defined as "approach to the nomenclature of the spores of Mitosporic fungi and anamorphs...": Why did the authors not use mitosporic nomenclature, mitosporogenous events instead of conidiogenous events (entered under mitosporic fungi!) or mitosporogenous cells instead of conidiogenous cells? I got the impression that the new terms referring to the mitosporic fungi were introduced without foreseeing the confusion that such new terms would create rather than resolve. "Mitosporic fungi" will certainly remain a subject of debate and discussion and I am looking forward to seeing how the next edition of the Dictionary will deal with this problem.

A large space is reserved to the description of the conidiomatal and conidia types (Table 6) as well as of the conidiogenous events (Figs 24–26) under the entry *mitosporic fungi*. The line drawings of the 43 conidiogenous events recognized focus mainly on the succession of conidia formation. The captions are rather fastidious to read, as they are printed in a smaller font. They always occupy about half the page and the numbers that refer to the corresponding figures are difficult to find as they are not printed in an easily discernable font size or style. In this respect, it was also difficult for me to figure out why the rather important paper by Hennebert & Sutton (1993), on which Table 6 is also based, is only cited under the entry *conidial nomenclature*.

In general, however, the utility of the eighth edition of the Dictionary clearly outweighs the critical issues raised here. The new Dictionary is certainly an invaluable tool for all mycologists. Its very affordable price will certainly allow most of us to replace the old edition with the new as soon as possible.

Liliane E. Petrini
Comano, Switzerland

References

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- Hennebert, G. L. & B. C. Sutton (1994). Unitary parameters in conidiogenesis. – In: Hawksworth, D. L. (Ed.). *Ascomycete Systematics: Problems and Perspectives in the Nineties*. Plenum Press, New York, pp 65–100.

Sutton, B., C. (Ed., 1996). *A Century of Mycology*. – Cambridge University Press, Cambridge, UK, 398pp; ISBN: 0 521 57056 5 (hardback); Price £ 60.00, US\$ 90.00.

The one hundred years of existence of the British Mycological Society in the UK was celebrated by a Centenary Symposium at the University of Sheffield in April 1996. Almost immediately after the meeting, on 2nd May 1996 this volume was published. It contains the major contributions given at the symposium by 12 invited speakers (nine from the United Kingdom, three from the USA).

The content of this book is heterogeneous and thus reflects the various aspects of mycological research carried out in the UK, as well as the diversity of mycologists within the Society. The volume can roughly be divided into three parts.

The first four chapters are related to British mycology. John Webster outlines the contributions of British mycologists to this science, C. T. Ingold describes his work with aquatic hyphomycetes, D. N. Pegler focuses on the activities of the British mycologists in the tropics and Roy Watling describes the important role of amateurs within the Society. The next six contributions deal with scientific topics: hyphae (S. Bartnicki-Garcia), conidiogenesis, classification (B. C. Sutton), flagellated fungal spore (M. S. Fuller), fungal mycelia (A. D. Rayner), fungal secondary metabolism (A. L. Demain) and mutualism in the mycorrhizal symbiosis (D. J. Read). The last two chapters are dedicated to the lichens and the environment (M. R. D. Seaward) and to recording and mapping fungi (D. W. Minter).

A one-hundred-year old society can proudly look back over its past and describe the goals achieved. The first chapters aim exactly at doing that. I found them interesting and entertaining, because they tell the history of the BMS, something about mycologists known to most young scientists only from bibliographic citations. It is also good to see the appreciation by professionals for the amateurs and it is also stimulating to read C. T. Ingold's personal memories.

I am not completely happy about the organisation of the second part, not because of the scientific value but because of the heterogeneous and not completely logic assemblage of the contributions. It reviews some aspects of fungal life such as the hyphal system, the flagellated fungal spores, the fungal mycelia and the secondary metabolism of fungi, all aspects little known to taxonomists. On the one hand, this makes the section quite interesting for people not directly involved in the research areas described by providing good literature references. On the other hand, most of the text is written in a rather colloquial way which is sometimes typical of bedtime stories and can even become boring. The last two chapters are somehow not connected to the rest of the book. They provide, however, an interesting presentation of the importance of lichens in the ecosystem and give a glimpse of the work to be carried out behind the curtains of the organisation of data collection and administration of fungal records. Sixty pages were used to explain, in the smallest detail, the structure of the various fungal databases and data entries of the BMS. Instead of

all this wealth of textual information I should have preferred some schemes or flow charts outlining the various steps and connections. In my opinion, this part is too detailed for a review and too general for a manual. On the other hand, it shows the tremendous amount of work needed to create a satisfactory database to meet all the requirements of taxonomists, nomenclaturalists, and ecologists.

Overall, this volume is a nice report of the British Mycological Society's Centenary Symposium. Surprisingly, and uncommonly for such proceedings, it was issued right after the event and not with a delay of one or two years, as usually happens. It contains interesting, good reviews on selected fungal aspects, even if it is somewhat unfortunate that the chapters have no summary. It is, however, not an indispensable book, and the price is fairly high, compared to that of other mycological books. The printing pattern is simple, mainly text. There are only 5 tables, 37 figures and line drawings and 31 black and white photographs. An index (15pp) completes the volume. The printing, paper and binding quality meet the Cambridge University Press high quality standards.

Liliane E. Petrini
Comano, Switzerland

Teng, S. C. 1996. *Fungi of China*. – Ed. R. P. Korf. Mycotaxon, Ltd. P. O. Box 264, Ithaca, New York 14851-0264, USA. ISBN 0-930845-05-6; 586 + xiv pp, 1 map, 1 photograph, 426 figs, index to fungal taxa; price \$ 79 surface mail, \$ 94 air mail. Ordering possible through Mycotaxon Ltd, e-mail: rkorf@innet.com.

Teng's book *Fungi from China* on the inside back cover is advertised as being "Possibly the most important book ever published on the fungal flora of China..." and "S. D. Teng's magnum opus". Dr Teng is well known among scientists working in fungal systematics. He obtained his degrees in Plant pathology and Forestry at the Cornell University in Ithaca, New York, USA with the professors Herbert Hice Whetzel and Harry Morton Fitzpatrick. Dr Teng is very proficient in English and indeed many of his mycological publications are written in this language. He has also committed himself to serve his nation through science and this is reflected in the way he lived for his work, as well as in his restless activities to study and document the Chinese fungal flora.

Fungi of China by S. C. Teng is the original English version of a manuscript translated into Chinese on request by the Chinese authorities and published 1963 as *Chung-kuo Ti Chen-chun* (Science Press, Peking, vii+808pp, 1963). Dr Teng's daughter Rosaline Z. Deng helped to translate the text for the authorities and prepared 404 new illustrations under her father's supervision. Unfortunately, the synonyms and literature references present in the English version were deleted in the translation. Teng, however, continuously updated and completed the English version until 1970 when he became a victim of the cultural revolution and had to leave his laboratory. The manuscript was confiscated together with other drafts and notes. His family got the manuscript back only in 1978, after his official rehabilitation. Most of the notes and the added illustrations, however, were lacking and, despite repeated requests, were not handed out again.

Fortunately, when Rosaline Z. Deng decided to publish her father's manuscript she found in Richard D. Korf a passionate and competent editor for this difficult task.

Some of the difficulties encountered during the editorial work are outlined in the editor's preface. The foreword by R. Z. Deng recalls Teng's life and tragic end.

The main part of the book consists of the treatment of 390 genera, 1400 species belonging to the myxomycetes (32pp), phycomycetes (23pp), ascomycetes (157pp), basidiomycetes (299pp) and deuteromycetes (49pp). Keys to orders, families, genera and species are included. For each species reference to the original publication, additional literature as well as the basionym and some synonyms are given. This information is followed by a brief description of the taxon, information on its habitat and collection sites (Chinese provinces). Many taxa are illustrated by line drawings. The work is concluded by the index and an editorial addendum that outlines the discrepancies between the Chinese and the English version, reproduces illustrations for the species that were illustrated only in the Chinese version without description and comments on some species cited in the Chinese version but missing in the English manuscript. The five new combinations made in this volume are listed again in the addendum. The fungal taxonomy used by Teng does certainly not reflect today's systematic arrangement, although the editor has adapted the author's citations to the standards required by the International Code of Botanical Nomenclature.

The publication of the English version of the *Fungi from China* gives access to Teng's enormous contribution to fungal systematics and adds to the knowledge of the Chinese fungal flora. It also gives an insight to the still undiscovered fungal biodiversity of China and shows that, during a man's life-time, there is barely enough time to scratch the surface of the biodiversity of such a vast and diverse country. The publication of Teng's work now gives taxonomists easy access to the contributions of this remarkable scientist without having to undertake a fastidious searching in libraries. The careful and critical editing is certainly an added value to this book, which also represents a much needed tribute to the work of a man whose life was so tragically ended.

The format of the book is 287x224x38 mm, the paper is of good quality and the book stays open easily, which is important for such a thick volume. In addition, the printing size is convenient. The reproduction quality of the line drawings, however, is often poor, probably a consequence of the quality of the old original drawings used in the Chinese version.

Liliane E. Petrini
Comano, Switzerland

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