Naming names among the yeasts

James A. Barnett

The Yeasts: A Taxonomic Study, 3rd Edn.

Edited by N.J.W. Kreger-van Rij.
Elsevier Science: 1984. Pp.1,082. \$173,
Dfl.450.

THE 16 contributors to this book are among those who know most about yeast taxonomy today. So they are well qualified for the primary aim of the work (p. vi), namely, to present and discuss the classification of this immensely important group of fungi.

Praise should be given to the excellent descriptions with drawings of the sexual states of the teliospore-forming yeasts *Sporidiobolus*, *Rhodospordium* and *Leucosporidium*. The descriptions are especially valuable as these states are difficult to observe.

There are some clear and helpful explanations of why certain yeast names have been changed or alternative names preferred. For example (p.315), Kurtzman retains *Pichia burtonii* and has not put this yeast in either *Hyphopichia* or *Saccharomycopsis*, as has been proposed, (i) because the simple closure line of the hyphal septa is typical of other mycelial *Pichia* species and (ii) with the removal of *Saccharomycopsis lipolytica* to the genus *Yarrowia*, all remaining *Saccharomycopsis* species have septa with plasmodesmata. It is, incidentally, very odd indeed that *Yarrowia*, although published as long ago as 1980, is not discussed in the book.

On the other hand, there are also many instances in which the reader is left with too much to work out for himself. For example, it would be helpful to be told why *Arthroascus javanensis* (pp.114–116), formerly belonging to the genus *Endomycopsis*, should be singled out and given its own separate genus. Unprompted, the reader must turn to a table on pp.26–27 to find the explanation. Another example is provided by *Endomycopsis* itself which, although accepted in the second edition, is now considered an invalid genus (p.413); but no explanation is offered.

More irresponsible than failures to explain changes in classification are the continual alterations of nomenclature by yeast taxonomists. This practice is analogous to that of the frequent alteration of street names to accord with some political fashion: all perfectly rational, but damnable and annoying and confusing. Here, for example, Kurtzman (Chapter III) describes 30 species of *Hansenula*, but in a paper also published in 1984 he had the temerity to abolish the whole genus! Such practices make it difficult to persuade experimental microbiologists that taxonomists should be taken seriously.

The secondary aim of the book (p. vi) is to aid identification, and the methods chapter is packed with helpful instructions for isolating, maintaining and identifying yeasts. However, the standard description of each species is now much less informative than in the previous edition; for example, *Schizosaccharomyces pombe* was then described by results of 51 tests, but now by only 29. Less information leads to greater difficulty in the process of identifying and, moreover, if there are now just enough tests for distinguishing between existing species, it cannot be known which of the discarded tests will prove useful for discriminating newly discovered yeasts. Furthermore, the number of tests used in the standard descriptions varies markedly from one genus to another, so that it is difficult to know which tests to do, unless the genus is known

first. Generally, it would have been helpful to have been told which strains formed the basis for each standard description.

There are no photographs in the book, only line drawings; while these can be better than photographs, why are only about 60% of the species illustrated? And although in this edition there are more identification keys than formerly, most of them are difficult to use because of bad layout and excessive abbreviation of the test names.

This edition of *The Yeasts* is more an academic work than a practical manual for identification. It is, however, authoritative and will be essential reading for yeast taxonomists. □

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From the bottom

Peter D. Moore

Lake Sediments and Environmental History: Studies in Palaeolimnology and Palaeoecology in Honour of Winifred Tutin.

Edited by Elizabeth Y. Haworth and John W.G. Lund.

Leicester University Press/University of Minnesota Press: 1984. Pp.411. £39, \$55.

MULTI-author *Festschrift* volumes, written in honour of esteemed scientists, are all too often uncoordinated collections of essays covering a disparate range of subjects. The editors of this assemblage of palaeoecological articles have been able deftly to avoid the problem. Professor Winifred Tutin's interests, and hence the subjects covered in the book, are centred upon lakes and the stories which can be unravelled about the past from their stratified sediments. With this as a central and well-defined theme, there is ample scope to illustrate the wide range of evidence which can be used in studies of environmental history and the subject is tackled both by means of review papers and by case-studies of selected sites.

Pennington and palynology are inseparable in most people's minds, so it is natural that pollen analytical articles should form an important component of the book. These contributions reflect the recent changes in emphasis within the discipline, from the accumulation of data on pollen stratigraphy to an understanding of the processes involved in pollen movement and deposition. So we have essays on pollen recruitment to lakes by Bonny and Allen, and on variation in pollen deposition rates in different parts of lake basins by Davis, Moeller and Ford. Turner shows the value of principal-components analysis in her comparison of peat profiles on Cross Fell, which was conducted in order to determine

the altitude of past tree lines. She comes to the conclusion — contrary to expectation — that this Pennine peak of 893m carried an open birch woodland during the Flandrian climatic optimum. An analogous study by Watts of the Burren in western Ireland also shows that this area was forested prior to the advent of prehistoric agriculture.

In her contribution, Hilary Birks demonstrates how small lakes — a somewhat neglected resource for palaeoecologists — have some advantages over larger ones in providing macrofossil evidence of local vegetation changes. She describes the late glacial stratigraphy of such a site in the far north-west of Scotland. Soil profiles provide an even more local picture of environmental change, as shown in the chapter by Andersen which describes his studies in Denmark.

The physical and chemical properties of lake sediments also receive an airing. Of particular interest is Cranwell's discussion of the organic geochemistry of lake sediments, concentrating on pentacyclic triterpenes; by means of these compounds he claims to be able to distinguish an allochthonous input of peat from that of forest humus. Finally, for the theoretician, there is a contribution by Deevey on stability in lake ecosystems. Deevey is both modest and generous in referring to theoretical ecology as being "primitive rather than sick", and he makes out a strong case for the use of lacustrine systems as a basis for successional and stability studies.

The essential unity of this volume will give it a clear market among research workers in limnology and palaeoecology. As a series of examples of current advances in techniques in these disciplines it is also a book to which undergraduates could profitably be directed. □

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