

Foreword

The toadstools of woodland basidiomycetes have always been as noticeable to the countryman as the flowering shoots of green plants, and many of them have been distinguished by vernacular names. Yet for many years, the basidiomycetes remained the least understood group of fungi, in terms of all that remained to be discovered. This was because of their complexity, both in their remarkable degree of mycelial organisation and in the wide span of their biochemical abilities; discovery of the intricacy of their outbreeding systems has equally delighted the fungal geneticist. Such complex fungal mechanisms must obviously take longer to elucidate than the simpler mechanisms of many of the common saprophytic sugar fungi and related facultative pathogens. For autecological studies, which are an essential complement to the synecological investigation of fungal communities in soil, woodland litter, composts and standing timber, it is essential to get a fungal species into axenic culture and to be able to maintain and manipulate it there. Because many of the basidiomycetes grow only rather slowly on nutrient agar, their competitive saprophytic ability on such a substrate is poor, and they are difficult to isolate, so that selective methods have had to be developed. Secondly, fungal breakdown of insoluble substrates such as cellulose and lignin is more difficult to assess than is the uptake and metabolism of simple sugars.

As a reading of this book will show, many of the varied resources of modern science have had to be deployed to reach our present level of understanding as to how basidiomycetes decompose the complex structure of the lignified plant cell-walls that make up their natural substrates. Considerable progress has also been reported in elucidation of the ecological niche of basidiomycetes in microbial successions in

woodland litter and composts, in parallel with the simpler successions of fungi in decaying timber. This bringing together in one symposium of work on litter decomposition and on timber decay is one of this book's unusual features. Just so, no microbiologist concerned with the breakdown of either cellulose or lignin can afford to ignore the contents of this book. As one of them, I can strongly recommend it as an aid to further research, and equally so for teaching.

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