

PREFACE

Lichens are nature's most remarkable alliances. Combinations of certain fungi and algae have been so successful that there are now some 20,000 species of lichens distributed in most of the environmental habitats of the world. Ironically, the success of lichens has caused a major problem for those who study them—the one of identity. Logically, they should be classified with the fungi. Practically, however, this causes difficulties because of the wide differences between the two groups and because of the large number of lichens—they are the single largest group of Ascomycetes. For these reasons mycologists have been reluctant to deal with the lichens, and lichenologists have been content to maintain the separation. In recent years there has been movement toward incorporating lichens in a fungal classification. For example, the sixth edition of the "Dictionary of the Fungi" includes lichens for the first time. We are encouraged by such action and hope that this volume will stimulate further efforts to integrate lichenized and nonlichenized fungi.

The suggestion for this work came from the editors of the multivolume treatise "The Fungi" published by Academic Press. The lichenized fungi were not included in these volumes. The editors wanted a treatment that would complement the treatise and we hope that this volume fulfills this goal.

Investigations on lichens have differed from those on fungi. Topics such as genetics, cell biology, and ontogeny dominate mycology but remain virtually untouched among lichenized forms where the emphasis has been on more classic organismic level research and chemotaxonomy. We believe that mycologists have much to learn from their neglected relatives just as lichenologists have from developments in the nonlichenized fungi.

While there are several college-level texts on lichen available, none can match the depth of a multiauthor treatment to which each author brings a voice of authority and imparts some of the excitement in his own specialty. We are aware, of course, that multiauthored texts lack continuity and differ from chapter to chapter in emphasis and approach.

It has been difficult to find authors to cover all of the topics which seem

essential. However areas which we consider to be most important are included: structure and development, physiology of the intact thallus, environmental response and effects, secondary metabolic products, and symbiont interactions. The appendices consist of a taxonomic scheme, methods for isolating and culturing lichen symbionts and thalli, and methods for isolating and identifying lichen substances. Hopefully gaps will be filled in future editions of this treatise. A few areas were deliberately omitted; phytosociology, for example, is extensively covered in Barkman's book.

Ultimately, the real value and usefulness of this treatise derives from the efforts of the individual authors. They have been patient with editorial badgering, deadlines, and other problems that arise when so many authors from different countries come together in a common cause. We can only hope that this pioneering effort brings to the scientific community a new appreciation of the scope and diversity of lichenology.

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