

Book Review

Peveling, E. ed. (1987) *Problems in Lichenology in the Eighties*. Bibliotheca Lichenologica Volume 25. J. Cramer, Berlin. 497 pp. with one colour and numerous black and white plates. (\$87).

In 1974 the British Lichen Society and Systematics Association held a joint symposium in Bristol which was published under the title *Lichenology: Progress and Problems* (Brown et al., 1976). The symposium marked the end of an active period of research on the physiology and ecology of lichens. Ten years later one of these themes formed the subject of a second symposium that appeared as *Lichen Physiology and Cell Biology* (Brown, 1985). Other aspects of lichenology did not remain static; the result was a third symposium which was held in Münster from the 16th to the 23rd of March 1986. This was attended by twice as many participants as the first symposium. How then does this latest volume compare with its predecessors?

Progress and problems in lichenology in the eighties is divided into five sections 'Developmental morphology and ultrastructure', 'Biology and taxonomy of genera and specific groups', 'Ecophysiology', 'Ecology and distribution' and 'Chemotaxonomy'. Although of similar length to the two previous volumes, there are twice as many contributions (49) so that many papers contain little review material and are accounts of original research or summaries of ongoing projects. Space does not allow comment on all the contributions but in the following paragraphs I have tried to pick out some of the highlights.

In the first section, the papers by Ott and Friedl present evidence that the mycobionts of *Xanthoria parietina* and *Diploschistes muscorum* may, respectively, invade the thallus and take over the algae from *Physcia* sp. and *Cladonia* sp. This adds another dimension to our concept of the lichen symbiosis which will no doubt attract close scrutiny. The intriguing observations by Jahns on the life cycle of *Solarian crocea* help us to understand why some lichen fungi associate with more than one alga. There are also papers that summarize the latest situation with regard to resynthesis (Ahmadjian & Jacobs) and the question of algal distribution in thalli (Honegger).

In the section on Biology and Taxonomy, the paper on Antarctic lecideoid lichens by Hertel is a model with respect to its approach and balanced view. The following section on ecophysiology contains three papers (Kappen is an author in two) on the way in which lichens cope with cold stress in nature or laboratory. The complex topic of water relations of lichens is addressed in detail by Larson but is frequently touched on throughout the book.

The Ecology and Distribution section includes three papers that draw together many years of field experience by each of the authors. The first is on altitudinal zonation of tropical lichens (Krog), the second on biogeographical problems in Austral lichens (Galloway) and the third on high altitude lichens in Southern Africa (Almborn). Each is in its way a classic. The final section on chemotaxonomy includes a paper on a standard high pressure liquid chromatography method for analysis of lichen substances (Huovinen). This clearly moves the chemotaxonomy of lichens into a new quantitative era. Several other papers in the book present very interesting material. In particular the introductory chapter (Peveling) on lichenology and lichenologists in Westphalia is both charming and informative.

There are instances where two or more, often rather short, papers deal with closely related aspects of the same subject e.g. cell wall structure, photosynthesis, HPLC. This does not matter if the present volume is regarded as a collection of research papers. However, an attempt to get the authors to integrate their contributions would have made it a better book for the general reader. Alternatively, this problem might have been overcome by an assessment of progress and problems at the start of each section. As it stands, the book is of most use to the professional lichenologist who will definitely want a copy on his bookshelf in order to consult the papers of key importance. However it is an open question as to whether he can justify, to his colleagues, ordering *Progress and Problems in the 1980's* for an institutional library in these days of fiscal hardship. The book is well produced on fine paper and the illustrations are reproduced with a quality that is expected from this publisher.

Brown, D.H. (ed.) (1985) *Lichen Physiology and Cell Biology*. Plenum Press, New York.

Brown, D.H., Hawksworth, D.L., Baily, R.H. (eds.) (1976) *Lichenology: Progress and Problems*. The Systematics Association special volume No. 8. Academic Press, New York.

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