

rapidly revert to normally shaped bacteria which divide regularly when penicillin, a quite specific inhibitor of one step in mucopeptide biosynthesis is removed from their growth medium? But this book is already nearly 500 pages long and refers to some 1,400 papers.

References in the main text extend to 1972 and a short appendix at the end of the book improves this to 1973 for some chapters; considering the publication date of 1973 this is very satisfactory. It is beautifully produced, well indexed and singularly free of typographical errors. Both the editor and the publishers are to be congratulated. I hope that Dr Leive may be persuaded to edit a second companion volume in this microbiology series that will deal with the subjects perforce omitted from the present one. The book is to be recommended to all those directly interested in cell surfaces. Individual chapters could be suggested as supplementary reading to postgraduate and final year undergraduate students in biochemistry or microbiology, but the perusal of some more general books on bacteria and bacterial walls and membranes would be a necessary preliminary.

HOWARD J. ROGERS

## Taxonomy of ferns

*The Phylogeny and Classification of the Ferns.* Edited by A. C. Jermy, J. A. Crabbe and B. A. Thomas. Pp. xiv + 284. (Supplement No. 1 to the Botanical Journal of the Linnean Society, Vol. 67.) (Academic: New York and London, December 1973.) £9; \$25.

THIS is a collection of papers based on those presented at a joint symposium held in 1972 by the Linnean Society and the British Pteridological Society. The original programme has been expanded by the addition of three further papers, extensive reference lists and, judging by the concentrated factual content of some papers, additional detailed data. New approaches and techniques of the last 20 years have revealed errors and inadequacies of past taxonomic treatments without firmly establishing alternative classifications. In several of these papers the view is expressed that conclusions are tentative and await further critical investigations. It was the organisers' stated intention therefore that the symposium should provide an opportunity to take stock of the present situation and provide stimulus and direction for further work. In this they will have at least partially succeeded, by inviting leading researchers to give authoritative and up-to-date assessments in their own area of interest. Supported by detailed data and extensive bibliographies these add up



Fiddle-head of soft shield-fern *Polystichum setiferum*.

to a useful reference book for the specialist pteridologist.

But by basing the programme on the choice of speakers rather than on themes within the overall broad scope of the title, the programme lacks cohesion, and few of the papers are linked together in any way. As, furthermore, there is no record of any discussion which may have been stimulated by the papers, the reader is left with the impression that the unique feature of a symposium has been lost.

On the dust jacket, there are the further claims that this is "a reference book to the cytology, anatomy, palynology, chemistry and gametophyte studies of the Filicopsida" and, making a curious distinction, "a valuable purchase for many botanists and plant physiologists". These claims, perhaps those of the publisher rather than the editors, are misleading. The cytology is largely restricted to chromosome numbers, the anatomy and palynology occurs mostly as scattered references in papers on particular genera or families, and the gametophyte study takes no account of the effects of environmental conditions on the development of diagnostic characters, even though protonema and prothallus development is known to be particularly sensitive to such factors as temperature, light intensity and light quality. Several of the diagnostic characters discussed in Atkinson's paper on the gametophyte as an indicator of family relationships can be induced or suppressed at will in, for example, *Dryopteris* species merely by changing the cultural con-

ditions. Botanists (and plant physiologists!) not already familiar with the ferns will find the several essentially traditional treatments of groups such as the dennstaedtoids, cheilantheids, Oleandraceae, Thelypteraceae, Polypodiaceae and Aspidiaceae of limited value. Several areas of more general interest such as serological and numerical taxonomy, breeding systems and apomixis, developmental physiology and the ecological significance of phylogenetic changes are omitted and the biosystematic approach is restricted to one paper by Lovis on the Aspleniaceae. Professor Manton comments that the production of phyletic schemes for the Filicopsida involves every discipline in botany, but this is not fully reflected in this book.

Those with historical interests will enjoy tracing fern classification systems back to the time when it was commonly believed that fern spores collected on Midsummer's Eve and placed in the shoe rendered the wearer invisible (see Shakespeare, W., *Henry IV Part 1*, act 2, scene 1, line 96 (1576)). Also, botanists with any interest in taxonomy will find some of the more general papers worth reading, particularly those by Swain *et al.* on the possibilities for biochemical systematics in ferns, by Van Cotthem on the classification of stomatal types, by Lovis on the biosystematic approach in the Aspleniaceae and by Wagner on future challenges in fern systematics. Walker's comprehensive survey of fern chromosome numbers and Wood's and the Tryons' use of spore surface structure revealed by scanning electron microscopy may also be of some use to those working with other groups of plants.

The limited success of this volume in achieving its secondary aims only emphasises the need for a general text on the biology of ferns to interest students in these fascinating plants and to re-educate those botanists whose impressions of the Pteridophytes are based on their past experience of unimaginative teaching within a narrowly systematic context.

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## Petrol and polar bears

*Man, Nature and Ecology.* By Keith Reid, J. A. Lauwerys, Joyce Joffe and Anthony Tucker. Pp. 418. (Aldus, Jupiter: London, March 1974.) £3.95.

THIS large and lavishly illustrated book aims to give a background in ecology to the layman with an interest in doom. It is too diffuse to have a profound impact—the four authors cover ecology, anthropology, rare animals, and problems of population and resources. The layman who remembers his school biology and reads the newspapers will know much of it already.