

Nor is hunting the only subject in this book. Series of illustrations depict Christmas eve in Jakob's birthplace, Diskofjord, north-west of Godhavn. Other series show dancing under the midnight sun, ball games on the ice, and general travelling by dog sledge. The over-all effect is completeness. After finishing the book, one seems to know pretty well about life in Greenland in those days.

The illustrations are, of course, the book's main attraction. The earlier Danish and Greenlandic editions presented mostly black-and-white illustrations of Danielsen's work. The present volume does likewise, but with a difference: the black-and-whites are larger and more pleasingly reproduced, while the number of colour plates has been enlarged to 34. Of the 234 black-and-white illustrations, 118 are from pencil sketches, and 116 are black-and-white reproductions of water-colours. It is unfortunate that all the water-colours could not have been printed in colour, but some of the water-colours printed in black-and-white are presented in colour as well.

As much as I applaud the appearance of this book and Ph. Rosendahl's initiative in realizing its wider importance for English-language areas, I cannot write an honest review without mentioning the disappointing quality of both the proofreading and the English translation. The list of errors, were one to sit down and produce it, would be staggering. This resulted, as I intimated above, from apparent lack of more than cursory proofreading and from the translators' obvious unfamiliarity with Greenland. Misspellings, omissions in translation, and repeated lines can be attributed to faulty proofing. But erroneous and confusing translation using, at times, invented words is inexcusable in a book of this calibre and price. In addition, the translators have either forgotten their English (including grammar) or do not have a thorough grasp of Danish. Biologists will be disappointed to see *angmagssat* translated as "angmag-salmon" and not capelin. *Lyngkvasbål* is a fire (or bonfire) of heather twigs, not "heather-pomace dance," whatever that might be. And so forth, *ad nauseam*.

Two translators (although only one name is listed in the Danish and Greenlandic sections) seem to have collaborated in the English parts, although they apparently collaborated at a distance, for the errors are not consistent. Translations for the same word are correct in some cases and incorrect in others.

Despite all this, the book is a gem. It is a joy to peruse; it reads, at times, like poetry.

Ph. Rosendahl deserves the laurels for all of this (and should not be blamed for any of the above-mentioned shortcomings). Jakob Danielsen, bless him, lives on in our memory as quite a man.

W. G. Mattox

THE LICHEN GENUS *CLADONIA* IN NORTH AMERICA. BY JOHN W. THOMSON. University of Toronto Press. 1967. 10 x 7 inches. 172 pages, 5 text diagrams, 26 plates. \$12.75.

Those who have visited the Arctic will know the prominent position which lichens hold in the vegetation of these regions. The genus *Cladonia* contains some of the most common and conspicuous elements of this flora and a book devoted entirely to the group has been badly needed by ecologists and lichenologists alike. We are particularly fortunate that this book has been written by someone as eminent as Professor Thomson, who has made the study of the American Arctic lichens his special interest.

In his preface the author emphasises that the book is a compendium of the previously widely scattered works and not a monograph of the genus. It should be regarded as a manual of information necessary for the identification of *Cladonia* in North America. Undeniably the book is more than this. The main body begins with a chapter on the structure and growth of *Cladonia* in which particular attention is paid to the ontogeny of the podetium. For those who have difficulty with the lichenological terms in this section and the rest of the book, there is an exhaustive glossary to consult. Microcrystallization techniques necessary for the identification of lichen substances are discussed in detail, and this chapter includes an illustrated catalogue of all substances known to occur in the genus. For each substance there is a list of species in which it occurs, colour reactions with the common reagents and FeCl_3 in the case of the depsides, and also ultra-violet fluorescence characters. Details of microchemical tests are given with reference to original publications, and there are photographs of crystals produced with all reagents employed in identification. The photographs are mainly of good quality and are conveniently arranged in groups by re-crystallizing agent. Both beginner and research worker alike will find a wealth of information here.

Prior to the publication of this book there had been no single key to all the North American members of this large genus (116

species). It is disappointing to find that the author has constructed a natural key to the subgeneric groups. Such a key is unnecessary since the species in the descriptive part are taxonomically arranged and, in the opinion of the reviewer, this has made the introductory key difficult and hazardous to use. Thus, under the second choice, we are asked to make a decision between cups and axils open, at least in part, or closed leading to Sects. *Cladonia* and *Clausae* respectively. For someone who is not a specialist, this is a most difficult choice to make correctly because of the notorious variability of the character. The author is aware of the problem of species with "Poorly developed podetia with neither cups nor axils present . . ." and in a footnote he explains that they "will have to be keyed out under both choices and the microchemistry compared carefully." He might have added that such species as *Cladonia apodocarpa* and *C. caespiticia* either never have podetia, or have such minute podetia that they can easily be overlooked. An artificial key to the species which consist predominantly of basal squamules could surely have been provided somewhere; it is too much to ask a student to key out both choices at such an early stage. By contrast, the keys to species within each group are a pleasure to use and few difficulties should be encountered here. All the keys are of the indented type.

Professor Thomson must take credit for the concise and clear way in which he has condensed the description of previous monographers of the genus. Taxa of sub-specific rank are listed, or in the case of the most variable species, keyed out after the species diagnoses. The nomenclature of these taxa has been rationalised, but in view of the fact that they are so poorly understood one wonders if it would not have been better to discard the majority of them and to have given more space to a brief discussion of variation within species and the distinctions between the taxonomically difficult ones. The author clearly has not thought it his task to make taxonomic decisions although he has done so in the Subsect. *Cladinae*. Prospective users of this book should note that *Cladonia sylvatica* is separated from *C. mitis* primarily by the presence of fumarprotocetraric acid rather than by morphological characters, and that the widely accepted epithet *arbuscula* has been rejected in favour of the old name *sylvatica*. The distribution of the species is described by listing the outlying states. Dot maps would have been more informative, particularly for the northern regions, but

with our present incomplete distributional knowledge their inclusion probably could not be justified in terms of the higher printing costs this would have involved.

The importance of this book will immediately be recognized by lichenologists, and it must be warmly recommended to all biologists whose interests bring them into contact with lichens. The inclusion of an artificial key would have made the book easier to use, but both the author and the publishers are to be congratulated on providing us with so much detailed information about this difficult genus; it can only serve to stimulate further research.

J. W. Sheard

STRUCTURE OF ANTARCTIC WATERS BETWEEN 20°W AND 170°W. BY ARNOLD L. GORDON. *Antarctic Map Folio Series Number 6*. New York: American Geographical Society, 1967. 11 x 17 inches. 10 pages of text, 14 plates. \$6.00.

At a time when electronic data logging systems are greatly increasing the sensing and recording capacity of research vessels, the publication of a professional synthesis in the form of a folio of charts and profiles of oceanographic parameters is a welcome addition to the library of the practicing oceanographer. On occasion, the sophistication of our new measuring systems has resulted in a backlog of information which has proved overwhelming, even to the research staff who produced it.

The objective of the American Geographical Society Antarctic Map Folio Series is to summarize in a succinct manner our present knowledge of the Antarctic. This folio is the sixth in a series which will eventually consist of some twenty publications and is the first to be prepared on Antarctic oceanography. The work does not treat the entire Antarctic Ocean but is limited to the region south of 50°S between 20°W and 170°W; it includes the Weddell Sea, Drake Passage, and the Southeast Pacific Ocean.

In all, there are fourteen large folded plates illustrating the positions of the stations and the distribution of temperature, salinity, and oxygen on a number of surfaces, differentiating the structure of the three major Antarctic water masses. Three maps show the dynamic topography for the sea surface and the 1,000 d.b. level relative to the 2,500 d.b. level, as well as the configuration of the latter with reference to the 4,000 d.b. surface. Another chart shows a