

generally available in geological libraries. He provides the biological reader with more than a glimpse (77 pages) of the rich detail and complexity of the fossil record of a group of microorganisms whose preservation through 150 million years and more might seem unlikely. Through the main text and 38 pages of appendices and bibliographies, he provides both—or any other venturesome reader—with a short course in fossil dinoflagellates. As the very first book to attempt such a presentation, this volume is unique and successful.

The brief chapter subtitled "history of study" reveals the author at his best, citing the major contributions made by a few early workers which laid the groundwork for the recent expansion, and lucidly tracing the intricacies of discovery and nomenclature that transformed Ehrenberg's fossil xanthidia first into Wetzel's hystrichospheres and then into spiny dinoflagellate cysts, while the still enigmatic acritarchs became defined by default.

Line drawings and light and scanning electron micrographs are plentiful and are excellently reproduced and generally effective, although some of the originals were of inferior quality. Misprints are few and, except for one completely botched sentence, trivial. More significant are a goodly number of internal inconsistencies and contradictions, individually minor misstatements of fact, and failure at times in the discussion to distinguish clearly between dinoflagellates and acritarchs. One biting personal attack on a contemporary colleague strikes a distasteful note.

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Solid Water

Ice Physics. PETER V. HOBBS. Clarendon (Oxford University Press), New York, 1975. xviii, 838 pp., illus. \$85.

I have found it difficult to form a coherent opinion of this fascinating and frustrating book. It is simultaneously a very large compendium of facts and a systematic discussion of the properties of ice. It presents a strange mixture of elementary and unnecessary detail—for example, on the composition of water and the energy of its decomposition—along with the discussion of esoteric topics. In a sense it is a Victorian-style book.

On the whole, I found the discussions of the various properties of ice to be sound but uninspired. There is a tendency simply to list the observations of many investiga-

tors (the survey of the literature is very thorough), often without discriminating between conflicting data. This is not always the case, and occasional judgments are put forward by the author, but there are few speculations and rarely are conclusions stated. It is this aspect of the book that I found frustrating.

On the other hand, the coverage is impressive. There are after all not many places where one can find a discussion of "bergships" and "pykrete," a section on the use of ice and reinforced ice as construction materials, or a description of the modern theory of the role of sliding friction in skiing. It is this material that I found fascinating.

In the introduction the author points out that he did not finish the book so much as abandon it. In a field in which the literature is enormous and widely dispersed, it is inevitable that an author will miss important references. For example, the work of Bondot is omitted from the section on amorphous solid water. It is also inevitable that a book on the subject of ice will rapidly become out of date. It is unfortunate that the exciting developments of the last two years in the study of amorphous solid water could not be included in the text.

Ice Physics will likely be a standard reference, valuable as a library resource. It is not likely to inspire a reader to seek solutions to the many unanswered questions concerning the behavior of this fascinating material.

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