of experience in heterocyclic chemistry. As in his *Heterocyclic Chemistry* (which I would highly recommend), large parts of this book can be read almost like a novel. It is well organized each chapter has an individual table of contents, and there are two complete indices (subject and preparations), a very complete bibliography (some 2000 entries up to September 1965), and an excellent summary of the book (which also points out the most pertinent differences between the two editions) in the introduction.

JOHN G. FOSS
Department of Biochemistry and Biophysics, Iowa State University of Science and Technology, Ames

Algal Cytology

The Chromosomes of the Algae. MAUD B. E. GODWARD. St. Martin's Press, New York, 1966. 222 pp., illus. $11.

The rapid advances in recent years relating to the nuclear cytology of algae have prepared the way for this much-needed volume. It is appropriate that the editor and a major contributor to this work is M. B. E. Godward, who, with former students, has done much to expand our knowledge in this field. Six other specialists, S. Puiseux-Dao, G. F. Leedale, J. D. Dodge, M. Roberts, L. V. Evans, and P. S. Dixon, have collaborated with Godward to give expert cytological treatment to six algal classes. Omitted from consideration in the book are the classes Myxophyceae, Xanthophyceae, Chrysophyceae, and the Bacillariophyceae. Surprisingly, the order Charales has also been omitted from discussion, although considerable chromosomal information is available for this group.

The individual contributions to this volume are, for the most part, succinctly written and are reasonably adequate in their coverage. The fact that they are not altogether consistent in format is not particularly distracting. The general and specific features of nuclear cytology, including lists of chromosome numbers, are considered for each of six algal classes. Information on cultural and cytological methods is presented for most of the algal classes under consideration. In addition, Godward presents a brief account of the effects of radiation, colchicine, and gibberellins on algal cells.

The illustrations are generally excellent and well reproduced. Magnifications are noted, with a few exceptions. The index is serviceable, although some algal species listed in the tables (but not in the text) are not indexed. Typographical errors are not excessive.

The lists of chromosome numbers appear to be nearly complete except for the Chlorophyceae. Some of the omissions can be noted by referring to volumes 1 and 2 of the *Index to Plant Chromosome Numbers* (University of North Carolina Press). It would have been useful if references had been given to all published reports of chromosome counts for a species, as well as to all early reports on chromosome numbers despite their questionable validity.

This is a fine book with relatively few shortcomings. As the only available book exclusively treating the nuclear cytology of algae, it supplies a wealth of information in a condensed and comprehensive form. It can be enthusiastically recommended for the stimulation of the specialist as well as the beginning student interested in the cytological diversity of the algae.

LARRY R. HOFFMAN
Department of Botany, University of Illinois, Urbana

Marine Fauna

Marine Invertebrates of Scandinavia. Vol. 1, Tunicata-Ascidiacea. R. H. MILLAR. Universitetsförlaget, Oslo, 1966. 123 pp., illus. $6.

Several years ago the various departments in the Norwegian natural history museums decided to cooperate in the publication of a series of systematic descriptions of the entire fauna of the Norwegian coast. A large amount of material had been collected along this extensive coastline with its numerous fjords. Much of this needed to be reclassified in line with recent systematic revisions, and it was found in addition that there were still extensive sections from which little had been recorded. With the assistance of grants from the Norwegian Research Council for Science and the Humanities, additional collecting was undertaken. Thirty-five specialists from all over the world were asked to be responsible for the identifications and taxonomy in each of the major groups. To each was delegated the responsibility of preparing a volume summarizing his particular group as it was represented in the collections. This was to be the basis for the classification of future additions to the museums, and it was assumed that the summaries would be of considerable value to specialists in other parts of the world.

As the work progressed the geographic limits were extended first to include the other Scandinavian countries and the North Sea and finally to include the whole of the North Atlantic region from the Strait of Dover north along the east coast of Great Britain, across to Iceland and the northeastern coast of Greenland, through the polar basin, and south along the Scandinavian coast, with the whole of the Baltic Sea. It is believed that this extensive marine region forms a unit area which may be compared with the two more southerly faunas of the east and west Atlantic.

The first volume to be completed in this ambitious series of handbooks covers the reasonably well-defined subclass of Tunicata, the Ascidiacea, which are sessile in the adult stage. It is interesting that although there have been a number of well-known specialists in the Tunicata among Scandinavian zoologists, the task of completing this first volume has fallen to a taxonomist from the United Kingdom, R. H. Millar, deputy director of the Marine Laboratory at Millport in Scotland. He has done much important work on ascidian morphology and systematics. His monograph, volume 30 in *Discovery Reports* (1960), dealing with material collected in the South Atlantic and Antarctic is especially noteworthy.

The present volume sets a high standard for those to follow. It begins with a brief descriptive introduction to the structure and development common to both simple and compound ascidians, with a table of definitions of anatomical terms used. This is followed by a classified list of all the species found, with a key to the families. The ordinal divisions and the arrangement are those of Berrill (1950), in which the subclass Ascidiacea is divided into two orders, the Enterogona, including the suborders Aplousobranchiata and Phlebobranchiata, and the Pleurogona, including one suborder, the Stolidobranchiata. Berrill's arrangement has been slow to gain acceptance, but it was used by Millar in his *Discovery* monograph and now seems to be on the way to general adoption. The remainder of the volume contains systematically arranged descriptions of 85 species found in the North Atlantic region. Under