

pharmacology by Rašková and Mašek. One hopes pathology will be adequately discussed in later chapters on individual toxins. This is not likely to be true of immunology, the chapter on which is confined to practical methods of producing antibodies, with no discussion of the recent interesting work on the different types of immunoglobulin produced or on cellular immunity.

In spite of a few shortcomings, this volume is essential reading for workers in the field. Later volumes should be equally essential, but the total cost of £60 or £70 is likely to deter most of us from buying them all.

D. E. DOLBY

SEAWEED SYMPOSIUM

Proceedings of the Sixth International Seaweed Symposium

Held in Santiago de Compostela, September 9–13, 1968. Edited by Ramon Margalef. Pp. xxiii+782. (Subsecretaria de la Marina Mercante, Direccion General de Pesca Maritima: Madrid, 1970.) \$25.

THIS well produced volume is almost twice the size of the proceedings of the fifth symposium and contains forty-two papers in the biological, twenty-five in the chemical and fifteen in the applied section. The majority are written in English, a few in French or Spanish. The papers are arranged in alphabetical order of authors in each section instead of a grouping by subject—the three sections presumably of the symposium, but these need not have been kept separate in the publication. The majority of papers deal with Phaeophyta or Rhodophyta, but two papers on *Scenedesmus*, one on *Skeletonema* and one on Quaternary diatoms have crept in.

Twenty years ago many papers on seaweeds were concerned with zonation on the shore, but although problems still exist in this field very few papers in this symposium deal directly with this topic. Several papers deal with light requirements, photosynthesis and/or growth of subtidal algae, for example, of *Macrocystis*, of a mixed community growing down to 130 m in the Mediterranean, another in the Canary Islands and another general account of the factors involved in coastal and clear oceanic water. Two interesting papers deal with mitotic rhythms and photoperiodic control of spore production in *Bangia* and *Porphyra*. In the latter, the strict control of life history from filamentous *Conchocelis* stage to thalloid phase is reiterated and the extensive vegetative propagation of the thalloid phase is also noted. In this paper there is a timely warning of the dangers of assuming that life histories determined under laboratory conditions are identical to those in the field. In another paper, however, the value of cultural life history studies in characterizing *Chaetomorpha* species is stressed. Two new taxa of *Porphyra* are recorded although here more cultural work seems desirable. Several papers fill gaps in our knowledge of algal distribution. The Laminariales figure again in interesting papers on *Eisenia*, *Sacchorhiza* and *Laminaria digitata*. Two papers feature transplant experiments and, from one, preliminary results show that the polymorphic *Chondrus crispus* retains its morphology under different ecological conditions. Few Rhodophytes have been artificially cultured through their life cycles and one paper is devoted to a careful study of several genera and will prove compulsory reading for anybody contemplating such research—the necessity to lower the nitrogen and phosphorus contents of the media is an interesting finding.

The papers in the chemical section are, as expected, largely concerned with the unusual polysaccharides synthesized by brown and red algae, while one paper provides evidence that the brown algae possess respiratory pathways similar to those of other plants. Papers in previous symposia have reported the seasonal changes in organic constituents in brown algae and this is now

amplified by a study of the tocopherols in these algae.

Commercial applications of marine algae are not well known to most scientists and the final section of this volume makes interesting reading and may stimulate other workers to study the pharmacological, manurial and preservative uses of seaweeds.

To summarize, this is an excellent book containing a wealth of interesting articles ranging over almost all aspects of seaweed research and illustrating the steady progress of the subject.

F. E. ROUND

NEW JOURNAL FOR ALGOLOGISTS

Algological Studies

Managing Editor O. Lhotský. No. 1. (Czechoslovak Academy of Sciences, Institute of Microbiology, Laboratory of Algology: Třeboň, 1970. Distributed outside Czechoslovakia by E. Schweizerbart'sche Verlagsbuchhandlung: Stuttgart.) DM 36.

THE Laboratory of Algology at Třeboň is well known for its studies on freshwater algae, especially the physiology and taxonomy of microscopic species and the problems involved in their mass cultivation. The laboratory has now begun publication of a new journal, *Algological Studies*, with an editor and editorial board drawn from the staff at Třeboň and an advisory council of internationally known phycologists.

The journal is primarily intended to serve the publication needs of the Třeboň laboratory, and the first number consists of papers describing work by resident and visiting phycologists. F. Hindák of the Institute of Botany at Bratislava contributes a taxonomic study of the family Ankistrodesmaceae (Chlorophyceae), especially the genera *Pseudococcomyxa*, *Chlorolobion*, *Closteriopsis*, *Keratococcus* and *Monoraphidium*. Czech phycologists have a reputation for dealing successfully with these difficult chlorococcalean families and this useful paper maintains the tradition; numerous taxa are clearly described, including three new species and three new varieties, and a key to the genera is included. Next, J. Růžička and J. Simmer describe a mathematically-based method for precise productivity measurements of autotrophic algae in cultivation, and S. Přibil and P. Marvan discuss the course of potassium uptake by cultures of *Scenedesmus quadricauda*. The following paper attempts to cover a difficult topic, that of dubious or incorrect designation of algal cultures used in experimental work: O. Lhotský reports a number of inconsistencies in the literature, especially concerning *Chlorella* but also involving species of *Chlorococcum*, *Ankistrodesmus*, *Euglena*, *Mesotaenium*, *Gomphonema*, *Anabaena* and *Polytomella*. He recommends a system of uniform designation of algal strains as suggested by Komárek in 1969. A second contribution by Hindák discusses biomass production of green algae in culture: constructional details of cultivation equipment are given and the results show that in both laboratory and field experiments a number of filamentous ulotrichalean genera (including *Ulothrix* and *Stigeoclonium*) give higher yields and simpler separation than the traditionally cultivated control, *Scenedesmus quadricauda*. This could be of great importance in commercial production. Finally, I. Šetlík, V. Šust and I. Málek describe a pilot plant for mass cultivation of algae in temperate zones in which the culture units can be used as glass-houses during the winter. Thus summer cultivation of algae is economically united with winter cultivation of higher plants, the latter probably in hydroponic units. Problems and advantages of this dual purpose scheme are considered, and the paper begins with an interesting general discussion of the principles of algal culture design.

It can be seen that this first number of *Algological Studies* is concerned with investigations of both a fundamental and applied nature and, while the primary use of