formation and many of the illustrations are like a lengthy instant replay. For nonspecialists and specialists alike, however, the majority of pertinent recent information is organized into a single framework.

The remaining six reviews summarize the haemosporidians of vertebrates. Much of the information presented in the chapter on Leucocytozoon, Haemoproteus and Hepatozoon is a digest of two previous reviews (Fallis et al., 1974; Garnham, 1966) but, after all, we lack much knowledge on the biology of the parasites in these genera. The section on reptile malaria provides a good review of the species named to date and the hosts they were recorded from. This chapter clearly demonstrates the difficulty in working with and identifying these forms. The chapters on bird and rodent malaria are the most detailed in this group, and the most complete. They are followed by the plasmoidia of nonhuman primates which adds little more than was covered by Coatney et al. (1971). This is reflected in the fact that only 8 of 58 references cited were published after 1971. Also, no immunology is covered in this chapter, a particularly telling deficiency, given the nature of the preceding chapter on rodent malaria. The final chapter on human malaria reflects more the chemotherapeutic and drug-related interests of the senior author than the immunological persuasion of the second author. A better balance between the two would have seemed more appropriate, though overall the section is concise (perhaps too!) and clear. The majority of illustrations in this volume are good, but a few are reduced to the point where a good imagination is essential. The biggest fault is in the correspondence between literature citations in the text and the references at the end of a chapter — usually typos that result in discrepancies, but too often references that are not found in the text and text citations for which there are no references. This might be understandable in the chapter by Dubey with 400 references (20 such errors) but certainly could have been avoided in a chapter like Manwell's with only 55 references (9 errors). Although such mistakes are frustrating, they do not detract seriously from the value of this volume as a reference for all professionals interested in the study of parasitic protozoa. More important than usefulness as a reference, perhaps, is that most chapters (particularly 2 and 6) foster many ideas for future research endeavors.

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SHALLOW-WATER SPONGES OF THE WESTERN BAHAMAS. Experientia Supplementum 28.
My compliments to the Swiss foundations whose contributions made the printing of such an elaborate work as this possible. It has the style and comprehensiveness of the classical sponge monographs, extinct since the nineteen-thirties, and it is enriched by descriptions of living populations and studies of their environment by direct observation. This long-needed summary forms a new basis for future studies in West Indian sponge biology.

One does not have to be one of the handful of professional sponge systematists to use this book. An introductory section explains the classification of higher taxa, phylogenetic concepts and taxonomic and nomenclatorial procedures, as well as modern criteria for species separation, interspecific variability and possible mechanisms of speciation. The non-specialist will certainly appreciate 21 pages of well-illustrated glossary.

In the systematic section, 82 species are carefully described and illustrated by line drawings and black and white photographs. Eight species, two subspecies and three genera are introduced as new. Synonymies and taxonomic discussions are the result of diligent study of literature and museum materials. We are grateful that complete reviews of the most important historical collections, those of Duchassaing & Michelotti (1864), Schmidt (1870) and Carter (1882) are presented in an appendix, each introduced by historical notes, including a brief biography of the workers.

The ecological part has its roots in the systematic section where abundance and size range of common sponge species are tabulated. Lagoon and bank environments of Bimini are mapped and the different habitats described. Relative abundance of sponges and other important epibenthos is analyzed from 100 m² quadrat counts. Similar data are given for stations occupied during the cruise of R/V J. A. Oliver to the Bahama Islands of Eleuthera, New Providence and around Andros. Zoogeographical considerations, focusing on the West Indian region, a wealth of references, and a detailed index conclude the volume.

One can disagree with the replacement of some well-established names by virtually obsolete senior synonyms, a procedure which is discussed and defended by Widenmayer on pp. 52-53. It is difficult to explain to colleagues in biochemistry or ecology, however, why the few species they could always readily identify and remember are no longer called "Verongia fistularis, "Haliclona rubens, or "Callyspongia plicifera." Selecting a neotype for Spongia rubens Pallas and redesignating the type species of Callyspongia, for example (after petitioning the International Commission of Zoological Nomenclature to set aside the unfortunate original choice), could have prevented much confusion. Personally, I regret the choice of the Upper Devonian Nepheliozoon as the type-genus of a large (10 genera: e.g., Petroia, Xestospongia) recent sponge family, even if habit and structure (spicules are not preserved) agree well, and better preserved
late Paleozoic hexspongioids are included. In view of the successful use of chemical, physiological, and histological characters to discover evolutionary relationships between genera, families, and higher taxa, I would have favored a recent genus as representative of this abundant group.

The production quality of this large format (23 × 32 cm) book is excellent and its price very reasonable, certainly possible only because it was subsidized by a grant. On the otherwise very tasteful dust cover I would have preferred a picture of a live sponge, rather than the image of a very dead, dry and torn Callyspongia — pardon me, Spinosaella vaginālis.

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**Biology of Bryozoans.**


Publication of the *Biology of Bryozoans* marks the appearance of the third major work concentrating on these colonial organisms since the 1970 book, *Bryozoans*, by J. S. Ryland (Hutchinson University Library), and it rather nicely compliments the one edited more recently by G. P. Larwood (1973, *Living and Fossil Bryozoa*, Academic Press). Not since the turn of the century have so many workers in such diverse geographic locations put forth such a concerted effort to understand the natural history of these important colonial organisms. In the preface to *Biology of Bryozoans*, the editors expressed the hope that this collection of sixteen papers would prove useful, not only to other bryozoologists but perhaps more importantly to a wider audience of invertebrate zoologists and paleontologists whose main taxonomic interests are something other than the bryozoans. The emphasis is indeed broad enough to convince me that they have succeeded. I am especially pleased with the fact that about half of the papers deal directly, or in large part, with larval ecology, morphology and development, an understanding of which is absolutely essential if we are to develop cogent ecological evolutionary hypotheses.

Those natural historians interested in ontogeny as it relates to evolutionary history will find the papers by J. D. Farmer ("An adaptive model for the evolution of the ectoproct life cycle") and C. Nielsen ("Phylogenetic considerations: The protostomian relationships") well worth a careful reading. Although I must come down on the side of Nielsen who demonstrates that, based on information presently in hand on larval development, bryozoans indeed are protostomes whereas phoronids and brachiopods are deuterostomes, his paper does not distract from Farmer's well-reasoned position that phoronids and ectoprocts may have had a common ancestor sometime during the Cambrian Period. Furthermore, I think that paleontologists will be especially interested in the paper by D. P. Gordon ("The aging process in bryozoans"), wherein he reviews in detail the formation of "brown bodies" in modern species and concludes that they are not excretory phenomena, as many of us had previously believed, but rather are a necessary part of a rejuvenation process permitting not only the extension of the life span of an individual zooid, but, of course, that of the entire colony as well. The concept of selection for zooid regression leading to an invigorated regeneration is a most intriguing evolutionary phenomenon. One wonders whether a more careful study for the presence of "brown bodies" in fossil stenolaemates might eventually permit the documentation of the evolutionary development of such a regenerative system, which, in turn, might be correlated with patterns in evolutionary longevity of now-extinct taxa.

Brief mention should be made of the continuing studies of J. E. Winston (née Dudley) on feeding in bryozoans, ones which are especially well-suited to a more detailed examination of resource partitioning in various ecological settings, and indeed it seems as if these studies are underway (see J. E. Winston, *Bull. Mar. Sci.*, 28: 1-31, 1978). T. J. M. Schopf continues to study possible correlations between isozyme patterns and the phenotype of bryozoans occupying different environmental settings ("Population genetics of bryozoans"). This work was begun by J. L. Gooch and Schopf in the 1960's and has led to some interesting results; it is unfortunate that other marine laboratories have not gotten involved in such genetic-phenetic studies of other bryozoans. I believe that the data could be well worth the effort.

In summary, although *Biology of Bryozoans* is directed principally toward the invertebrate zoologist working on colonial systems, I recommend it highly for the non-bryozoologist because there is much, first-rate natural history contained within these pages, and we look forward to the continuation of such excellent studies in the near future.

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**Aspects of Ecology and Zoogeography of Recent and Fossil Ostracoda. Proceedings of the 6th International Symposium on Ostracods, Saalbach (Salzburg), July 30-August 8, 1976.**

*Edited by Heinz Lößl and Dan Danielopol. Dr. W. Junk b. v., The Hague. D Gld. 150.00. xii + 521 p.; ill.; general index. 1977.*

The forty papers contained in this symposium proceedings are grouped into four categories: Introduction; General Aspects and Morphology (10 papers); Ecology and Zoogeography (14 papers); Paleozoology and Paleozoogeography (15 papers). A fifth section billed as "Abstracts of the Discussion Sessions" unfor-